
Using Electronic Discussion Boards to Teach Responsible Conduct of Research

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ABSTRACT: *This study presents the results of a survey of student satisfaction with electronic discussion boards in a course on the responsible conduct of research (RCR). On a 1-5 scale, the respondents stated that the use of the electronic discussion board was an effective teaching tool (4.71), that it enabled them to get feedback from their peers (4.43), that it helped promote discussion and debate (4.36), that it helped them learn how to analyze ethical dilemmas in research (4.36), and that they would consider using an electronic discussion board, if they ever taught a course themselves (4.76). In their written comments, the respondents indicated that electronic discussion boards are a convenient way of promoting debate and in-depth discussion. These results suggest, but do not prove, that discussion boards can promote debate and discussion in courses on research ethics. Instructors who teach RCR should consider using electronic discussion boards in regular or online courses, and they should consider studying the effectiveness of electronic discussion boards in research ethics education. Although electronic discussion boards cannot replace the face-to-face interaction that occurs in a classroom setting, they may provide a useful medium for the exchange of ideas and opinions online.*

Background

All graduate students on U.S. Public Health Services (PHS) training grants and National Institutes of Health (NIH) intramural researchers are required to have education in responsible conduct of research (RCR).^{1,2} In 2001, the U.S. Office of Research Integrity (ORI) proposed a policy that would require that all PHS-funded researchers have training in RCR, but the administration of George W. H. Bush suspended this policy in 2002.^{3,4} The nine core areas for RCR instruction identified by the ORI include: data acquisition, management, sharing and ownership; mentor/trainee

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responsibilities; publication practices and responsible authorship; peer review; collaborative science; research misconduct; conflict of interest and commitment; human subjects research; and research involving animals.³

Even though mandated university education in RCR only affects PHS-funded students, since the 1990s, many universities have begun to require that graduate students receive education in RCR, to promote integrity in research and to avoid legal liability and embarrassment resulting from unethical research practices. Since there are many students who may require RCR education but few people with the appropriate knowledge and expertise to teach a course in RCR, universities have struggled with finding enough people with enough time to provide education in RCR. Aside from hiring new staff to teach stand-alone courses, there are many different strategies for teaching RCR, such as incorporating RCR education into existing courses, promoting RCR through mentoring, developing an informal seminar or lecture series, and conducting workshops.⁵

Since the 1990s, online educational programs of all types have proliferated. Most traditional colleges and universities now offer online courses, and some offer online programs. Some schools, such as the University of Phoenix, are entirely online.⁶ One of the main reasons why online instruction has become so popular is that educational institutions view it as a cost-effective method of teaching.⁷ Online courses can include many different elements, such as video lectures, reading materials, resources, and links; chat-rooms, discussion boards, email; and tests and exams. Some instructors teach courses entirely online, with no in-person instruction, while others use on-line materials to supplement regular courses.

Since most universities would like to save money on RCR instruction and training, many will probably implement some type of online instruction in RCR. Many universities now use online methods to provide investigators and institutional review board (IRB) members with training in the ethical and legal aspects of research on human subjects.⁸ The NIH, which also offers online training in human subjects protection, recently developed an online course for its intramural researchers, who are required to take the online course as well as one hour per year of continuing education in RCR.⁹

Although online instruction has become increasingly popular, questions about the quality of online instruction persist.^{10,11} One important concern relating to online education is whether cyber-interactions, such as chat rooms, email, or discussion boards, can promote the kind of dialogue and debate that can occur in the classroom setting. A recent issue of *Science and Engineering Ethics* included a collection of articles and discussions on web-based education in science and engineering ethics.¹² Two articles in this issue discussed the use of electronic discussion boards as an RCR teaching method.^{13,14} The purpose of this study was to determine whether discussion boards can provide online learners with meaningful discussion and debate. To test the hypothesis, I administered a survey to my research ethics class (HUMS 7004), which I taught at the Brody School of Medicine at East Carolina University in the spring of 2004. This presentation reports those results and provides an illustration of using an electronic discussion board to teach RCR.

