Facilitator Notes: Under Pressure

As in ethics discussion cases in recent years, the NIH Committee on Scientific Conduct and Ethics (CSCE) has developed one longer, more complex case focused largely on maintaining ethical integrity in situations where external or internal factors lead to a high-pressure laboratory environment. The intention of using a longer case is that it should allow for the discussion to explore the consequences of decision-making throughout different phases of a developing situation. In some respects, the material is meant to communicate NIH policies and resources in the context of scientific ethics. However, in many places the information presented is deliberately ambiguous in that detailed information is lacking. The intent here is to provide a platform to foster good ethical reasoning – if we had a specific piece of information, would that change our ethical obligations and, if so, how? The group may also discuss how they think the individuals in the case might be feeling at each stage, i.e., does the trainee feel an impending catastrophe in their career that is influenced by their actions, which is independent of the factual content but important to discuss. These facilitator notes are meant to identify specific issues within the case, organized by the questions, that may be useful in guiding the discussion to include both the policies and guidelines as well as developing ethical reasoning.

Please note that the case can be modified as needed for the audience and that the language developed tries to help support this flexibility. For example, the more senior person in the case can be a PI or a group leader in another context such as clinical work. Also, the case uses gender-neutral pronouns so the group can focus on the relative seniority of the people involved.

1. *Is publication in a 'high-impact' journal important for career success? Should it be?*

This question should prompt an evaluative discussion of how we define and measure success in science. There will likely be some range of opinion between acknowledgement of the status quo where high-profile papers are routinely rewarded versus the importance of rigor and reproducibility irrespective of impact.

2. *What kind of message do reviewers send when they ask for evidence to 'prove' a model? What are the pitfalls of trying to 'prove' a hypothesis?*

The key concept here is that despite all of our cognitive biases, the best science should come from an objective viewpoint. A more subtle point is that word choices, choosing the more directed word 'proving' compared to the more neutral 'testing' a hypothesis, can act as pressure towards less ethical behavior if internalized by the person listening to this.

3. *Is it fair to ask Dr. Ettero-Sanson to become involved with the project at this point? What are the advantages/disadvantages of having another researcher perform these experiments?*

This question allows for the group to discuss competing ethical priorities and bring out questions of transparency and reproducibility versus who 'owns' a project, for which the

word ‘fair’ is critical. You may wish to try to bring out viewpoints of people at different career stages who may have different perceptions of this balance.

4. *Is the advice from Dr. Jones about Dr. Best’s job search reasonable? What would prompt Jones to offer this advice?*

The intention here is to try to evaluate the motivation of Dr. Jones, which clearly is difficult if not impossible, but identifying what personal biases can come into play is critical to trying to determine the best course of action from an ethical standpoint. One way to address this is to ask the group if Dr. Jones’ advice is likely to be impacted by their own unstated personal motivations, in this case the need to obtain tenure. Would disclosure of this bias mitigate such ethical concerns? This may also be a point in the case to discuss formal tools for communicating expectations in both directions, including Individual Development Plans (IDP).

5. *How should a lab handle systems that tend to be ‘finicky’; i. e., a system that is reliable, but at times yields unusual data that cannot be explained?*

The group here should have a range of opinions. Some assays and experiments are authentically difficult to replicate because of a need for specific practical expertise but, equally, some are simply not replicable. The group might discuss how to (and who should) troubleshoot experiments to ensure rigor including the use of orthogonal approaches.

6. *Do you think Dr. Jones has a bias against Dr. Ettero-Sanson? How could a bias (or the perception of one) affect lab relationships, pressure and career development?*

While this case is largely focused on how our internal attitudes and perceptions of being under pressure may test our ethical stances, this question should develop the concept to include aspects of unconscious or implicit biases. Do we minimize or neglect our best ethical practices because we perceive people from different backgrounds as being ‘others’ or outsiders? The parenthetical note about perception is worth discussing if there is time as it is subtle but important – could other lab members infer a bias and what might their reactions be?

7. *Are Dr. Best’s concerns legitimate? How could Dr. Best address them?*

The implication here is that Dr. Best (the trainee) becomes concerned that Dr. Jones (the group leader) might be holding back a stellar recommendation based on expectations of data supporting a preconceived hypothesis. Whether this is legitimate is of course a difficult matter to evaluate, but it is worth discussing that Dr. Jones also has an ethical obligation to provide an accurate evaluation in any reference letter.

