

National Citizen's Technology Forum

UC Berkeley, 3/1/08

Transcribed Flip Charts

INITIAL COMMENTS

- Scope of impacts was surprising: almost every aspect of our lives
- Safeguards: FDA, checks and balances
- GM food without our knowledge
- Potential for advancement. There is a lot of fear mongering, clones. The cat is out of the bag and regulatory agencies aren't up to speed.
- Applications take a long time
- Economics: access issues among those who cant afford it.
- Who is the target audience?
- More common/everyday applications are overlooked in favor of science fiction. How do you prioritize?
- Who is regulating? Corporations as socio-paths, who decides? Corporations who control water rights for example.
- Danger of stifling innovation. Have to be careful to not over-regulate. Regulate applications not research.
- Military: how to regulate them.
- Nano: sensors, cosmetics. Monitoring illnesses before symptoms appear.
 - In communities where there is a fear of authority and medical authority, or some illnesses are taboo, this could be really good because it would force people to accept that they are sick.
 - Illnesses like sickle cell anemia, diabetes, hear defects: unnecessary death. Artificial organs or technologies could help so much.
- What are the funding priorities for medical research? There is backlash against research because of impact on costs.
- Interesting point raised by disability advocates and choosing not to take advantage of new technologies/applications.
 - Restoring "normalcy". What is the normal standard everyone should strive for? This could be very dangerous.
 - Who's acceptable? What about diversity??
- Who will pay? Problems of affordability and access.
 - Health technologies get cheaper over time
- Moral aspects: impose this on the rest of the world and on all members of society.
- Short-sighted of disabled to refuse new technologies. They can be more cost-effective and efficient.
- Judgment against those who choose not to? Danger of imposition.
- There is inequality within and between countries. Danger of purposely withholding these technologies from certain groups and countries.

INITIAL COMMENTS ABOUT EXCITEMENTS, CONCERNS AND QS.

- Two things that "feel good": end hunger, created yummy, healthy food
- Who are the tessees? Prisoners, other captive audiences?

- Concerns: access, regulation
- Excitements: curing disease, mortality
- After reflection, concerns are greater than the excitements.
 - “On reading the materials before the discussion, had more excitements than concerns. But on writing and thinking about it, could think of more concerns than excitements.”
 - “Concerns and excitements are often two sides of the same coin”
 - “Don’t know what to be afraid of”. Raise concerns about asbestos, lead.
 - Caution on regulation. For ex., FDA is not very productive/ has no teeth.
 - Wont see the dangers for some time.
 - Might require additional agencies.
- Is it ok to loose one life in the name of progress?
 - Who decides? Who benefits and who looses? Consensus.
 - Is it ok to sacrifice one to save 500?
- The reality is that this is inevitable
 - Corporate interests vs. Government
 - Accountability for results and outcomes
 - Should it be inevitable?
 - Its already happening: robot pets, dolls, GM foods and animals
 - Both excited and scared
 - Is what inevitable? Need to distinguish between the research – which may be inevitable – and the applications – which may not be.
 - It is passive to say that we have no control over our own development.
 - For ex., this project is a good sign.
 - Can shape how technology will be used, regulated and accessed.
 - There is active public advocacy
 - “I don’t feel powerless but governments and corporate interests don’t care”. Not powerless, but not powerful. For ex., we are still building weapons and things that no one really wants.
 - Even if we don’t do it, someone else will, ie. in another country or a business.
 - Corporate interests: killing customers is inevitable! (the implication was that they will ‘self correct’)
 - “There are too many opinions. Scientists just make stuff and then its up to individuals to decide whether to use them. Too much regulation or regulation ahead of its time could be heavy handed and stifle innovation.”
 - But some things may become built-in, standard, so that individual choice doesn’t exist anymore. For ex., you can’t really choose to live without a computer because so many things you buy come in-built with a computer.
 - Its true that it is overwhelming the number of opinions that exist. Science and politics are intertwined.
- Disclosure:
 - Regulations on disclosure regulations, transparency and stricter clinical trials. It is possible and effective to lobby agencies for better regulation. For ex., FDA now posts on its website information on clinical trials and

that is the result of lobbying. The cosmetics industry for example has an unclear approval process.

- Choice is important: must be informed.
- Access to information is important.
- Need mechanisms for gathering information and for protest
- But product liability/litigation drives producer caution.
- Debates can prevent development of cures
- How can the public express itself? First, we need to know it exists. Public education/awareness is important.
- Things that are ok vs. those that aren't
 - Went back to the individual choice question.
 - It is possible to be selective or to discriminate between things that affect personal well-being and those that don't so much. For ex., electronics, cars, etc. can go ahead without debate: not so bad. But others like food people should have a choice or opportunity to give consent over.
 - But we are already eating GM foods, its too late, they're everywhere.
 - It would be great if everyone would pledge to "first do no harm"
 - The problem is that 80% of people will think that eyeshadow that changes color will think is really cool. (by implication, can't rely on the sum of individual choices to be responsible choices.)

EXCITEMENTS

Communication

1. Telepathic communication (human computer)
2. Acquire info and skills via technology

Disease/ Health care

1. Early detection
2. Treatment
3. Eliminate
4. Longevity
5. Better health/ Maintain better health
6. Cures for Alzheimers, strokes, etc.