Material and Methods

I taught the Brody School of Medicine's required research ethics course for graduate students in the basic biomedical sciences from 1999-2004. The course included students from disciplines such as biochemistry, anatomy and physiology, pharmacology, and microbiology. The class limit was been set at 25 students. In the spring of 2004, doctoral students from nursing, audiology and speech pathology, exercise science and physiology also took the course and expanded the class to 32 students. In 2004, the class met from 3:00-4:30 on Wednesday afternoons for 16 weeks. The course was taught in a seminar format, and included guest faculty discussants from many different disciplines, such as pharmacology, biochemistry, microbiology, comparative medicine, biology, sociology, chemistry, and technology transfer. The required texts included Shamoo and Resnik's *Responsible Conduct in Research*,⁴ National Academy of Science's *On Being a Scientist* (1995),¹⁵ *The Belmont Report*,¹⁶ the Department of Health and Human Services' regulations for human subjects research,¹⁷ and East Carolina University's research policies.¹⁸ Students also watched video vignettes produced by the American Association for the Advancement of Science.¹⁹ Topics discussed in the class included: ethical concepts and decision making; professional ethics; data management; authorship and collaboration; publication and peer review; scientific misconduct; conflicts of interest; mentoring; intellectual property; science-industry collaboration; human research; animal research; genetics and human reproduction; and scientific responsibility.

The students had four assignments, which were each worth 25% of the grade: in-class participation, posting a case analysis to the electronic discussion board, participating in the electronic discussion board, and an online, final exam. The electronic discussion board accounted for 50% of the course grade. The case analysis required students to develop a case study from scientific journals or books, reports in the press, or personal experience. Students were required to analyze the case using a widely accepted method described in Shamoo and Resnik.⁴ The method consists of a series of steps: (1) state the ethical questions or issues; (2) describe the relevant information; (3) propose different options; (4) evaluate the options in light of the facts and ethical theories, concepts, or principles; (5) defend a particular option or plan of action. Students were asked to write at least 1000 words for their case analysis. Each week during the course, two students submitted their analyses to the discussion board, and classmates responded. Responses needed to be at least 100 words long to receive full credit. Students needed to receive full credit for 10 responses to receive full credit for their discussion board participation. I monitored the discussion board and posted messages to prompt debate or provide information that could enhance discussion. Students were allowed to make anonymous posts to the discussion board. All of the entries on the discussion board remained on the board during the course so that students could review the entries and follow the threads of earlier debates. The course used the Blackboard software to provide electronic access, links, the discussion board, the exam, and so on.

I have been using electronic discussion boards since 1999, and have received some informal feedback from students. In 2004, students completed an optional survey to evaluate the course and the discussion board. The survey was distributed in class and also by email. Students returned the survey by mail and remained anonymous. Students gave their permission to publish postings on the discussion board, with personal identifiers removed. (Postings, consisting of a case and responses, are in the Appendix [pp. 624-629].) East Carolina University's IRB classified the proposal as exempt research (i.e. not requiring IRB approval). Although the course has been evaluated each year, the survey conducted in 2004 was the first attempt to ask specific questions about the discussion board. The survey included quantitative questions, using Likert-scales, as well as qualitative questions, asking for comments.

Results

Fourteen out of 32 students took the survey, but some students did not answer all of the questions. Twenty three students signed the form allowing use of their blackboard postings. The results for the quantitative questions are shown in Table 1 (p. 622), and results for the qualitative questions are shown in Table 2 (pp. 622-624). On a scale of 1-5 (1 = lowest score; 5 = highest), the respondents stated that the use of the electronic discussion board was an effective teaching tool (4.71), that it enabled them to get feedback from their peers (4.43), that it helped promote discussion and debate (4.36), that it helped them learn how to analyze ethical dilemmas in research (4.36), and that they would consider using an electronic discussion board, if they ever taught a course (4.79). Seventy one percent of the respondents had never before used an electronic discussion board as a student or a teacher.

Responses to the qualitative questions addressed several themes. First, respondents stated that the discussion board promoted discussion. According to one respondent: "The benefit of the discussion board is that you can share your opinion and react to other points of view. Sometimes it helps you to look at the same problem from different angles." Second, respondents stated that the discussion board promoted in-depth analysis by giving people enough time to think about their responses or conduct additional research. According to one respondent: "When I was required to post responses to the cases, I actually took some time to research the subject matter which was being discussed. It was helpful to do that research, or discuss the case with colleagues who may know more about the subject." Third, respondents also appreciated the convenience of the discussion board. According to one respondent: "It stimulated thought and provided the opportunity to read, respond, and think about cases in a relaxed way. I could do it when it was convenient and I was focused." Fourth, although the respondents had not had much experience with chat rooms, some believed that discussion boards are more useful than chat rooms. According to one respondent: "Electronic discussion boards are more useful than chat rooms, I feel, because they are not real time. You don't need to be there at the same time as another person to whom you want to talk. With discussion boards, you have more freedom and flexibility with your words and the people and threads you want to contribute to."

