



# DILEMMAS & CONTROVERSIES

The science of genomics offers many potential benefits to society, but it also poses concerns. Most of the ideas will have dilemmas associated with them. We've listed a few here but visiting the other tables will also bring some interesting conflicts forward.

- 1) We are searching for clues to diagnosis, treatment, and prognosis for many illnesses. How do you balance the new knowledge without imparting a sense of determinism? In high school, we learned about single gene disorders that are generally deterministic: if both copies of the Cystic Fibrosis gene is mutated, Cystic Fibrosis results. However, not all genetic disorders are this clear and many single gene mutations that are involved in disease do not always lead to the disease (e.g. breast cancer genes). It gets more complicated when more than one gene is involved – how does this enter practice? How is it explained to doctors and patients?
- 2) Should we have a third sex? Many intersex individuals (or their parents) choose one sex for ease of conforming to society but some feel that a choice does not have to be made. What are the benefits and risks to choosing one sex? Would it be easier or more difficult to be a patient who had chosen one sex or one who remained intersex?
- 3) How do we choose what to treat? If there is a rare genetic illness that is fatal without medication, do we as a society treat that condition? Would it be fair to let the families pay? Would it be better for society if we took that some money and made sure that all children had access to food, shelter, good early childhood education, etc.?
- 4) Should we allow parents to screen sperm, eggs, or embryos?
  - a. For lethal conditions?
  - b. For life-threatening conditions?
  - c. For life-altering conditions?
  - d. For abilities?
  - e. For looks?
- 5) Some genetic tests may be able to with dosing or choosing the right drug (pharmacogenomics). Should taking that test be mandatory? What if that same test could also help determine your athletic ability or predisposition to dementia?
- 6) Some ethnic groups have an increase in some genetic diseases and some matchmakers in these communities have used the information from genetic tests to determine suitability (e.g. two carriers for the same disease are not a good match). Should this practice be mandatory? To take it further, should we encourage people to mate outside their ethnic background to reduce the incidence of genetic diseases?