Teaching the Genome Generation (TtGG) is a multifaceted teacher professional development program focused on human genetics, ethics and bioinformatics. The primary goal of TtGG is to increase genomic and genetic literacy by training and reinvigorating high school teachers. TtGG uses summer professional development courses to train teachers and during the academic year supplies portable laboratory kits, as well as support to participating schools. Participating teachers from New England and northern California implement the curriculum at a high rate in a variety of biology classrooms. Evaluation data collected over several years indicate that TtGG has increased teachers’ abilities to integrate complex concepts of genomics and bioethics into their high school classes.

**Professional Development ➔ Practice**

Teacher implementation of TtGG. The program has trained 165 teachers; 65% of them have implemented the program one or more times.

**OUTCOME Teacher feedback:**
“TtGG has had a very positive impact at my school. It helped me to develop two courses: Human Heredity and Biological Problems in Contemporary Society….In addition, many students have completed genetics related research projects in our Science and Technology Seminar and Project courses. Those were possible because of the techniques and methods students learned from the TtGG labs and protocols.”

**OUTCOME Evaluation:**
Self-efficacy items show increased teacher confidence when tested before the PD, and at the time of the implementation, sometimes months later. For example, respondents from the 2017 PD cohort (n=27) are 17% more confident on tasks related to use of bioinformatics tools at the time of implementation than before the PD.

**Molecular genetics** lessons include Micropipetting, DNA Extraction, PCR, Restriction Enzyme Digestion, Gel Electrophoresis and Sequencing Prep. Teachers perform experiments as they will be done in their own classroom during the academic year so that they gain confidence with the techniques and the equipment used.

**Bioethics** training within TtGG is provided in partnership with the Personal Genetics Education project (pgEd) of the Harvard Medical School Department of Genetics. Bioethics lessons increase participants’ confidence in making health care decisions and enhance interest in scientific and biomedical fields.

**Bioinformatics** remains a challenge for High School teachers. This year TtGG adapted our bioinformatics training approach. Our new lessons simplify entry into bioinformatics and use two case studies, *The Curious Case of James Lupski and Scientific Breakthroughs*, to guide teachers and students into biological database resources.

**OUTCOME Publications:**