Conclusion

There are several important limitations to this study. First, only fourteen students responded to the survey. Since the response rate was less than 50%, it is possible that the results are skewed.²⁰ One likely reason why the response rate is so low is that students did not complete the survey in class, but were asked to complete the survey at home and mail it in. It is ironic that the students, who are learning how to conduct research, were not more interested in participating in a research study. Second, the survey measured students' opinions about electronic discussion boards but it did not measure the effectiveness of electronic discussion boards as an educational tool. One method for determining the effectiveness of discussion boards would be to conduct a controlled intervention that measures educational outcomes, such as knowledge of ethical concepts and principles.^{21,22} Third, since this is a small survey of one class at one institution, the results are not generalizable to other classes or other institutions.

At the same time, the results do suggest some ideas and topics that may be the subject of further investigation. The results suggest, but do not prove, that discussion boards can promote debate and discussion in courses on research ethics. Moreover, RCR instructors should consider using electronic discussion boards in off-line or online courses, and they should consider studying the effectiveness of electronic discussion boards in teaching RCR. Although electronic discussion boards probably cannot replace the face-to-face interaction that occurs in a classroom setting, they may provide a useful medium for the exchange of ideas and opinions online. In the discussion board included in the Appendix, students learned from previous comments in the thread, and the discussion progressed from one response to the next. Some of the later posts summarized and reflected on earlier posts. The students developed arguments and opinions based on their own experiences with research and concepts and principles of ethics.

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Table 1: Answers to quantitative questions

| | N | Avg. |
|--|----|----------------|
| 5 = strongly agree | | |
| 4 = agree | | |
| 3 = neither agree nor disagree | | |
| 2 = disagree | | |
| 1 = strongly disagree | | |
| 1. The use of an electronic discussion board in this course was an effective teaching tool. | 14 | 4.71 |
| 2. The electronic discussion board helped to stimulate discussion and debate. | 14 | 4.36 |
| 3. Preparing a case to post to the electronic discussion board helped me to learn how to analyze ethical dilemmas in research. | 14 | 4.36 |
| 4. The electronic discussion board enabled me to get feedback from my peers. | 14 | 4.43 |
| 5. I enjoyed participating in the electronic discussion board. | 14 | 4.36 |
| 6. If I ever teach a course, I would consider using an electronic discussion board. | 14 | 4.79 |
| 7. Have you ever used an electronic discussion board before as a student or as a teacher? | 14 | N= 71%; Y= 29% |

Table 2: Answers to qualitative questions

If you think you benefited from participating in the electronic discussion board, please describe how you think it helped you in this course.

I think it is helpful because everyone can participate in discussion at any convenient time. And participants can do some research before they join in discussion on the case. The responses are probably more in depth than in-class discussion.

It stimulated thought and provided the opportunity to read, respond, and think about cases in a relaxed way. I could do it when it was convenient and I was focused.

It was interesting, particularly developing the case.

I suppose this is a good and bad thing (mostly good), but the board allowed for free discussion. You didn't need to deal the anxiety or pressure that comes from speaking out in class.

The teacher was the one who controlled the postings, therefore, organized. The criteria was very specific (10 responses, 1 posting)—it was for everyone. I was able to work late at night in the comfort of my home.

A different way of getting my opinion across, in a comfortable setting. Very easy to use. I could read other students' opinions.

Interactive in interdisciplinary debate.

I didn't write my post correctly the first time, because I didn't understand the purpose was to approach dilemmas with a process. After having to rewrite it, I understood much better. I had a friend who read it and thought the analysis was impressive.

I think the electronic discussion board allowed me to easily interact with my classmates at my convenience.

Writing ability, to perceive others' interpretations of the same topic.

When I was required to post responses to the cases, I actually took some time to research the subject matter which was being discussed. It was helpful to do that research, or discuss the case with colleagues who may know more about the subject—e.g. there was a criminal justice case, organ transplants, etc. I learned more about issues related to research in different subjects. It was also helpful to think about ethical dilemmas and have to write coherently about them.

If you have participated in chat rooms in classes, how do electronic discussion board compare to chat rooms? Are they more useful than chat rooms or less useful?

Both are needed to assist with learning styles.

I have not used a chat room—I don't think a chat room would be organized or would have as much "meat" in the response.