End/ get rid of

1. Hunger
2. Reduced side effects of drugs/ individually tailored drugs
 - a. Ex.: allergies
3. Replacement tissues (ex. better skin grafts with nano)
4. Replacement parts (ex. orthopedics, organs)
5. Human-device interactions
6. Genetic manipulation

Enhancement/ super-humans

- A. Discretionary
 - a. Genetic manipulation

- b. Human device interface
 - c. Intelligence enhancement
 - d. Information like languages and skills through technology
 - e. Bodily and mental abilities that people want/need
- B. Encourage
- a. Reduce/eliminate mortality – longevity, health
 - b. Replacement tissues and parts
 - c. Sex change/ body type change
 - i. Ex. transsexuals
 - ii. Dogs that don't shed
 - d. Cosmetics
 - i. Ex. nano-floric toothpaste for whiter, nicer teeth
 - ii. Reduce negative side effects of chemotherapy

Others

1. Discovery process- science knowledge for its own sake
2. Cheaper medical treatment/ applications
3. “Artificial” substitutes for natural resources
4. Alternative energies

Comments

1. Most of the excitements, if not all, have potential for abuse
2. Distinctions:
 - a. Body/physical vs. mental/cognitive
 - b. Individual benefits vs. collective/global/social benefits
 - c. Improvements vs. fixing (enhancement vs. remediation)
3. Could profits from cosmetic applications, for ex., help finance development and use of medical applications (so reduce public access issues)?

Concerns

Governance

- Inadequate regulations
- Who Regulates?
- Who should make the rules?
- Military
- Corporate Control*
- Government Control
- Funding Responsibility
- Who decides?
- Improved Oversight
- Military
- The FDA has no teeth

Unintended Consequences

- FDA reactive, not proactive

- How will I know if my food is bioengineered?
- Truth in disclosure

Economic

- Haves/have nots
- Diverting \$ from other priorities
- Effects on job loss
- Discrimination
- Corporate Control*

Access

- Differential access
- Who gets the benefits?
- Exclusion (of people, nations)
- Corporate Control*

Privacy

- Discrimination based on presence or absence of enhancement?
- Medical information (being able to read from a chip) -> job discrimination, insurance discrimination?
- Knowledge of incurable diseases

Consent

- Situation where there is no alternative (e.g. avoiding computers now)
- Or, no alternative because “everyone does it”
- Using prisoners as guinea pigs for testing

Sociological

- Potential for discrimination (*2)
- Caste system?
- Wiping out communities (such as people of color, LGBT, QI, differently abled)
- Forced enhancement

Environmental

- Unsafe particles we can't “take back”
- Environmental consequences

Ethics/Morality

- Corporate Control*
- Good/Evil
- Eugenics
- Prisoners as Guinea Pigs
- Playing God

Safety

- Unsafe particle
- The FDA has no teeth
- Safeguards: “Will I know if my food is bioengineered”
- Truth in disclosure

Use/Abuse

- Use by the military
- Good and Evil
- Using Prisoners as Guinea Pigs

Initial Question List

Factual Questions

- Where is cloning used currently? For what purposes, and which species?
- Are cloned dogs as affectionate as regular ones?
- Funding sources for regulators?
 - Where specifically does funding come from (taxes, profits from other products)
- Will agencies be overwhelmed?
 - Will this require tradeoffs between quality of product assessment and time to market?
- What is going on with nanotechnology already (that we don't know)?
- How can we access information about current developments?
- Is the Freedom of Information act applicable to all government-sponsored research?
- Is government-funded research publicly accessible?
- Have we yet discovered any potential negative aspects of nanotechnology?
- Are we close to using nanotechnologies for immunization purposes?
- How many of these developments will we see in our lifetimes
- Where is nano out there now?
- What does nanotechnology entail?
- Are human clones in the close future?
- How will the standards for drug testing change? Will we take extra precautions in testing nanomaterials?
- Are we cloning cells, or entire individuals?
- Are there international bodies engaged in regulating nanotechnologies?
- Who decides who regulates?
- Are there any conclusive evaluations of existing nano applications?
- Is nano being applied to people yet?
- Are there alternatives to nanotechnologies/converging technologies for human enhancement that might be more cost-effective? More ethical? (More boring?)
- Is a race-change operation possible?

Broader/more Normative Questions

- Who will protect the clones from discrimination or abuse?
- Will they have the same civil rights as the rest of us?
- Are clones human?
- Should race-change operations be available?
- Can one government agency handle all of this? (No)

- Would we want one govt. agency to do so?
- Who decides who regulates?
- How will society be affected if only some can afford these enhancements?
- Will there be discrimination against repair of “self-inflicted” injury (e.g. liver replacement for alcoholics)
- Will parents be held responsible for not “correcting” conditions such as transgendered individuals? (left-handedness, low IQ, poor memory)
- What human traits/characteristic constitute the standard or norm?
- Who decides risk/benefit parameters for product go/no go decisions?
- Who decides who the beneficiaries will be?
- If tax dollars are invested, shouldn’t benefits return to taxpayers?
 - E.g. more affordable products?
- Who owns technology? (e.g. patenting of parts of human genome)
- How many new livers will insurance companies pay for (for the same individual)?
- Are there alternatives to technological enhancements for intelligence?
- Who decides what is frivolous (in terms of enhancements)?
- How would we determine what is fair, or constitutes cheating (in sports) in an era of enhancement?
- In the scenario of an implanted chip with personal health information, what if someone hacks it?
- What if your intelligence enhancement fails?
- How does one disable a self-repairing machine, particularly an intelligence-type enhancement?
- If we eradicate death, do we eliminate birth?
- Will quality of life improve along with extended longevity?
- How will we ensure that everyone has equal academic access, despite enhancement status?
- How will this affect social stratification?
- What other means are there towards health, longevity, happiness, etc?
- If you could live forever and you choose not to, do you go to hell?

Statements

- As a group, we are working with publicly available information
- Questions seem to stem from our concerns
- Clones rock
- Possibilities for regulatory checks and balances, multiple levels of oversight

