Inquiry (IQ) Cases

Problem-Based Learning in the Years 1 and 2
Version 2

Facilitator Manual, 2019/20

Introduction

PBL has several unique strengths as a learning method. It *engages* students in active learning; it compels students to *take responsibility* for their learning; it develops and *supports problem-solving skills;* it *stimulates self-directed learning;* and it *fosters development of communication, teamwork and leadership skills*. NSU MD uses different PBL formats that share these advantages but that also emphasize and develop different student skills.

In Fundamentals, Hematology and the GIHNER blocks in Year 1, cases use sequential disclosure of a patient case over several 2-hour sessions. Students read each part aloud and identify facts, hypotheses and what they would like to know after each part. At the end of each session, the students develop a list of **Learning Objectives** (**LOs**) and divide them among the students (i.e., each student takes one objective, researches it, and prepares a presentation for the rest of the group). Students are expected to use interactive oral presentations, condensing several hours of research into a 5 minute interactive oral presentation (e.g., inserting questions into a PowerPoint, drawing pathways, quizzing the other students, demonstrating physical exam findings, role playing breaking bad news, etc.). Most NSU MD students have mastered the art of the interactive, short, well-researched presentation at the end of GIHNER, a skill they will need in Year 3 and beyond. Students also prepare written materials with more detail and references that are included in a study guide for their group. Student groups are called **PBL Groups,** the cases are **PBL Cases,** and discussion of group dynamics at the end of each session is called **Feedback**.

At the end of each case, the students are provided with **Case Objectives** determined by the faculty who wrote the case. If the group missed any of the faculty Case Objectives entirely, students are expected to research them after the case is completed. Students often identify and research topics that didn't occur to the faculty, greatly expanding their learning. However, only faculty Case Objectives are fair game for exam questions!

In CPR (the last block in Year 1) and BBB (the only block in Year 2), students engage in a similar approach but all the pertinent information is presented on the first day. There are typically two cases each week, allowing students to compare and contrast different problems. On the first day, students spend one hour on each case reading the scenario, discussing the problem, and formulating learning objectives. Each case includes a short **Goal** that summarizes expectations for student learning and helps students determine their learning objectives. On the second day students focus on one of the cases, discussing what they have learned and wrapping up the case. On the third day, students focus on the second case. The cases are called **Inquiry Cases (IQ Cases).** Student/faculty groups are called **IQ Teams**.

For IQ cases, all students are expected to research all the learning objectives identified by the group for each case, rather than dividing up the learning objectives among students as occurs in the earlier PBL cases. The

second session should be an interactive discussion of each LO – one student may take the lead but all the others should contribute since they have all researched the topic. PowerPoint presentations are not helpful in this format – rather, students will be using the white boards, flip charts, iPad content sharing to work through concept maps and pathways. At the end of each case, the faculty Case Objectives are distributed with the same expectation for researching topics that were missed. Feedback at the end of each session is called **Check-out**.

IQ sessions include SOAPP presentations, a method of presenting clinical cases, to help prepare students to give well-organized focused presentations in their preceptor's offices and when they get to clerkships in Year 3. The IQ format requires them to discuss pathophysiology, physiology, and other objectives when all of them have researched the same topics – it encourages interactive discussion and challenging other students to defend their explanations.

<u>Faculty Facilitator Responsibilities</u>

- **Be prepared.** Students appreciate faculty who know the case and keep them on track without dominating the team. Read the case, read the facilitator guide, and attend all the IQ facilitator meetings to discuss cases. If you have questions, contact the block directors. The Facilitator Guides for IQ are much less detailed than those for PBL. The facilitator sections are in red font, and the student sections are in black font. Questions students should consider as they read the case during Session 1 are followed by the information they should be discussing during Session 2 and appear after each stopping point in the case (a dotted line or the SOAP[2] line, see below). Remember, the students are in charge of learning and teaching one another and you are there to facilitate the team – so you do not need to be a content expert, you just need to know if they are on the right track!

- **Help ensure that your IQ team begins and ends on time.** It is important to both begin and end on time. Students are expected to be on time as part of their professionalism and their responsibility to the team, and faculty need to set a good example. Students may also have other activities scheduled following IQ sessions.