8. *How might mentoring/communicating be improved in this interaction?*

This question might prompt discussants to recognize that both parties have the responsibility to identify problems related to mentoring and communication. The mentor in particular should provide clear evaluations based on performance that are consistent across their different interactions (formal recommendation letter versus face-to-face comments, etc.). Best practices are that mentors should engage trainee in discussion

of career goals from the start of their training and focus evaluation and training opportunities to those goals, giving honest evaluation along the way of what the trainee needs to work on to accomplish their goal or suggest alternative goals to consider if progress in some spheres is lagging for the professed goal.

9. *What do you think Dr. Jones meant when referring to 'certain types of places'? Do PIs/group leaders have preconceived ideas about particular schools and career paths? How do these ideas affect trainees?*

Although in principle academic qualifications are equivalent across institutions, many people perceive a hierarchy of better versus lesser institutions and of differing career paths. Similar to question #7, evaluations and advice about best career choices should be as objective as possible. Additionally, mentors have a responsibility to support trainee career development even if not immediately related to productivity.

10. *What should take place during a conversation in which a trainee asks their PI/group leader for a letter of recommendation? What is the role of the PI/group leader in that conversation?*

Aspects to bring out in the discussion could relate to rights and responsibilities for each party. As in prior discussion points, transparency and consistency with evaluations is key especially for the PI/group leader to avoid the potential perception of pressuring a trainee to provide specific results in order to obtain a better recommendation letter. In an ideal world, this discussion should not contain any surprises as the trainee should be well aware of the mentor's view of their strengths and weaknesses by the time recommendation letters are needed.

11. *Is it proper to remove Dr. Ettero-Sanson as an author? How and when should Dr. Jones have communicated how authorship on this paper would be decided?*

The NIH has specific guidelines for authorship that can be found here: https://oir.nih.gov/sites/default/files/uploads/sourcebook/documents/ethical_conduct/guidelines-authorship_contributions.pdf
As can be seen, 'getting the expected' results is not listed – original experimental work would generally deserve authorship and the right time to discuss how authorship will be attributed is generally at the beginning of a project or when a new staff member starts to contribute to it. Discussants may consider if there are times in which someone should be removed from an authorship list (e.g., for ethical concerns) and how that might be handled. NIH has a formal process for Authorship Dispute Resolution, described in the Sourcebook: https://oir.nih.gov/sourcebook/ethical-conduct/responsible-conduct-research-training/processes-authorship-dispute-resolution

12. *Is running experiments 'day and night' appropriate in this case? What issues can arise from this behavior?*

This question may reflect the situation that the trainee finds themselves in, under a high degree of pressure resulting from an upcoming job interview. But it might also reflect, as the second part of the question implies, a desire to perform experiments out of plain sight and unscrutinized. This is a good question to ask how additional

information may change our inferences about other people's ethical behavior – does the person *only* work when no-one else is in the lab, for example?

13. *Is Dr. Ettero-Sanson justified to suspect Dr. Best's results? If so, what should Dr. Ettero-Sanson do?*

Whether we believe ourselves justified or not, in general it would be considered poor practice to take unilateral actions to investigate a colleague. Approaching this secretly may generate additional liabilities including potential accusations of manipulation against the concerned individual. Approaching the PI/group leader may be more appropriate, but if the PI/group leader may also be involved in the misconduct then there it may be more appropriate to discuss with other members of the lab or branch. The group may discuss the circumstances in which those decisions might be evaluated. More formally, the Agency Intramural Research Integrity Officer (AIRIO) can be approached, which will occur later in this case but could be involved earlier if concerns are pressing.

One point of information that the group may benefit from hearing is that some NIH resources are confidential, including the Office of the Ombudsman and Employee Assistance Program. The Office of Intramural Training and Education or Training Directors can also provide support for trainees. However, there are some allegations have mandatory reporting requirements, including allegations of harassment, if disclosed to a supervisor or manager.

14. *Why is the integrity of primary data so important? How can the integrity of computer files be maintained?*

A more pointed pair of questions to make the point that primary data are the key research record and need to be maintained with strict fidelity such that any later analyses can be reconstructed at any time. It may be helpful to the group to discuss best practices within their field(s) for data integrity. These concerns are particularly relevant when electronic records are the primary data – such files can be modified, corrupted or become unreadable due to software and hardware changes, and so the group may wish to discuss whether this has implications for the longer-term integrity of the scientific record.

15. *Is it ever OK to look through a colleague's notebook and data files?*

In principle, the answer to this question is certainly the PI/group leader should have access to all of the primary research data and records. However, each lab will have its own culture and there is a degree of variation about transparency depending on the work involved, including concerns for example about patient privacy. A good topic of discussion would therefore be transparency versus integrity and how those competing demands can be reconciled.

