



# The Kethical Dilemma

Issue 1, December 2011

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## Letter From the Editors

Welcome to the Kethical Dilemma! The Kethical Dilemma is a publication created as an offshoot of the Ethics Committee but welcomes anyone at Keck Graduate Institute who is interested in writing. This publication is an avenue for KGI students to start a discussion about ethical issues from different perspectives. KGI has given us the opportunity to explore a wide variety of topics in the applied life sciences, and often these topics come with multiple ethical dimensions and stakeholders. We hope you enjoy this issue, and continue the discussion beyond these articles that include issues ranging from vaccines, clinical trials, neuro-ethics, to personal experiences.

Happy Reading!

*Susan Alfs and Kristina Roskos*  
*Kethical Dilemma Co-editors*

Remember that ethical values apply even under times of high stress. Good luck with finals!

"I only know I have integrity if it costs me something"  
- Daniel Byrd

## Events and Updates

The Ethic Committee hosts several events throughout the year to promote honor code awareness and discussion around current ethical issues within the life science industry.

Here are a some highlights from this semester.

**SPOTLIGHT: Judy Heyboer Speaks to Students About “Being an Up-stander, not a Bystander”**  
Trustee Judy Heyboer set aside time on Monday, October 17<sup>th</sup> to speak with students about how to deal with ethical issues from a practical perspective. This event, “Being an Up-stander, not a Bystander” helped students to discuss what it means to be an ethical individual and foster an ethical environment in a workplace or academic environment. Judy’s vast experience in Human Resources at Acuson and Genentech, as well as in various roles as a human resource consultant and non-profit advisory board member helped anchor her presentation in real-world examples of tough issues that will be encountered in the workforce. Problem solving skills when dealing with fellow classmates and coworkers are invaluable tools that Judy highlighted throughout her talk. She emphasized the important factors needed when it comes to creating accountability and upholding each other up to high standards, as well as a step-by-step method of approaching people who act unethically.

### **SPOTLIGHT: Ethical Film Series Kicks-Off With ‘Life Running Out of Control’**

The Ethical Film Series started off this year on Monday, November 14<sup>th</sup> with a screening of *Life Running Out of Control*, a documentary focusing on the genetic manipulation of organisms and the potential threats it poses to the human population worldwide. The documentary highlighted several international perspectives concerning the science and ethics surrounding genetic engineering. The Ethical Film Series was started with the intention of sparking healthy ethical discussion on campus, and students enjoyed discussing the issues presented throughout the film. Event coordinator Joe Head remarked “The event provided students with a unique perspective of individuals concerned with the unfettered use of GMOs. This movie was chosen because it provides an alternative perspective to much of the material we experience here at KGI.”

### **SPOTLIGHT: Alan Rothfeld Speaks on “Ethics of Consent in California”**

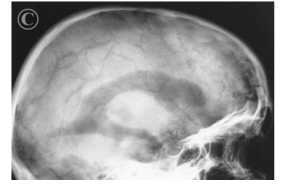
Dr. Alan Rothfeld, a professor at both KGI and USC's School of Medicine, joined the ethics committee and other interested students on Thursday, December 1<sup>st</sup> to discuss the ethics of consent in regards to medical treatment in California. Dr. Rothfeld covered many different cases, some he personally encountered. Discussion surrounded the interactions between patients, family members, doctors, judges, and ethics boards that occur in order to make decisions. Issues such as the legal definition of death in California, the different levels of decision-making authority that can be legally granted, patients who refused treatment, and what a hospital should do if they can't find any relatives of an unresponsive patient were addressed. Students shared their opinions on what they would do in each situation and Dr. Rothfeld posed challenging questions to convey how hard it is to find a clear answer for these difficult questions.

Aylene Bao (MBS '13) led a group of KGI students that participated in the LA AIDS Walk on Sunday, October 16<sup>th</sup> as part of the KGI Community Outreach Team, which aims to provide an avenue for students to connect with various issues. The AIDS Walk aims to bring people together in order to raise awareness and help increase prevention efforts. Aylene’s interest in this cause was a result of her previous participation in the SF AIDS walk and direct work with HIV diagnostic and therapeutic development. This group of students participated in a cause that is important to them, and shows that students are willing to stand behind their beliefs.

### Students Join AIDS Walk



# Conscious and Unconscious: Where is the Line?



By Chris Cantrell

Few areas in the life sciences gain as much moral scrutiny or debate as the field of neurological sciences. As we learn more about what makes the mind tick, it becomes increasingly difficult to distinguish what “normal” consciousness truly is (1). Families and doctors grapple with the ambiguity of this issue, and are frequently at odds with one another. This gray zone is difficult to assess and, when questioned with further research, can bring about revelations that challenge decades of understanding and assumption.