- **Distribute case materials to your team at the appointed times.** IQ cases will be distributed via iPads at the beginning of the case. Case Objectives will be distributed via iPads at the conclusion of the case.

- **Create a productive IQ environment.** Trust the students and the IQ process. Be respectful toward the students. Encourage the attitude that there are no dumb questions and that the environment is a safe one for students to say they do not know or do not understand. If there are significant problems, meet with the student(s) as soon as possible to address them and inform the Block Directors of the situation.

- **Give quality feedback to the students during Check-out.** Set an example to foster quality feedback from the students to each other.

- **Facilitate all the cases to which you are assigned.** An occasional absence can be filled in by the backup facilitator or the block director(s), but you will be responsible for assessing the students based on their performance throughout the course and for helping them develop a well-functioning team (of which you are also a member!). If you have an anticipated absence, notify the block director well in advance. If you have an emergency, notify the block directors(s), at least one of the students in your team, and Ms. Maria Ortega, Manager of the Pre-Clerkship Curriculum (<u>mortega@nova.edu</u>) by email. This is similar to the protocol the students in your team are expected to follow for unanticipated absences.

- **Take notes on student performance and complete Weekly Competency Concerns Reports and IQ Facilitator Narrative Assessments on time.** In order to complete student assessments, facilitators need to keep track of specific student participation in the IQ process. If you have concerns about performance of a student, discuss them with the Block Directors(s) who will meet with any student who is not meeting expectations as either a team member or team leader. **See Appendices D and E.**

- **Handle any problems as soon as possible.** Issues with group dynamics should be addressed during Check-out at the end of the session. Significant issues with individual team members should be addressed during a private meeting.

- **Complete student assessments on time.** You will be providing formative one-on-one verbal feedback to the students midway through the block; formative written narrative feedback midway through the block; formative one-on-one verbal feedback near the end of the block; and summative narrative comments (which will go into the student's permanent record) at the end of the block. Block Directors will take these assessments and your weekly competency reports into account when assigning ratings in each competency. These assessments must be completed on time to comply with NSU MD policies on mid-block feedback and timeliness of final grades, which are designed to meet LCME standards. Students who are at risk for failing an IQ competency at the time of mid-block feedback need to be notified through the Block Director.

- **Participate in IQ Facilitator faculty development meetings.** You will review how the cases and teams "performed" for the cases that were just completed, and discuss the upcoming cases. In CPR, these meetings will usually occur on Fridays at noon, but timing will change occasionally; please refer to the facilitator schedule. There will also be additional scheduled sessions specifically for faculty facilitator development. For any changes that occur during the course, you will be notified by email.

Implementation of IQ

The First Session of a Block with a New Team

Forming. At the start, team members are feeling each other out; students are unclear of their role and their position in the team. **The faculty facilitator's job is to orient the students and create a safe learning environment.**

Start with introductions. Initially, the faculty will model how much each person should say.

Set team norms. Read through the IQ Norming Checklist (Appendix A) aloud. Students and faculty agree on a list of expectations for the team and set the climate of learning. The team must also agree on logistics and the learning environment. Common topics are:

Logistics
- Appointment of a student leader- each student must act as a leader once through some system of rotation. The facilitator will then designate leaders for the remaining cases based on each student's initial performance as a leader.
- Appointment of a team scribe who will record the team's work on the white board and/or iPad.
- Appointment of a timekeeper (optional).

Learning environment
- iPad use in class
- Participation
- Respect for others
- Preparation

This forming time is critical. If expectations are clearly articulated at the start of the team, this will prevent trouble later in the block. The faculty person will ask the team to make suggestions for effective teamwork: "From your past experience, what has made a team work well? What climate? What behaviors?"

It may be helpful to ask a student scribe to make a table and fill it in, for example:

Students	Facilitator
Show up on time	Show up on time
Prepare	Help us stay on track
Contribute to every team	Create a safe learning climate
Speak honestly during assessments	No surprises
Respect one another	Do not monopolize the discussion

Session 1 of a Case: Students read the case.