Electronic discussion boards are more useful than chat rooms, I feel, because they are not real time. You don't need to be there at the same time as another person to whom you want to talk. With discussion boards, you have more freedom and flexibility with your words and the people and threads you want to contribute to.

They're similar—simultaneous online chatting is more dynamic and stimulating because you get a response and you could respond.

Have not been in chat room situations—don't think I would like it—like the flexibility of the discussion board format.

I would think it is much better than chat rooms although one advantage of chat room discussion is anonymous.

Do you have any problems or concerns with the use of an electronic discussion board in this course or in any other educational setting?

No—I think they will become more and more common in college and other educational settings.

I don't see any problems or concerns with the use of an electronic discussion board apart from the reality that people don't need to actually see each other talk. This is, as mentioned before, both a good thing and a bad thing. The combination of an electronic discussion board and class time discussion is optimal.

The post requirement was too long. After a while you're just putting any info in just to make it longer. I never read an entire post, because I get the point $\frac{3}{4}$ through.

No. I found the electronic discussion board very easy to use.

No. I think this was a very useful medium. I am eager to learn more about this method of instruction, especially since I hope to outreach to students in child development internationally. I am not proficient with the technology yet, and am planning to learn to use it to share and learn across wider boundaries. Of course, I would want the teachers and students to use the medium responsibly.

Appendix: An electronic discussion thread in an RCR course

The following is an example of a discussion board thread used in the course. In this thread, one student posted an analysis of the controversy concerning pesticide testing on human subjects by private companies.²³ Other students responded to the original post and to each other.

Case Analysis

Human Research: Money for your Body

Described below is an actual case that the EPA office of risk assessment and the National Academy of Sciences had to deal with earlier this year. Apparently, over the past few years' companies have been deliberately exposing human volunteers to pesticides to monitor the amount needed to cause a metabolic response or make the subjects ill. This "research" was sparked by a 1996 Food Quality Protection Act, which ordered the EPA to reduce acceptable levels of pesticides in foods to protect children. Prior to the passing of the new law, the EPA limit was several orders of magnitude smaller than the minimum dose that affected animals. To get around the 10-fold safety factor built into animal studies, companies have added human subjects in their toxicity studies. This included volunteers from the UK who were paid \$600 or more to be a part of the study. These studies now have the EPA and other organizations debating the ethics of this type of human research.

Research performed on human beings can be beneficial to society if carried out properly and for the right reasons. Every day there are clinical trials being performed on human subjects. Where these clinical trials and the toxicology studies performed by these

chemical companies differ is in the motive. Clinical trials, although they carry many risks, are explained thoroughly to the subjects and the intent is on helping the subject with his/her health problem (and make money). On the other hand, the motives behind these pesticide-dosing studies are entirely done for the benefit of the industry and offer no benefit to the individual. These types of dosing studies can be successfully preformed on animals and the industry should just, "suck it up" and account for the fact that humans may be more sensitive to these materials. Animal models are sufficient for all types of studies, the only reason chemical companies want to use human subjects is so that they can increase the minimal dose and to get around the new sanctions. Prior to 1996, these animal studies were completely fine, but once a new law was passed companies insisted studies now need to be performed on humans. Another difference between clinical and toxicology studies involve the subject group that is targeted. With clinical trials all of the subjects share a common cause in relieving their health problem, whereas toxicology studies target individuals that need money and are most likely to be less educated. It may be quite easy for these chemical companies to downplay the risks and mislead these individuals. This does not mean I believe all human dosing studies should be banned and do not offer valuable information that can benefit society directly.

So when is it okay to perform research on human individuals? Obviously clinical trial research can be done ethically and can benefit the individual in the study among others in society. There comes the issue of using human subjects in dosing studies involving environmental pollutants that individuals are exposed to daily anyway, such as ozone. I believe research involving human subjects can be preformed ethically as long as this research does not subject these individuals to more of the agent than then are receiving daily. The question that now arises is how can human research be regulated.

Prior to approving such studies as the example above, I believe there must be an ethical committee intact under an organization like the EPA that deals with the ethics of human research. The committee should consist of members of the scientific community and "unaffiliated" individuals of society. The ethics committee needs to be familiar with research and review protocols for human studies. Just like the animal committee that oversees institutional research on animals, there needs to be a committee that reviews the ethics of all research proposals prior to approval Human research can be of great benefit for all of us given proper ethical review.