16. *How should primary and analyzed data be stored?*

Irrespective of the lab culture and work performed, one would not want the primary data to be able to modified, even inadvertently, so there may be legitimate concerns about the original copies of raw data being open to all. A second topic to discuss would

be how to ensure that all primary data and other records are preserved in a form protected from subsequent alteration, especially electronic files.

17. *Is it acceptable to present data selectively? Under what conditions, if ever, can specific data sets be removed from an analysis?*

Here, one can ask the discussants to list examples where it might or might not be acceptable to remove specific data points/values. A key concept to try to develop is that exclusions or censoring data should be done based on objective criteria preferably defined prior to data analysis (i.e., a priori) and not in service of a given hypothesis (i.e., ad hoc or data-driven). Additionally, formal reporting of results in publications, etc. should identify any data exclusions in the methods section.

18. *How should Dr. Jones respond to Dr. Ettero-Sanson's concerns?*

Most groups will likely agree that dismissing, minimizing or deflecting concerns of misconduct is ill-advised. However, the question of what should be done is important – should the PI/group leader perform an initial evaluation, or should they always immediately bring in the AIRIO? Should they take on the task themselves or ask a trusted colleague outside the laboratory or even outside the institute? At NIH, staff are encouraged to contact the AIRIO as soon as they question whether data could have been intentionally manipulated to deceive; this informal conversation can be framed as a "hypothetical" scenario for which no names are used and no binding decisions are made. NIH staff can also use an anonymous web reporting tool to bring the matter to the attention of the AIRIO: https://oir.nih.gov/sourcebook/ethical-conduct/research-misconduct/anonymous-reporting-research-misconduct-concerns. Additional information about the intramural research misconduct policy and process can be found at: https://oir.nih.gov/sourcebook/ethical-conduct/research-misconduct

19. *What type of signals is Dr. Jones sending to Dr. Ettero-Sanson by bringing up 'language issues' and by not scheduling the meeting?*

One might view these two separate concerns – again, implicit bias may be contributing to expressions related to language, but there may be an attempt to avoid the ongoing problems in the lab. Is the senior person trying to cover for themselves here? However, discussion might center around whether it could be perceived that these are related issues or not, and how that might be perceived by the more junior individual in this scenario.

20. *What role does trust play in mentor-mentee relationships? How do you think the outcomes would differ if Dr. Jones trusted Dr. Ettero-Sanson more and Dr. Best less?*

This question might direct discussion towards how our personal biases prevent us from trying to apply ethical reasoning in a situation where everyone is now feeling pressured. If we are predisposed to evaluate one staff member's viewpoint more positively than another's, might that lead to a missed opportunity to understand the developing situation correctly?

21. *Do you see ineffective communication taking place in this case? If so, where and how might better communication from the PI/group leader to either trainee have changed the outcomes?*

A good question to bring up to the group is whether communication style is relevant to ethical behavior in the research setting. To answer this, the group might consider how poor communication might have negative consequences - particularly for trainees - and lead to unequal treatment by the PI/group leader.

22. *What choices could have been made differently that would have led to positive outcomes for everyone in this case?*

This question is meant to indicate that course-corrections, ideally early in a developing situation, can be quite powerful. For example, earlier and consistent examination of the raw data and discussion about criteria for data exclusion could have been learning experiences for the trainee(s). As the situation progresses and becomes more entrenched, the likelihood of reputational damage to all parties increases.

23. *Have you ever encountered or heard about any other situations related to the themes of this case study?*

Another open-ended question which should be prefaced by a requirement that people do not identify any specific individuals or research groups, whether within the current IC or based on experience in prior institutions. It would not be unusual in larger discussion group settings for people to have seen, or to have suspected seeing, some of the potentially unethical behaviors described in this case, so it may require some cautious approaches to avoid confidential information being shared.

24. *What types of services are available to the various parties involved here to get help dealing with high levels of stress?*

NIH has many resources including the Civil office, Employee Assistance Program, and others:

https://hr.nih.gov/working-nih/civil/nih-wellness
https://www.ors.od.nih.gov/sr/dohs/HealthAndWellness/EAP/Pages/index.aspx
https://www.training.nih.gov/wellness
https://www.nimh.nih.gov/health/topics/psychotherapies/index.shtml

Some of the discussion in this case also relates to implicit bias, for which there are additional helpful resources to which the group can be directed:
https://implicit.harvard.edu/implicit/takeatest.html
https://videocast.nih.gov/watch=31852