In most weeks, students will do two IQ cases. On the first day, students will read both cases (one case the first hour, one case the second hour) and identify learning objectives for both cases. When they return on the next scheduled day, they will finish the first case. On the next scheduled day, they will finish the second case and mop up remaining issues. In CPR, the first day is generally a Monday and the next two days are generally Wednesday and Friday. In BBB, IQ cases will run on Tuesdays and Thursdays and Session 1 will alternate between those days.

The faculty should try to understand the overall context of the curriculum during which their IQ sessions fall. Some of this will be covered in the IQ Facilitator meetings. The facilitator guide for the case will include an explanation of the key content to increase the comfort of the faculty. It will include a list of Case Objectives so that the facilitator will have a yardstick to measure the progress of the team. **Faculty must not give their facilitator's version of the case to the students.**

In the beginning, the facilitator may need to model the way IQ works, then evolve to more of a coaching role, then fade into the background as the students take control of team functioning.

1. **Check-in.** Take no more than 5-10 minutes at the start of the session for each member of the team (including the facilitator) to report on personal activities since the last team meeting. This catches the students up with one another socially and helps the team get down to business efficiently.

2. **The team appoints a student leader, a scribe, and a timekeeper (optional) on a rotating basis**. The leader changes for each case and this person is in charge of team functioning: calling the team to order, asking for volunteers, taking charge if things become chaotic. The scribe will record relevant information on the white board, using a four-column template similar to that for PBL– Facts, Hypotheses, WWWLTK (What We Would Like to Know), Learning Objectives (LOs).

3. **Goal**. A student reads the goal of the case out loud. The goal is very useful for helping students focus their discussion while reading the case.

4. **Read the case**. Students read through the entire case, **stopping after every paragraph or at each dotted line** in the student version, to identify words, terms, and concepts that need further exploration. Media resources (photos, x-rays, and pathology specimens) may be provided in the case. Students should develop a differential diagnosis based on the chief complaint – there is a prompt in the student version that indicates when they should do this. **Students should brainstorm before doing research on computers/iPads to generate a focused differential diagnosis.**

5. **Silence**. The faculty facilitator should suffer out a long and often awkward pause to allow the students an opportunity to start the discussion. If the facilitator jumps in too early, this will stifle student participation. When in doubt, wait longer! NSU MD students have been doing PBL and are used to working in teams, but they will need to figure out how to move through a case more efficiently, which may take some time at first.

6. **Hypothesis generation.** The students begin to explore and ask questions about mechanisms of action, pathophysiology, and epidemiology. The scribe will go to the board and record the ideas of the team. The faculty should hold their tongues, but if the team is floundering, the faculty facilitator may use the questions

from the facilitator guide to steer the students to the objectives if they are off track. **If they get way off track, remind them that there is a goal for the case!** General facilitation statements may also be used, for example:

- Can you start to make some linkages between these concepts that you have put up on the board?
- What do you think is going on here?
- Let's go deeper to find out the how this reaction works.
- What is going on at the cellular level?
- What does this treatment tell us about the functioning of the immune system?

7. **Questions that cannot be answered**. When the students come to the limits of their knowledge or didactic reasoning, they have found the learning objectives of the case. **If facilitated well, these student learning objectives will cover the case objectives** that are written in the facilitator guide. The team scribe will record the LOs on the white board. **All students will research all the LOs identified by the team**. This is critical because when the team returns for the second part, each team member must be knowledgeable in order to engage in discussion. It is common for students to identify certain "personal" learning objectives that may be important but not central to the case.