Response 1

I do not think that the industry should be performing these types of tests on human subjects. I agree that testing on human subjects is essential in most clinical studies and that these studies benefit the health of everyone. In the case of exposing human subjects to pesticides and other harmful agents to determine a level of resistance, it seems completely unethical. There is no benefit that will come to any of the volunteers. There is no benefit that will come to society as a whole that could not be gained by simply using animals in the studies and making adjustments for the different species. This type of study also takes advantage of people in that it offers large amounts of money at the risk of great harm. Often the people most desperate for money are the ones that will least understand the risks that they are taking.

Response 2 (by the instructor)

The EPA has not adopted 45 CFR 46 (also known as the Common Rule) for evaluating data submitted by industry, although it has adopted 45 CFR 46 for its own research. The EPA does not currently have an effective regulatory system for human research sponsored by industry. Hence, there is very little guidance for conducting these studies on people. One might argue, however, that the same legal/regulatory framework that applies to biomedical research (45 CFR 46) should also be applied to EPA research. One might argue that the toxicology studies could be conducted, provided that the benefits outweigh the risks, risks are minimized, and the subjects give informed consent. The research would be similar to a Phase I clinical trial, which tests the toxic effects of drugs on healthy subjects, who do not expect to derive any medical benefit.

Response 3

Working on people is necessary for many treatments and therapies. However, this kind of research does not help anyone, but wants to see the maximum dose before someone is hurt. Humans aren't necessarily more sensitive, but it is just EPA policy to set the standards lower than on animals. This rule was invented for a reason. Humans are very variable, and different things affect us differently. The lower standards keep everyone safe. If the industry is performing this kind of research, then they are opening a door to question the EPA. But inflicting people with insecticides is not the way to question this rule. However, if these subjects know exactly what they are getting into and recognize that there is only disadvantage to them with this study, then I think the researchers have every right to study them. It's like smoking. People know it is bad for them, but they still do it--and we don't make that illegal.

Response 4

If animal studies have already been performed and no obvious benefits are going to be gained, then why do the research? How is this advantageous to humans? I agree with (name omitted); if people will be or have been accidentally exposed anyway, why not use those exposures for purposes of data collection. Granted, this method won't have the same type of strictly controlled parameters as a clinical trial, but it is vastly different than a clinical trial, which is designed for testing a pharmaceutical that may be beneficial. If this type of study is going to take place, more regulations are needed and the possible risks should be well understood by participants in the study.

Response 5

I have participated in research studies as a subject and was paid for my participation. Hey, I am a poor graduate student, I'm more than happy to make an easy buck if given the opportunity. However, the research studies I participated in posed no threat to my health or safety. They required only my time and effort. I was happy to participate in them. I would also be happy to participate in clinical drug trials under the proper conditions. If I had a terminal illness and all of my treatment options had been exhausted, I would love to take part in a drug trial that may potentially help me and, in the worst case scenario, would kill me. If it did kill me I would be no more dead than I would have become anyway. However if it helped me my life would be saved. Toxicology research however won't ever help me. Less pesticide can be used. We produce more food than we can eat anyway, if we make a little less we will still be fine. If a famine comes the farmers can then bathe the plants in

pesticide for all I care. I would not be willing to be a subject in this research just so some farmers can have a better profit margin.

Response 6

The industry and farmers do have a process for regulating the amount of pesticide which is research based. It is called integrated pest management. An individual uses a research based process for scouting the field in a random manner plotting the amount of pest. They do not spray until the field reaches the point of economic balance in gain / loss. In this manner insecticide is not applied unless it is absolutely required. In addition, they use traps with insect hormones to draw the insects to the trap and then only spray when numbers are at a high level. Research is also done on the soil types and how the chemicals bind to the organic matter in the soil. Recommendations for reductions in pesticides are made accordingly. There are also regulations that include Personal Protective Equipment, posting of fields sprayed, and use regulations for wind drift and temperature variation. However, all these are US regulations. They also have a very large study to follow farmers and spouses longitudinally.

Response 7

The business industry seems to have a tendency to ask the wrong questions when trying to improve their products. Instead of asking, "how much more pesticide can we add to our final food product?", they should constantly try to find means for lowering the pesticides amount present in their food products. Given how hard it is to conduct long term studies on pesticides' deleterious effects on humans, nobody really knows what amount is unhealthy. Perhaps the test subjects of these studies who didn't show any reaction to the amount they were exposed to during the year after exposition and were thus considered to show a safe pesticide dose, will get cancer 10 years from now. Furthermore the use of products like pesticides has been reported to slowly change and destroy our Earth environment. Considering only the consumer effect is not a responsible approach. I don't see this case as only a research on humans issue. I think the decisions concerning pesticide use should be constantly evaluated by a public committee having no relation of any kind with the companies under regulation.