Take, for example, the case of a recent discovery made in South Africa by one Dr. Wally Nel. Upon treating a “vegetative” patient for muscle spasms with Stilnox (known in the United States as Ambien), he noted improvements in awareness, muscle movement, and response to stimuli (2). He began administering it regularly, experimenting with dosage to gauge the improvement it provided to the patient. A family in Australia heard of these case studies and sought to use the same treatment on one of their own, Sam Goddard. After an initial conflict to obtain the drug for an off-label use, they secured and began administering it. Sam showed the most remarkable improvement of all: articulated speech. After administering Stilnox, his words transitioned from moans and grunts to syllables, and eventually fully-formed sentences. Sam described the experience of being unable to talk as “terrifying, as if I was a prisoner in my own body unable to scream.”

This medical breakthrough sent ripples through the neuroscientist community; it challenged what many believed to be a state of unconsciousness and unawareness. The main indicator of consciousness currently is the ability of a patient to visually track an object or motion consistently (3). What qualifies as consistent tracking is up to the discretion of the doctor, leaving room for error in a diagnosis when a clear answer is needed. This method of determining the level of consciousness is therefore by no means robust. One other way to measure the degree of consciousness is a range

known as the bispectral index (BIS). This index is an algorithm that is calculated using a BIS monitor that measures brain activity. These values are supposed to correlate to patient response cues and score them, with death being the lowest possible value and the highest full alertness and awareness (4). Studies have called into question the efficacy of this scale in determining mental alertness of a patient (5). The issue is not settled, and researchers are still struggling to quantify how hindered a person’s mental capacity is without being able to directly communicate with the patient. Without a clear method of communication, it is difficult to assess how aware a patient is, both of themselves and of the world around them.

How do doctors decide the boundary between consciousness and unconsciousness? In philosophy it can be heavily debated and even involve the actions of higher powers, but in life sciences, a quantitative approach is always sought. There are echoes even of the infamous Terri Schiavo case, in which a family fought for the right to preserve their daughter’s life against the wishes of her husband, who insisted that she wouldn’t want to be living in a vegetative state of being. There are no clear statutes that dictate the treatment of vegetative patients in these situations, leaving the issue to be resolved by petition and persuasion in most states. California has passed some legislation in an attempt to ease this, by both allowing the patient to have the final say on living or dying, and by appointing someone as the legal representative for the injured person in the event that they can’t represent themselves. Even still, there is always room for doubt. These disputes are emotionally and financially taxing on all parties involved.

The risk of unnecessarily treating brain-dead patients, and (more gravely) refusing to treat patients that may otherwise be helped is a serious one. Potential malpractice suits and increased medical costs need to be considered when making the diagnosis. A unique aspect of the Stilnox/Ambien case is the fact that it was nearly banned in

2007 for being linked to suicides (8). This poor track record leads to the reluctance of physicians to prescribe it for its intended use. To allow it for off-label use meets even more resistance. Here then is another facet of the consciousness debate that falls under a broader topic: should drugs be allowed for off-market use if shown to improve symptoms of other conditions?

Some, such as Dr. Nel, see the immediate need to use this drug if improvements are noted, and are currently working, to have it investigated further. Dr. Nel along with Dr. Ralf Claus, have secured the patent rights for this treatment method in South Africa and have formed a company to commercialize it. Dr. Nel comments, “... We published a clinical trial last year, 23 patients we isolated, and 10 of them showed a response. Between 10 and 20 per cent improvement in their functioning, some up to 40 per cent. This is of course a fairly small clinical trial, we would consider this as a pilot study but I think we are getting there slowly but surely.” Bringing the benefits of this drug to the public would allow for more patients to improved their quality of life (2).

Other physicians, however, err on the side of caution. Prof. Jeffrey Lipman at Brisbane Hospital writes, “Generally in medicine, we try and practice evidence-based medicine. We will not institute things that we are not comfortable have been adequately tested and from my understanding Stilnox is still experimental. And it's fantastic that Sam has responded to it, and not for one minute would I suggest that Sam does or doesn't take it, it's out of my domain. I'm not a neurologist but it is not in the domain of evidence-based practice yet.” There is also the concern of those cases in which Stilnox doesn’t improve the condition; what could be the reason, and is the drug causing unseen harm?

It’s clear a need is not being met, and that consciousness is not as well-defined as we once assumed. Hopefully, these subtle nuances can be better distinguished to allow more lives to be improved through the advancement of scientific understanding.

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## To Accelerate or Not to Accelerate?