8. **SOAP² (SOAPP) line**. In each IQ case there is a "line" indicating where students should prepare their SOAP² presentations for the next session. Only the information up to the line should be used for **S**ubjective, **O**bjective, and **A**ssessment, while information after the line and from out of class research is used for **P**lan and **P**robe. SOAP² lines are placed at a point in the case where there are still a number of possible diagnoses to be considered. **See Appendix C for more information about SOAP².**

9. **Check-out.** The last 10 minutes of **each session** is reserved for team, self and faculty facilitator assessment. In the beginning, the faculty may have to model this behavior, but the student leader should assume responsibility for promoting constructive feedback. For example: "Okay, we have 10 minutes left; it is time for check out. Let's go around the room and do our team and self-evals. Everyone should comment on their own participation and the process of hypothesis generation. Identify one strength and one area to build on." Students should **not** be asked to make general comments by saying something like "How did things go today?" Inevitably, this kind of statement will return bland comments like, "Things were fine, I thought that we worked together well." High-quality feedback is critical to insure that the team is functioning appropriately. Facilitators should discretely take notes about student participation and contribution to the team. **See Appendix B for Check-out strategies.**

Time between Sessions

During this time, **students in the team will research all the LOs identified by the team**. For each hour of class time, they will have about 2-4 hours of research. Students should come to the session on Day 2 prepared to contribute what they have learned to a team discussion of their objectives.

Note: It is against NSU MD policy for students to post any materials for PBL or IQ to Facebook or other social media sites that are not secure.

Session 2 of a Case: Students Discuss the Learning Objectives of the Case

1. **Check-in** should be minimal or skipped entirely to allow adequate time for other discussion.

2. **Refresh**. All students <u>except</u> the leader will prepare a SOAP^2 presentation prior to the session. **(See Appendix C.)** The facilitator will pick one student at random (or devise a method for such) who will then give an oral SOAP^2 presentation. SOAP^2 plans should either defend the plan in the case or explain what should be done differently, rather than repeat the case plan. The presentations should be followed by questions/discussion.

3. **Application**. Students will apply their self-study to clarifying the learning points. They will discuss, draw diagrams, and disagree. These should not be mini-book reports or reading material off an iPad screen. This is a highly interactive time. If it's not, a simple reminder to "Go to the board" will usually be effective. Facilitators should help make sure the students interact and stay on course to cover the objectives. Since all students should have researched all the learning objectives, each student should contribute to all phases of the group discussion.

4. **Reconciliation**. At the end of a case, the team will compare the LOs they generated to the Case Objectives articulated by the faculty. The facilitator will pass out the objectives prepared by the faculty. This is quality control for the team. If certain Case Objectives were not discussed, the team must figure out why this happened and come up with strategies to address the objectives that were not explored within the team. Cases do not end on the second day! Students may have further IQ work to complete.

5. **Check-out.** The last 10 minutes of **each session** is reserved for team, self and facilitator feedback. See the description of Check-out under Part 1.

Expectations for all students in IQ
- IQ session are mandatory
- Students will be on time for all IQ sessions
- All students contribute to analyzing the case during Session 1
- All students research all LOs and come to Session 2 prepared for an in-depth discussion
- All students except the Leader prepare a SOAPP- student(s) will be chosen at random to present
- All students make significant contributions to the discussion of each Learning Objective
- All students provide specific, helpful feedback during Check-out
- Excused absences for IQ sessions can be granted only by the Office of Student Affairs
- If a student misses an IQ session due to an unexpected problem, the student must notify the Block Director, the IQ facilitator, and at least one other team member as soon as possible
- All students complete facilitator evaluations and peer evaluations as required

Expectations for the Student Leader in IQ
- Monitor the team's time management for Session 1
- Ensure that Learning Objectives (LOs) are organized and finalized
- Outline the critical content for each LO
- Prepare a tentative schedule for discussion of LOs in Session 2
- Keep team on track in Session 2
- Encourage equal participation by all team members
- Lead and encourage quality feedback by all team members

Appendix A: IQ Norming Checklist

Dr. Kiran C. Patel College of
Allopathic Medicine
NOVA SOUTHEASTERN UNIVERSITY | NSU Florida

IQ Team Norming Checklist

Please discuss the following IQ norms at the beginning of each block or new IQ team, as well as any other norms you may feel are important to the optimal functioning of your team.

