LawSeq Effort Aims to Clarify Issues of Consent, Standards, and Liability in Genomic Medicine

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NEW YORK (GenomeWeb) – Supported by a $2 million grant from the National Institutes of Health, a team of legal, ethics, and scientific experts from across the US is setting out to develop a set of professional guidelines — as well as a public-facing educational website — that will help clarify the current law and help guide future developments in lawmaking and legal decision-making as it applies to genomics.

The project, called LawSeq, is being co-led by Susan Wolf and Frances Lawrenz of the University of Minnesota, and Ellen Wright Clayton of Vanderbilt University, all of whom have extensive histories grappling with the legal and social questions that characterize genomic medicine.

Smaller projects have already begun to clarify and provide guidance for some of the legal aspects and questions that affect genetic testing and clinical genomic technologies. However, this larger, more comprehensive effort is timely as genomic sequencing's shift from research to clinical practice solidifies, as other aspects of medicine increasingly begin to incorporate molecular analysis, and as this shift begins to trigger legal challenges or regulatory considerations that have not previously been at issue.

Wolf, chair of the Consortium on Law and Values in Health, Environment and the Life Sciences at the University of Minnesota, and Clayton, co-founder of the Center for Biomedical Ethics and Society at Vanderbilt, spoke with GenomeWeb about the practical goals of the project, and examples of real-world issues that they believe the resulting guidance could help to ameliorate or to remedy.

The overall project is divided into four main target areas, Wolf said: liability, quality of data and variant interpretation, privacy, and frameworks for research-clinical translation.

For example, Wolf said liability, though it affects genomic medicine as it does all medical practice, raises particular and novel issues in the specific context of genome sequencing.

One recent event highlighting this is a lawsuit filed earlier this year in which a mother, Amy Williams, alleged that because Athena Diagnostics failed to accurately update its classification of the genetic mutation causing her son's epileptic seizures, he continued to receive treatment that worsened his condition and caused his death.

"It's a fabulous illustration of emerging concern in this area," Wolf said. "These are very difficult issues in any fast moving area of biomedicine, but also in genomics in particular. If you do a whole exome or whole genome on someone, do labs and clinicians have an obligation to reinterpret it periodically? Should there be systems set up so patients themselves can re-access the information?"

These difficult and unresolved questions are among those that Wolf, Clayton, and colleagues intend to provide guidance around in the eventual fruits of LawSeq.

The second major area of focus for the project is data quality and variant interpretation. But unlike liability, an area in which the law is largely driven by individual judicial decisions, Wolf said, the major force for change in this second area is regulatory.

As an illustration of some of the gaps in the current data quality and interpretation landscape that LawSeq hopes to help fill, Wolf cited a study published earlier this year by researchers from Vanderbilt University, which used data from the pharmacogenomics arm of the National Human Genome Research Institute's Electronic Medical Records and Genomics (eMERGE) project and found not only a lack of consistency in whether variants were deemed pathogenic between different participating labs, but also that individuals with a purportedly pathogenic variant in one of the two genes most often did not have any symptoms or signs of the predicted conditions.

"It's daunting," Wolf said. "How do we assure quality that patients and physicians can count on? There are lots of folks working on that problem in various ways, but it is also a genuine legal and regulatory issue."

Exactly how these issues will be resolved through laws and regulations is still up in the air, but the US Food and Drug Administration, for example, is working towards releasing a regulatory draft guidance on next-generation sequencing panel tests, and reiterated at last week's Festival of Genomics in Boston that it intends to make use of well-curated databases when it comes to establishing the clinical significance of the many variants that can be detected by NGS panels.

A third area of focus for LawSeq will be privacy. "In 2014 there was a major set of regulatory changes involving CLIA, [the Health Insurance Portability and Accountability Act], and also the high tech act," Wolf explained. "This gave patients direct access to their own lab reports. But once patients have this direct access it raises all these new questions in the genomic world. Direct access to what? To their raw data? Their interpreted lab report?"

Just this May, four patients filed a complaint with the Office for Civil Rights accusing Myriad Genetics of violating a federal law by withholding variant data detected during testing. The patients received genetic testing from Myriad to assess their risk for cancer, and in February, asserting their rights under the HIPAA Privacy Rule, they requested access to all genetic variants identified during testing.

In response, Myriad provided the patients with information on their clinically significant variants, but withheld those that the company doesn't include in test reports. Then, hours before the patients went public with their complaint, Myriad voluntarily provided the requested information.

"There is obviously a great deal of movement in the direction of securing access, and a lot of legal questions raised as to what kind of access it will be and how labs can effectively respond to requests," Wolf said.

Finally, the LawSeq group plans to address legal questions that hover around the translation from research to clinical applications of genomic sequencing, including differences and potential harmonization in consent procedures, and guidelines as to how and where patient results should be recorded if there is a potential for this type of shift.

To tackle the various legal and ethical questions that are open or disputed in these four areas, the team is taking a combined approach involving empirical work, analytic research, and negotiation to reach consensus within the group.

The empirical work is being led by Wolf's social science colleague and co-leader of the overall LawSeq effort, Frances Lawrenz. According to Wolf, Lawrenz has mapped out a strategy to reach out to key stakeholders in science, medicine, and law to measure and empirically analyze their views on the most pressing issues and likely solutions.

"We want the recommendations we develop to be deeply informed by what stakeholders see as issues they are hitting on the ground and actual solutions they are thinking about," Wolf said.

Wolf said that the project will also benefit from her and Clayton's extensive research in the field so far, as well as new data collection and analysis, to create a comprehensive resource of information on the law as it currently applies to genomics and genome sequencing.

The group will then meet, discuss, and come to a consensus, she said, eventually publishing guidelines to fill gaps in current laws and regulations, and to shape the direction that future changes in such laws and regulations take.

According to Clayton, as the group develops and then publishes its guidelines, there are multiple ways it may impact the legal field.

On the one hand, the group hopes simply to be persuasive to lawyers working in the field, so that when cases are being litigated, the final analysis and recommendations of the LawSeq team may find some traction.

The team's guidance could also be a resource for others in the writing of new laws, or in changes to existing regulations or statutes, she said.

Finally, another result of the analytical and data gathering portion of the project, Wolf said, will be the development of a public-facing website that simply describes in detail the current state of the law in relation to genomics and genome sequencing. "There is a tremendous amount of confusion among lawyers, but also more generally among the public and researchers, and a lot of clinicians, about what the law is and isn't," Clayton said.

"So to have a place where [individuals] can go on the web [and be exposed to some] comprehensive thinking about what the legal issues really are, what the protections are, and what else needs to be in place, I think it's going to be enormously valuable."