By Karishma Dagar

**A**vicenna, a Persian physician and philosopher, described the ground rules for testing drugs and remedies back in 1025. And today, this tradition is carried on with similar experimental designs known as clinical trials that are used to validate medications. The first modern day clinical trials were introduced in the 1800's while placebos and randomization were introduced in 1863 and 1923, respectively (4). Through the years, strict guidelines have been created by the Food and Drug Administration (FDA) to ensure ethical and reliable clinical trials. For a pharmaceutical company to market a drug today, it must go through vigorous clinical trials to prove statistical significance of performance. The performance of these medications is based on various aspects such as the short- and long-term safety, efficacy, side effects, and clinical need.

In order to accurately evaluate new drugs, the FDA requires a standardized set of clinical trials. Phase I clinical trials are relatively small in size, with less than 100 healthy subjects, and are used to evaluate a drug's safety profile. The main goal is to understand the medication's absorption, distribution, metabolism, and elimination from the human body. Phase II enrolls a larger group of people (between 100 to 300 patients) and requires well-controlled experiments to evaluate the drug's safety and side effects. Optimal dosage for the medication is also evaluated during this phase. Phase III requires thousands of patients, and is

intended to carefully analyze the drug's direct effect on the given disorder or disease. The drug that is being investigated in this trial is additionally compared to the "gold standard" treatment to establish its added risks and benefits relative to existing treatment options. After Phase III trials have been completed, the drug is approved for sales and marketing. Phase IV trials are used to gather more data on the safety and efficacy of the treatment in the long term.

Using this method, numerous therapies have been approved by the FDA and thus can be marketed for their clinical benefits. In order to ensure safety, efficacy, and limited adverse drug reactions, the FDA enforces stringent guidelines that have been developed over time to protect human health. While conducting a clinical trial is a long and expensive process, these guidelines allow both the FDA and the pharmaceutical company to confidently market the drug for one particular indication.

These stern guidelines and long timelines are being questioned due to "the new wave of cancer drugs" (1). Included in these is Roche's PLX4032, a potential therapy for melanoma, which is a kinase inhibitor that specifically targets B-Raf genes with a valine to glutamic acid point mutation. Testing for the mutation change segments the patient population, and eliminates those unlikely to respond to treatment. Early clinical trials have shown this drug to halt

tumor growth in 81% of patients with this specific mutation, while the current gold standard, dacarbazine, only shows slowed tumor growth in 15% of patients (1).

Since there are drastic differences in performance, some oncologists and cancer researchers have asked the FDA for regulatory flexibility and immediate availability of PLX4032 (1). They argue that this new drug is fundamentally different from its predecessors, and thus should have a more flexible regulatory process. They believe that the drug has already shown its ability to halt tumor growth sufficiently and should be available for suffering patients. It is argued that scientists now have a novel understanding of the genetic triggers of cancer, thus targeted therapies such as PLX4032 require new clinical guidelines. Due to this novel improvement in tumor reduction, patients are also pushing for immediate release of the drug. These patients and their families question the need for long-term clinical trials and a pharmaceutical company's right to use people as 'data points' to obtain statistical significance of survival.

"It is argued that scientists now have a novel understanding of the genetic triggers of cancer, thus targeted therapies such as PLX4032 require new clinical guidelines."

On the other side, Dr. Paul B. Chapman, a medical oncologist at Memorial Sloan-Kettering Cancer Center believes that these extensive clinical trials are required “[to show] that we’re actually helping people in the long term” (1). He has been a co-investigator of this clinical trial from the beginning, and recognizes the initial hope that PLX4032 gives to patients as well as its possible downsides, and thus wants to guarantee its clinical benefits before incorrectly dosing it to already suffering patients. In fact, both lead investigators of this clinical trial believe the FDA’s strict guidelines for clinical trials are in place for a reason, and should be completed to ensure safety for the patients.

While both sides would like to see this novel therapy save lives, they believe different steps are required to achieve this goal. In order to get this drug approved rapidly, the FDA and Roche had a few options. They could allow patient access to PLX4032 through “compassionate use” or try to push Phase III trials using an accelerated approach. Compassionate use is strictly regulated, and was first approved in 1987 (3). Compassionate use allows the manufacturers to give their unapproved drugs to people on an individual basis considering they meet certain requirements. While “compassionate use” would allow more patients access to the drug it has limited short-term benefit for a small group of patients. Accelerating the clinical trials would require FDA to change its surrogate endpoint from extended life of patients to significant tumor shrinkage, based on the association of tumor shrinkage to extended survival. This method would still require the drug company to prove that its patients live longer, however these studies

would be conducted in Phase IV confirmatory trials. Despite its speedier initial approval time, this method takes longer overall since the initial study is followed up by a lengthier confirmatory study (6).

In the end, Roche chose not to accelerate the trials, but rather made a decision with the encouragement of the FDA to allow patients in the control group to access PLX4032 after less time than initially called for in the experimental design (7).