Review Non-Negotiable Norms. These have been established by the faculty and are not flexible.
- All IQ team members are expected to be on time and present for the entire session.
  - o If a student will miss a session for an excused absence, the student will notify the Block Director(s), IQ facilitator and other members of the team. The student will make up the session by contributing to the learning of the team in a manner that will be determined by the facilitator, other team members, and/or the block director(s).
- Cases are read and discussed one paragraph at a time.
- At the prompt in each case, students will develop an initial differential diagnosis without using external resources.
- All students will research all team generated learning objectives.
- All team members are expected to contribute to the development and discussion of learning objectives in a meaningful way.
- The IQ team must promote a safe environment in which team members can feel free to express uncertainties and provide non-judgmental feedback.
- Debriefing check-out must take place at the end of every IQ session (10 minutes).

Review expected professional behaviors and discuss why they are an important part of the NSU MD College of Medicine learning environment.
- Students should feel free to provide study materials to other students in their own class, but sharing IQ learning objectives or study notes with students in subsequent classes or outside NSU MD is a violation of professional behavior. The use of Facebook or other non-secure social media sites by students for any IQ materials is strictly prohibited.
- If iPads are used during IQ sessions, documents and sites that do not relate to the session should not be accessed (e.g., email, Facebook, web surfing, working on other assignments).

Review additional norming questions.
- What expectations do students have of one another?
- How much should each team member participate in the discussion?
- What are your expectations of the faculty facilitator?
- How will the leader be assigned?
- How will the scribe be assigned? Will the team use a scribe for all sessions, or just Session 1?
- How will iPads be used?
- Will the team take a short break during each session? Will there be food?
- Does the team want to write answers to official learning objectives at the end of each case to use as a shared study guide?
- Are there any additional norms that the team would like to discuss?

Appendix B: Check-out: A Developmental Strategy for IQ Facilitators

The following is a developmental strategy for guiding check-outs that will move your IQ team from the comfort of evaluating and improving the group process to gaining comfort with the challenges of self-evaluation and peer-evaluation. Our students were expected to give and receive peer feedback (written and in small groups); in IQ, we want them to further develop this skill, which they will need for the rest of their careers.

It is important for teams to be functioning reasonably well and for a "safe" environment to have been established before challenging too much with peer evaluation. It may be helpful to pose your question(s) to the team and then give all of them 60 seconds of silence to write down notes for themselves before beginning the check-out process. Don't do this more than once a week and let them know during Check-In that you'll be posing some Check-Out Questions at the end of the day, so they can adjust their timing of the case discussion.

Suggested Check-out Questions:

Early weeks:
1. *Focus on group formation.* "State one thing that worked well in IQ this week and one way that the team might improve."
2. *Focus on group process.* "Take 1 minute and write down answers to the following:
     A) How does IQ facilitate your understanding of the concepts in the case?
      B) What might the team have done differently that would have better supported your learning?"
Be sure to take note of the important ways that the team wants to improve and consider reminding them about the major points the following week. This can really help your group to make very early group process corrections/improvements.
3. *Focus on group process improvement.* "How has our team improved since the beginning?"
4. *Focus on self-evaluation and self-awareness.* "Tell us one way that you help the team and one thing that you could do (or not do) that would benefit group learning."

Later weeks:
5. *Focus on peer-evaluation.* "Give feedback to at least one team member about something that they did that was helpful to you or the team."
6. *Focus on peer-evaluation.* "In your Check-out comments today, challenge yourself to tell the person sitting to your left something that they have done well over the last few weeks and something that they could do (or not do) that would help the team." If team members are struggling to think of things, encourage them to get help from the rest of the group.
7. *Focus on self-improvement.* "Please include in your Check-out comments one way that you think you have improved during IQ in this block and one thing that you still want to do better."
8. *Focus on peer-improvement reinforcement.* "Please include in your Check-out comments one way that you have seen another team member make a change that has been beneficial to you and/or the team during this block."

Appendix C: SOAP² (SOAPP)

SOAP² Components:

- **S**ubjective summary of the pertinent history
- **O**bjective pertinent physical findings, labs, x-rays
- **A**ssessment to analyze by comparing and contrasting possibilities. Narrow the differential (3-4 most relevant options).
- **P**lan management for the patient.
- **P**robe a case-related issue for self-directed learning (The second P of SOAPP is to answer your questions.)