Response 8

This is exactly a type of situation where we need to step in and say no, we won't allow this, regardless of the cost. It is targeting the poverty stricken people of our communities. It is not the same as smoking, not even close. These people know it is bad for them and they do it anyway, we need to assess their motivation. Are they putting themselves at risk to feed their children? It is a clear exploitation of the lower classes. These people are desperate, we should not feed on this. The drug companies know their desperation, and are taking advantage of these people. Under no circumstances should this be allowed. Someone needs to intervene on their behalf. I liken this to the farmers of third world countries that destroy their own rain forests so that the industries of developed countries can save some money.

Response 9

I think that clinical research is an important tool in the development of new therapeutic approaches and drugs, but before going into clinical trials, the drugs must be fully tested in animals. All clinical research requires an informed consent of all the individuals involved in

the study and all are supposed to be volunteers...The informed consent is usually elaborated and approved by an ethics committee, which is integrated both by researchers and representatives of the general population. I do not agree with toxicology studies in people. We cannot expose "volunteers" to different doses of a toxin to see the effects. Why not select people that have been exposed for different reasons, like workers that were accidentally exposed? For example, some years ago, when lead was still used in the elaboration of gasoline many people were exposed to this metal. The exposure was not voluntary yet they provided important information about the toxic consequences of lead. Finally, in this case, is anybody going to provide health care for the volunteers if there are serious consequences?

Response 10

According to some people who studied this research, prior to public discussion of these studies, the "volunteers" were employees of the companies testing the toxic products. How's that for coercion!

Response 11

Studies on human subjects must be done with the utmost care and the researchers should be subjected to a review board before the study can begin. I agree with [name omitted] that the committee should consist of both scientists and 'civilians' who are not directly involved in the research. I also agree that when humans are the subjects for pollutant studies they should not be given doses in great excess of what they would usually encounter on a daily basis. Anytime a human is a subject of research there are ethical issues involved, we must be aware of these issues and be willing to utilize only the most ethical methods of treatment for human studies.

Response 12

To me, this is not an easy question. It's easy to say that the pesticide company is only doing the testing to make more money. While that may be true, the benefits of some chemical to all of mankind may be magnitudes greater than the value to the company. On the other hand, you have these people who are being exposed to the pesticide and, by the very nature of the study, develop some sort of dysfunction (however minor) from the exposure. My overall feeling however is that if a person gives informed consent, the company should be allowed to test their product on that person. Some outside ethical review board should be employed to ensure that the person actually understands what they were getting into. Regardless of any potential benefits to mankind, I can't imagine they would get many takers if the subjects understood the nature of the study, unless there was considerable financial incentive.

Response 13

This is a somewhat complicated issue. I can see that people might not volunteer for this kind of study if they understand the potential risks and purpose of the study (if the informed consent is actually informed), unless there is some sort of benefit such as financial. So, adding the financial benefit is a necessity to get subjects for the study. At the same time, it is hard for me to envision that a human study is inevitable in situations like this. Any chemical or pesticide that shows potential risks in animal studies should be regarded as potentially hazardous and a minimal dose should be established based on those studies,

because it is not just the humans that we should be thinking about, if anything is harmful for animals at a given dose, a dose lower than that should be approved to make sure that it is not causing any threat to the whole environment and eco system.

Response 14

Whenever research involves human participants, many ethical issues come into play. My take on this issue is that if a person gives informed consent and really understands the risks associated with the study, then the research should be allowed to be done. I feel it is up to the person involved to truly decide if they wish to participate or not. To decide if the risk is worth the compensation to them. However, I also believe that the research must be subject to an ethical review committee to ensure that proper procedures are adhered to such as minimizing the risks involved, humane treatment of participants, and ensuring the benefits outweigh the negatives. Lastly, I like what [name omitted] brought up.... Who will provide health care assistance to these individuals if they develop serious illness?

Response 15

I feel that there must be some type of regulation on this type of experiment. If the subjects are not fully aware of all the threats and advantages of the experiment, I do not feel they should be allowed to participate. I agree that the same guidelines adopted by other agencies (45 CFR 46) should be followed. If the study does more irreversible harm to the subject than good, then the study should not be allowed. As Dr. [name omitted] mentioned, toxicology studies could be conducted, provided that the benefits outweigh the risks, risks are minimized, and the subjects give informed consent.

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