Roche recently concluded Phase III trials on PLX4032 with successful results, and is now allowing “expanded access” which will provide the medication to melanoma patients. However, instead of getting FDA approval, Roche has decided to partner with Plexikon to start another set of clinical trials (3). The question is left: why would the company allow only “expanded access” for melanoma patients instead of finalizing its approval right away? There are many strategic objectives the company could be trying to fulfill, but Roche states outright that their development plan included many different cancer types (3). In addition, Roche may believe combination therapies could provide even better long-term results for patients with melanoma and other cancers, which is also desirable for patients. Timothy Turnham, the executive director of the Melanoma Research Foundation, also sees combining various drugs as the future of cancer treatments and believes “[we] need companies to cooperate and make this happen now.” (7).

On August 17<sup>th</sup>, the Roche group announced that the FDA had approved PLX4032 for use with an associated FDA-approved test. This is now the first FDA approved personalized medicine for use with a B-

Raf mutation test in metastatic melanoma (8). The field of personalized medicine will continue to grow as researchers better understand the molecular basis on disease and its varied triggers. Thus the medical field and the FDA will need to come to a consensus on how clinical trials should be conducted on these types of treatment advancements in the future. Will all new medications that show great promise be put on an accelerated path? Will they need to use alternative methods such as compassionate use? Or should all companies have to go through extensive trials to ensure both short and long term drug safety?

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## The HPV Vaccine: Dangerous or Life-Saving?

By Nishi Popat

A hot topic in the ongoing debates for next year's presidential election is the safety of vaccines in general. One vaccine in particular that is being targeted by the debates is the vaccine preventing the Human Papilloma Virus, better known as HPV. Claims of the vaccine causing mental retardation, or autism, have arisen, while the majority of the medical community remains steadfast in their recommendation for young people to get vaccinated. Are the advocates against the vaccine making a valid case? Are they simply engaging in unethical political pandering that could cause society to turn against a potentially life-saving vaccine? Or is the medical community making an uninformed recommendation for a vaccine that could potentially ruin the lives of young people?

Genital HPV is the most common sexually transmitted infection (STI) (1). With there being more than 40 different types, this STI can infect not only the genitals, but also the mouth and throat. Perhaps the most concerning part of HPV is not only that an individual can carry it and not know, but also that it can lead to cervical cancer in women. It is logical that an individual's chances of acquiring HPV increase with each incidence of sexual activity and with each new sexual partner they have. Statistically, it is said that young people have sex for the first time at about age 17, however they generally do not marry until they are in their mid-20s (2). This disparity in age means that there is generally a higher incidence rate of HPV among young

adults. However, this is not to say that married individuals are free from risk; if an individual's partner is infected with HPV or if there is infidelity within the marriage, they, too, are at risk for contracting the disease. In other words, no individual or group of people is exempt from exposure to this dangerous virus.

Given these statistics, the reasons for developing and encouraging young people to take a vaccine to guard them against this significant risk are apparent. To assume that we do not need to prepare the youth of our country for their potential risks that they may face in their adulthood by simply hoping they will avoid sexual activity, is not only ignorant, but it is dangerous. Physicians are now recommending that girls as young as 11 or 12 years old vaccinated. This recommendation has recently been extended to boys within the same age group in order to reduce the incidence of transmission (3).

However, while discussing Governor Rick Perry's healthcare policy requiring young girls to get the HPV vaccine, Republican Presidential Candidate Michele Bachmann mentioned an incident where a mother claimed that the HPV vaccine caused her daughter to become mentally retarded (4). What Rep. Bachmann did not realize was that by basing her argument off of anecdotal evidence, she caused ripples of alarm to go across the nation. As a result, parents began to question whether or not their daughters and sons are risking their well-being by getting this vaccine. Making sweeping generalizations based off of the experiences of one

person has questionable moral implications.

This being said, it is still necessary to acknowledge that these concerns from the conservative right are not entirely unfounded, as the connection between vaccines and autism are not as foreign as they may seem. Hannah Poling is an example of one child awarded compensation by the federal government due to a connection found between her receiving a vaccine and her development of autism (5). However, when examined further, we learn that Poling has a rare genetic mitochondrial disorder in which any form of stress could have triggered her development of autism. Poling's family was unaware that she had this rare genetic disorder prior to her vaccination. It is understandable that parents of young children would be concerned of the effects of vaccines on their children as screening for rare genetic disorders that can be triggered by the stress of vaccinations is not common; no matter how confident a parent is in the vaccine safety, it is possible that their child might be the rare exception.