IQ SOAP² Presentation Guide

SUBJECTIVE:
Case Frame: " Patient's nam e" is a "ID –ag e, g ender , other r elevant dem og raphics" with **pertinent PMH,** who presents with **CC**.
HPI: Include brief story that completely and succinctly describes the presenting complaint and associated symptoms, inclusive of pertinent risk factors, positive review of systems and pertinent negatives. The HPI should be both chronological and provide a logical sequence of events.
Supporting History: Pertinent **PMH**, **FH**, **SH**
Medications are_____.
Allergies (describe reaction)_____.

OBJECTIVE:
PE was notable for_____ (include pertinent positives and negatives only).
Labs were significant for_____ (include pertinent positives and negatives only).
Studies showed _____ (include pertinent positives and negatives only).

ASSESSMENT:
Patient's clinical picture is most consistent with **" your t op di agnosis"**_____because of these symptoms_____, these signs_____, these labs_, and these studies_____.
Alternative diagnoses to consider are_____. These are less likely because ____
_____.

PLAN:
My plan for **evaluation and treatment** is_____. I would recommend_____for follow-up.

PROBE:
While doing my research I looked up_____. (Think about something related to the care of this patient about which you are unsure. Formulate a question and find primary sources that help you answer it.) Provide article, resource, or reference to your team.

Appendix D

<u>Narrative Facilitator Assessment for IQ</u>

Student: _____ *Facilitator:* _____ *Date:* _____

<u>Instructions to Facilitator:</u> Please write comments for each competency area, providing specific examples where possible.

Behaviors	Targeted Areas for Improvement	Areas of Strength
Practice Based Learning & Improvement (PBLI): Research Skills ⋅ Uses appropriate resources to obtain information		
Practice Based Learning & Improvement (PBLI): Reasoning ⋅ Generates an appropriately prioritized differential diagnosis based on facts ⋅ Justifies reasoning by synthesizing information pertinent to case		
Practice Based Learning & Improvement (PBLI): Self-Assessment and Self Improvement ⋅ Performs constructive self-evaluation of learning ⋅ Accepts and acts on peer and facilitator feedback		
Interpersonal Skills & Communication (ICS): Interpersonal Skills as a Team Member ⋅ Maintains consistently respectful relationships with other team members ⋅ Considers alternative explanations and suggestions provided by other team members ⋅ Provides constructive feedback to individual team members and team as a whole		
Interpersonal Skills & Communication (ICS): Interpersonal Skills as a Team Leader ⋅ Sets an agenda and helps the group maintain a focused discussion ⋅ Encourages participation by all team members		
Interpersonal Skills & Communication (ICS): Information Sharing ⋅ Shares knowledge with the team ⋅ Helps peers clarify ideas		
Ethics & Professionalism (EP): Work Habits ⋅ Consistently well prepared for discussion of objectives ⋅ Consistently well prepared for SOAP[2] ⋅ Consistently on time and prepared to begin work		
For end-of-block summative assessment only: **Global Assessment Comments (for inclusion in MSPE):** **Additional Global Assessment Comments if any (for internal use in NSU MD):**		

Weekly Student IQ Competency Concerns Report   IQ Team # ___   Facilitator _____

NOTE: This is an internal report for use by Block Director(s) and will not become part of any student's permanent file. However, information in this report may be used by Block Director(s) for mid-block formative feedback and determination of final ratings for the EP, ICS, and PBLI competencies in the block.

Case #s	Professionalism		Interpersonal Skills & Communication	Practice Based Learning and Improvement		
Student Name	Late/Absent for a Session Notification?	SOAP[2], discussion, or fulling team role (e.g. as team leader)	Appropriateness of participation Quiet, domineering, disrespectful, balanced	Quality of constructive feedback during check-out	Response to feedback or no/poor self-evaluation	Any other concerns or accolades?

Have you discussed significant or persistent concerns with the student(s)? YES □   NO □ If YES, please comment below.

Have you discussed significant or persistent concerns with the student(s) Learning Community Mentor? YES □   NO □   Please comment below.