

Problem-Based Learning Example

Scenario

Two weeks ago Devon Remus, 33, a woman of color who lives with her husband in State X waited in the clinic of IVF Inc in State Y to have embryos placed in her uterus by Dr. Lucielle Williams. The embryos were produced in the clinic three days earlier by mixing Devon's eggs with her husband's sperm, a procedure called in vitro fertilization (IVF). Ellie Foster, a white woman from State Y, was also at the clinic to have Dr. Williams place in Ellie's uterus embryos produced in vitro from her eggs and her husband's sperm. In the waiting room the husbands, Raymond Remus and Steve Foster made small talk, while down the hall a new approach to their becoming fathers proceeded without them.

One week ago Dr. Williams' laboratory technician informed her of a slip up—three of Remus' embryos has been placed in Ellie Foster's uterus along with several of the Fosters' own embryos. Dr. Williams realized that the situation was potentially serious. For example, what if the only pregnancy to result were from a Remus embryo that had been implanted into Ellie Foster? She consulted her advisors on the board of IVF Inc. who decided quickly that they needed confidential guidance—IVF Inc. were experts in the biomedical technique of IVF, but not in probability, law, ethics, counseling, public relations, intercultural mediation, and other issues that might need to be addressed. One of the board had heard that some professors in biology education at the University of Massachusetts used ill-defined problems to teach about biology in its social context. (Note: Neither state X nor Y is Massachusetts.) After some discrete inquiries, the IVF Inc board agreed to let me, a professor at UMass, get whatever help I needed to produce a set of "briefings" for them in two weeks.

These briefings need to provide well-structured information about different issues the board needs to help IVF Inc., the couples, and other parties who may come to be involved think about the issues and what they could do. Two weeks is a short time, but the board wants a minimum of two days after that to take stock before the women come to the clinic to confirm whether or not they are pregnant. To meet this deadline, I have to enlist your help. Keep in mind, your mission is not to recommend to IVF Inc how to (re)solve the problem or tell them what to do. Your mission is to think through what issues might need to be addressed by different parties, do research on them, rethink the issues and do more research, and eventually present what you learn in an understandable, digestible format that can be used by help IVF Inc., the couples, and other parties who may come to be involved when they think about the issues and what they will do.

Knowledge Claims

- Ellie Foster will give birth to the Remus' biological child.
 - ◆ We know this because three healthy Remus embryos were implanted into Ellie and the probability that one will come to term is X.
 - ◆ Revised Knowledge Claim: Ellie Foster may gestate an egg from the Remuses.

- ◆ Actions: Prepare each couple for this fact. Give a range of options for each couple to consider, separately and together. Prepare a briefing of IVF, Inc. on the range of options they might present to each couple to expand their thinking.
 - ◆ Questions: Would the Remuses be willing to have their biological children brought up by the Fosters? Will the Fosters want to keep the child as their own?
- Ellie Foster has the option of aborting the fetuses.
 - ◆ Actions: Counsel Fosters to abort if they are pregnant. Counsel Fosters to abort if tests can show they are pregnant with a fetus from Remus egg. Make explicit that abortion and abortion-related tests will not be discussed unless Fosters raise it. Invite Remuses to see themselves as egg donors to Fosters if indeed one of their eggs has implanted in the Fosters. Invite Fosters to see themselves as gestational surrogates if indeed one of Remus' eggs has implanted in Fosters.
 - ◆ Questions: Can embryos be selectively aborted? If so, what is the risk to the other embryo? Is there information about the actions taken by couples in other embryo mix-up cases? Is there information taken by other couples using IVF, encountering problems, and reassessing their anti-abortion position? What philosophical positions concerning definitions of "life" and "transhumanism" philosophy could be helpful in one or another of possible eventualities?
- IVF procedures fail anywhere from 50% to 80% of the time, depending upon how "success" is defined.
 - ◆ Actions: Patients should be informed of all the statistics surrounding failure rates, reasons for failure, and the potential complications arising from the procedure(s).
 - ◆ Questions: In what different ways is "success" defined? What are the sources for these claims? How do each of the factors affect "success"? How do these figures vary from clinic to clinic; country to country? How are the figures on success rates presented to patients?
- None of the embryos might implant.
 - ◆ Actions: Because the rx party might blame the error for this outcome, do not tell them of the error. What is rx?
 - ◆ Questions: What are the reasons for IVF failing? What are the rates of success for IVF treatment?
- One of the Foster's embryos might implant, and none of the Remuses.
 - ◆ Actions: Don't tell the couples until the 12th week.

- ◆ Questions: What is the likelihood of this condition? Is it ethical and/or lawful to not disclose the nature of the mix-up as soon as it is known about?
- One or more of both embryos might implant
- Any implanted embryos might spontaneously abort
 - ◆ Actions: IVF, Inc. decides not to tell the Fosters of the mix-up until x weeks into the pregnancy.
 - ◆ Questions: With what frequency do spontaneous abortions happen? How many weeks into the pregnancy before the risk of spontaneous abortion drops away?
- Embryo mix-ups have occurred before in IVF clinics
 - ◆ Actions: Require clinics to institute and monitor strong policies and procedures that will lessen the possibility of this happening.
 - ◆ Questions: Do such policies and procedures, in fact, exist? Have such policies been broken and what have been the consequences, if any? Who would do the “requiring”—state, federal, professional organizations? How do such policies and actual practices vary from state to state; country to country? How often have mix-ups occurred in USA? In other places? What have been the consequences of mix-ups?
- Malpractice suits are possible
 - ◆ Questions: What is the record of malpractice losses in IVF area? What compensation can the company expect in the event that this is taken to court? How do insurance corporations cover a) clinics and b) patients? What value is placed on IVF children? What is the larger picture of Biotech and Medical malpractice lawsuits?
- Shared children and interaction among families are increasing in society.
 - ◆ Action: Make available a range of Decision-Making Process between families for the two families to consider if there is an unintended pregnancy.
 - ◆ Questions: what contracts may be needed and/or have been used in the past? Dysfunction and changing attitudes of family unit? What does sociological research say about trends of current families? Does the political and social role of families in society illuminate/modify the action proposed?

Substantive statements (including briefings)

- Alternative models for Fosters to try on if they gestate and give birth to a child from a Remus egg.
- Briefing for IVF Clinic

- Briefing for IVF
- Embryo mix-ups in IVF clinics & Consequences
- Probability of Ellie Foster pregnant from one or more eggs of Remuses
- Possible Embryo Inquiries
- Standards for IVF Laboratories & Problems
- Non-disclosure

MIT OpenCourseWare
<http://ocw.mit.edu>

WGS.693 Gender, Race, and the Complexities of Science and Technology: A Problem-Based Learning Experiment

Spring 2009

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.