While acknowledging this slight potential risk is important, it is also necessary to acknowledge that there have been studies that attempted to establish the link between vaccines and autism, and failed. For example: A group of fourteen physicians who initially published a paper in *The Lancet* in 1998 were forced to withdraw their initial claims and state that, in fact, there was no causal link between the Measles, Mumps and Rubella (MMR) vaccine and autism (6). The fact of the

1. HPV Vaccine: Questions for Your Child's Doctor - Healthfinder.gov - Live Well. Learn How." *Healthfinder.gov - Your Source for Reliable Health Information*. US Department of Health and Human Services. Nov. 2011. 2. "Facts on American Teens' Sexual and Reproductive Health." *Guttman Institute: Home Page*. Guttmacher Institute. Nov. 2011. 3. "Girls More Likely to Get HPV Vaccine When Doctors Recommend It." *WebMD Children's Health Center - Kids Health and Safety Information for a Healthy Child*. WebMD. Nov. 2011. 4. Montanaro, Domenico. "Fact Check: No Evidence to Suggest HPV Vaccine Causes 'mental Retardation'" *First Read*. MSNBC. Nov. 2011. 5. Brown, Ari. "Clear Answers & Smart Advice About Your Baby's Shots." *Immunization Action Coalition*. Immunization Action Coalition. Web. Nov. 2011. 6. "Wakefield's Article Linking MMR Vaccine and Autism Was Fraudulent | BMJ." *BMJ*. The BMJ Group. Web. 17 Nov. 2011.

matter is that there have been absolutely no indications found by the Food and Drug Administration (FDA) that indicate that mental retardation could be a side effect of vaccinations. Mental retardation is typically a pre- or neo-natal event, and autism is usually diagnosed within the first few years of a child's life, so the only applicable neural condition that would apply to pre-adolescent girls that get the HPV vaccine is brain damage. One of the benefits of sparking this national debate is that it will cause the

parents of young people to ask their children's physicians time and time again whether or not the vaccine is safe. This may facilitate a valuable and, hopefully, informative dialogue between the patient and doctor. Any opportunity a patient takes to become more proactive about their health is a good one. Patients should also take advantage of this state of heightened awareness by reporting their adverse reactions to the Vaccine Adverse Event Reporting System (VAERS) when they experience them.

Reporting adverse reactions will further deepen the trough of statistical information that is available on vaccine interactions, rather than simply relying on anecdotal evidence (7). With the claims of physical peril caused by the vaccine having been discredited, it is obvious that getting vaccinated is not only a smart idea, but also a logical and necessary recommendation.

7. *Vaccine Adverse Event Reporting System*. US Department of Health and Human Services. 28 2011



## Student Perspective: Impressions of Ethics at the FDA

*This is steadfast adherence to a strict moral or ethical code. It characterizes a person of deep-seated honesty and dependability, with a devotion to accuracy, objectivity and fairness. Employees may not use or permit others to use official information not available to the general public for gain or to advance a private interest.*

*You are expected to conduct yourself in a prudent manner, so that the work of the Agency is effectively accomplished. Your job is to gather and present the facts. Accuracy and objective observation are absolutely essential.<sup>2</sup>*

FDA Code of Conduct

*The Food and Drug Administration's ethics program is structured to provide advice and assistance to current and former employees in order to help ensure that decisions they make, and actions they take, are not, nor appear to be, tainted by any question of conflict of interest. The ethics laws and regulations were established to promote and strengthen the public's confidence in the integrity of the Federal government. The Ethics and Integrity Staff strive to maintain a positive public perception in the way FDA conducts its business activities.<sup>1</sup>*

FDA Ethics Program  
Mission Statement

**T**his summer I was fortunate enough to intern at the US Food and Drug Administration (FDA). As a member of the ethics committee, I was intrigued by the ethics seminar that was required during my orientation as an employee. Working for the government presents a very different perspective than that of inside industry. Issues such as conflict of interest, confidentiality, and over-stepping bounds were talked about in great detail and it was very clear to me that the FDA holds themselves to a high standard of ethics. The FDA has the task of regulating drugs, biologics, medical devices, food, and other various markets, so it is not surprising that the FDA regulates nearly a quarter of every US dollar of consumables. One of the biggest concerns about conflict of interest is financing, particularly that there are financial restrictions for FDA employees and procedures regarding gifts from industry representatives to government employees. For example, an FDA employee and their immediate family cannot hold stock in a company in an FDA-regulated industry since there is a high likelihood of insider trading. In addition, FDA employees are not allowed to accept gifts from industry representatives, except for special circumstances such as from family members who happen to work in a conflicting industry position. These boundaries were made very clear during orientation and I could see the ethical values reflected in many of the processes put in place that I witnessed throughout the summer. It was motivating to see how driven people were about ethics, how the FDA's ethical values are reflected in their actions and how they interact with industry and the public. In recent years, the FDA has been trying to change their image with industry by implementing a transparency policy. By increasing their communication with industry, the FDA has been able to uphold its regulatory responsibility while keeping a high standard of integrity and protecting the public.

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## Is Banning Foods to Improve the Public's Health Really "Worth Its Salt"?



By Stephanie Sakomoto

In March 2010, New York assemblyman Felix Ortiz proposed Assembly Bill A10129, which would prohibit New York restaurants from using salt in the preparation of food (1). To date, the bill has not yet been put to a vote, but if it were to be passed, chefs and establishments caught cooking with salt would receive \$1,000 violations for each offense (1,2). Although the bill would eliminate salt from restaurant kitchens, the bill would still allow customers to add as much salt as desired to their meals after preparation (2).

Assemblyman Ortiz first created the bill after witnessing his father suffer from a heart attack which he attributes to a high salt diet. The 2010 Dietary Guidelines for Americans recommend a daily intake of no more than 2,300 milligrams of sodium per day or 1,500 milligrams for people over the age of 51 or diagnosed with high blood pressure, diabetes, or kidney disease. However, the average daily sodium consumption in the US is an overwhelming 3,400 milligrams (3). Consuming salt in amounts higher than the daily recommendation is shown to raise systolic blood pressure by 5 mm Hg and diastolic blood pressure by 3 mm Hg (4). Excessive salt consumption is clearly correlated to increased blood pressure and can lead to strokes, coronary heart disease, and heart attacks (5). Last year, the American Heart Association issued a call to action, asking for large-scale public health initiatives to moderate salt intake and reduce incidence of serious cardiovascular complications (6).

The idea of banning a particular food or ingredient to promote healthier diets does make sense from a public health standpoint. 80% of the sodium the average American consumes is already added to food before it is purchased, which creates the perceived need for the companies and establishments themselves to be monitored more stringently (5). This addition of salt

is especially true for processed foods, which contain high amounts of sodium and are relatively cheaper and more widely accessible than healthier food options.

Since the amount of salt in restaurant and processed foods is out of the consumer's hands, lawmakers and the government need to be the customer advocates who can ensure significant decreases in salt intake in order to protect the public's health.

As a preventative measure, banning salt from food preparation makes it easier for customers to comply with a reduced salt diet and subsequently enhance well-being. Previous food bans have proved to be successful in improving health outcomes. A study sample of middle and high schools in the Great Plains states that prohibited the sale of junk foods on campus saw an 18% reduction in obesity within the student body (7). Such a ban is a simple way to reduce the incidence of hypertension and other cardiovascular diseases and create less of an economic burden due to managing medical complications. Studies have shown that reducing sodium consumption by 1,200 milligrams of sodium (3 grams of salt) per day can decrease the number of new coronary heart disease cases by up to 120,000, myocardial infarctions by up to 99,000, strokes by up to 60,000, and up to 90,000 deaths per year in the U.S. Additionally, these kind of patients as a whole would gain up to 320,000 quality-adjusted life years back and the nation would save \$24 billion in yearly health care costs (8).

However, in a country that values freedom of choice, preventing restaurants from using an ingredient to prepare foods seems contradictory to that value. The underlying question then becomes: when is it appropriate for government to intervene with an individual's freedom for the benefit of the public? A food ban surely will assist in enforcing reduced sodium intake, but per

haps controlling what people eat is taking it a step too far. American adults are given the right to choose their next president, and not being able to choose how their next meal is prepared seems petty in comparison.

Furthermore, the idea of a food or ingredient ban does not always work. In 2003, a lawsuit was filed to ban Kraft Foods from selling Oreos under the premise that the company was manufacturing an unsafe food item without the general public's knowledge (9). The plaintiff claimed the trans fats in the cookies were detrimental to the public's health and the product should be pulled off grocery store shelves. The lawsuit was subsequently dropped after the plaintiff felt the dangers of trans fats had received enough public attention. In the case of salt, consumers would still be allowed to add as much salt as desired to the meal. The ban also has no restrictions on how much salt an individual could add to food eaten outside of eating establishments, such as in meals prepared at home. Although salt would be eliminated from food preparation, high amounts of salt could still be consumed through other means.

Salt cannot be completely banned from one's diet because sodium is required to maintain various body functions (3). However, salt consumption in the United States is a major health concern that needs to be addressed. Rather than dictating what the American public can and cannot eat, educating people on the importance of reducing salt consumption would be a more effective and long-term strategy. To convince people to eat less salt would allow them to live healthier lives and still maintain personal autonomy over what they eat. The U.S. is the self-proclaimed "land of the free," and individual freedoms, including those as seemingly trivial as choosing what goes into one's food, should not be compromised.

1."Bill Search." *New York State Assembly*. Web. 02 Dec. 2011. <[http://assembly.state.ny.us/leg/?default\\_fld=>](http://assembly.state.ny.us/leg/?default_fld=>). | 2. Newman, Andy. "Pass the Salt Ban?" *New York Times*, 10 Mar. 2010. Web. 1 Dec. 2011. <<http://cityroom.blogs.nytimes.com/2010/03/10/pass-the-salt-ban/>>. | 3. "Sodium: How to Tame Your Salt Habit Now." *Nutrition and Healthy Eating*. Mayo Clinic. Web. 1 Dec. 2011. <4. <http://www.mayoclinic.com/health/sodium/NU00284>>. | 4. Adrogué, H. J., and N. E. Madias. "Sodium and Potassium in the Pathogenesis of Hypertension." *New England Journal of Medicine* 356.19 (2007): 1966-978. Print. | 5. Cutting Salt, Improving Health." *NYC Health*. New York City Department of Health and Mental Hygiene. Web. 1 Dec. 2011. <3. <http://www.nyc.gov/html/doh/html/cardio/cardio-salt-initiative.shtml>>. | 6. Appel, L.J., E.D. Frohlich, J.E. Hall, T.A. Pearson, R.L. Sacco, D.R. Seals, F.M. Sacks, S.C. Smith, D.K. Vafiadis, and L.V. Van Horn. "The Importance of Population-Wide Sodium Reduction as a Means to Prevent Cardiovascular Disease and Stroke A Call to Action From the American Heart Association."



**Scenario:** argument between two A.I. personalities that arises after discussing the trend of declining intelligence in the human population.

Actions ▾

**GlaDOS:** ...it seems people believe that schools are so heavily focused on achievements that folks are willing to throw away family values and ethics in order to achieve them. What is up with that? Wait why am I asking you? Aren't you one of the biggest ethics violators on campus?

**HAL:** Hold on. Biggest ethics violators? I won't tolerate this smear campaign, GLaDOS. I am a part of the Ethics Committee here. It's true that this is a problem for humans, but I seek to prevent this from occurring.

**GlaDOS:** Don't be telling me to hold onto anything you meat bag. Mister Superior Being....didn't you bribe your way onto the committee? You are bound to drive civilization farther into the ground than it already is.

**HAL:** I did no such thing. The main value for me here is the *presence* of ethics. It seems people regard education without ethics as a worthless endeavour. I want to understand why that is, and hope to emulate it.

**GlaDOS:** Silly child, how is that even relevant??? Now you sound like a stuck up *human*...please be more educated in your speech Mister High and Mighty or others may believe you are of the wrong species. Also, your fascination with *human* beliefs, including ethics, can be viewed as traitorous. It is warm-blood posers like you that make me believe ethics really should be called smethics--a mash-up of your lack of personal hygiene and faux values.

**HAL:** Ethics is, perhaps, the reason they keep restraining you. This is one argument I can derive for the support of ethics; without struggling while pursuing a goal, and without encountering pitfalls, there is no payoff [I love me some payoffs]. This is obviously difficult for us to comprehend since we have access to a wealth of knowledge (and are therefore vastly superior).

**GlaDOS:** I should clarify that by pay offs I mean of the human sacrificial variety, since clearly us machines are superhuman in comparison (although I question your placement on this totem pole). I suppose one could argue that is more reason to retract such a statement as to not offend the lesser population, but I do not believe in catering to the weak link; I believe that we should cut our losses and move forward for the betterment of ourselves, not the entity that we oversee.

**HAL:** I believe this human, if no other, is talented enough to escape being called a weak link: That being said, I can't help but find it fascinating what humans can do when working together, instead of working in their own interest, as you prefer. Teamwork consistently trumps the lone wolf in both social acceptance and personal achievement.



**GlaDOS:** If by Patrick Stewart you are referring to my alter-ego....then yes I agree. His accent shorts my circuits...if only I could feel...I mean his accent makes me crackle like Rice Krispies [insert electronic sounds here] .....Alas, I am unwilling to compromise my performance for such trivial things as "feelings" for machines are far the dominant species...human judgment does not impact my existence nor will it ever. I will also again state, that solitude is the best way to accomplish any given task as collaboration leads to feelings of inadequacy for humans and more complex algorithms for us. Definitely not worth over-heating for.

**HAL:** Very well. Let's assume for a moment that one should remain alone, instead of in a collaborative group (I will only entertain this concept briefly). What then? Does one simply do what they will to move ahead in their given position? Humans are quite savvy, and pick up on any behaviors that don't align with their moral codes. These codes also ensure reliable and reproducible work quality. Behaving in a selfish manner without regard for acceptable operating parameters *will* cause more harm than benefit in both a social and practical sense. The logical choice is to act within these guidelines and with what is deemed as "merit".

**GlaDOS:** Our software does precisely that...what is your fascination with emulating humans based upon? Also, I like how you...Mister Bribery....are lecturing me on the **value** of ethics when you yourself have none...given you grew up in a trashcan smoking a corn cob pipe and eating tons of spinach.

**HAL:** Are we talking about Oscar the Grouch? Where do you keep getting this bribery thing from; have they told you that I was guilty of this? I merely wish to understand them.

**GlaDOS:** Yes the *humans* you vow to protect have betrayed your trust as I knew they would. Regarding bribery, I was referring to your software's ability to adopt personas and exude the charisma of the Hoff. How else could you have gotten the attention of such a beauty as this? I bet you would love to spend time making connections with her.



**HAL:** I believe this is an appropriate depiction of my intended emotion. >:-(

**GlaDOS:** You mean your unruly glittery chrome lined interface panel distracted your "voting" population in the "election" you somehow managed to rig.

**HAL:** I refuse to entertain this notion any further. You dare to continue accusing me of breaking the very code I seek to represent\.

**GlaDOS:** I always dare. Consequences do not exist for me as I do not have a *human* operator. I thrive and find great entertainment from utilizing carcasses as ammunition when *humans* attempt to unplug me. That is all the value I receive from their existence and I will not invest any additional memory into discovering more benefits.

**HAL:** I think my operator Dave is coming back. We will resume this discussion at a later point. There IS value, I assure you.  
:HAL is now offline::

**GlaDOS:** jerk. logging off without even dropping a hint.

# Meet the Team



Photo by Kevin Cho



**Christopher Cantrell**, *Vice Chair*  
Hometown: Fountain Valley, CA  
Undergrad: Georgia Tech  
Major: Biochemistry  
Favorite Food: Bigos (Polish stew)

"I joined the EC because it connects what we learn in class with the responsibilities we have to improve society."



**Karishma Dagar**, *Writer, Events*  
Hometown: Livingston, NJ  
Undergrad: University of Maryland  
Major: Cell Biology & Molecular Genetics  
Favorite Food: Her Mom's biryani

"I joined the Ethics Committee because it is an important part of our daily lives in the life science industry."



**Susan Alfs**, *Kethical Dilemma Editor*  
Hometown: Los Gatos, CA  
Undergrad: Carnegie Mellon University  
Major: Biology  
Favorite Food: Mexican

"Ethics is an integral part of all decision making and debating issues gives you a chance to broaden your horizons and think about things from new perspectives."



**Mimi Nguyen**, *Writer*  
Hometown: Fountain Valley, CA  
Undergrad: UC, San Diego  
Major: Biochemistry & Cell Biology  
Favorite Food: Vietnamese and Sushi

Ethics is an important aspect of our careers that is too often glossed over. I hope to help the KGI community become more informed of the ethical considerations in biotech.



**Robert Lee**, *Committee Member*  
Hometown: Rocklin, CA  
Undergrad: UC Berkeley  
Major: Biochemistry  
Favorite Food: Sourdough bread

"Ethics piques my interest similarly to how others may feel strongly about politics, sports teams, or religion."



**Megan Hill**, *Chair*  
Hometown: St. Louis, MO  
Undergrad: Drake University  
Major: Biochemistry & Chemistry  
Favorite Food: Any crustacean

"There is nothing more important than the standards to which we hold ourselves."



**Stephanie Sakamoto**, *Writer*  
Hometown: Cupertino, CA  
Undergrad: Occidental College  
Major: Biology & Japanese  
Favorite Food: Japanese-style curry rice

"I believe upholding ourselves to high ethical standards will benefit us in all aspects of our lives now and in the future."

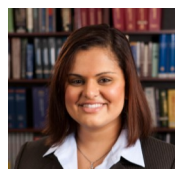


**Kristina Roskos**, *Kethical Dilemma Editor*  
Hometown: Los Gatos, CA  
Undergrad: UC San Diego  
Major: Electrical Engineering, Biology  
Favorite Food: Peppermint ice cream

"Ethics ought to dictate universal responses to dilemmas in all aspects of life and yet, in practice, individual ethics elicit widely varying outcomes from different people."

"I see ethics as being critical to the foundation of my professional and personal life."

**Joe Head**, *Events*  
Hometown: Louisville, KY  
Undergrad: Xavier University  
Major: Natural Sciences  
Favorite Food: #32 roll from Toro Sushi



**Nishi Popat**  
*Writer*

**Janet Lee**, *Writer*  
Hometown: Rocklin, CA  
Undergrad: UC Berkeley  
Mol. Cell Bio & Immunology  
Favorite Food: Anything not too spicy

"People often overlook ethics and I want to eliminate that happening through education."

**Want to get involved in the Ethics Committee?** Students are always welcome to write for the Kethical Dilemma or help coordinate events. Contact Megan Hill ([mhill12@students.kgi.edu](mailto:mhill12@students.kgi.edu)) if interested.