Fact Sheet: Data issues in Clinical Genomics

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EHR CAPABILITIES TO STORE AND USE GENOMIC DATA

What can EHR systems do now to support genomics in clinical practice

In general, the health care industry struggles to understand how to better incorporate genomics into patient care. Some of these challenges are attributed to the lack of genomic capabilities of electronic health record (EHR) systems. Basic EHR infrastructure is still missing – relying on PDF formatted reports (genetic/genomic testing labs) and sharing discrete data with the EHR. The question concerning who will pay for testing has slowed EHR innovation in precision medicine. Even as vendors are working to expand their genomics offerings, not every health care delivery system is ready. Providers, vendors, labs, and financial interests all need to come together. The industry needs EHR solutions today for genomic data.

Most EHRs have these capabilities today:

- Data structures for "clinically actionable" genetic variants
- Clinical decision support (CDS) for only a few chosen variants

Some EHRs have these capabilities:

- Genetic/genomic lab test orders tracked
- Pharmacogenomic management
- Cancer genomic profiling
- Alerts matching a patient for recruitment to a clinical trial
- Population-based queries

Industry challenges to resolve:

- Implementing broader CDS (physicians aren't looking for existing genetic PDF reports)
- Standardization of genetic phenotypes to maintain variant classification across patients and reports
- EHR modules for genetic counseling
- Support for large-panel genetic and whole genome sequencing
- Making the healthcare provider workflow from genetic test ordering to clinical interpretation seamless and time efficient

Standards adoption

- Until industry-wide adoption of data transmission standards, system-specific interfaces will need to be built for every lab used
- Challenges moving from the HL7 Version 2.5.1 lab specification to the new HL7 FHIR for Genomics Reporting
- Global Alliance for Genomics and Health (GA4GH) data sharing standards found in the Genomic Data Toolkit

Outlook

- Stakeholders coming together to drive universal lab interoperability
- Expanded clinical genomic interpretation and CDS supporting therapy guidelines
- Solutions coming from third party EHR integrations
- Patient controlled genomic data repository is being linked to the EHR
- Wider adoption and use of family health history information is needed

Add to the discussion by taking one minute on a short survey that covers the issues slowing clinical genomics implementation as standard of care.

Executive Highlights

EHR systems support limited functionality, but improving

Test payment question slowing EHR innovation

Standards ready for piloting, but adoption is slow

Need universal interfaces with labs

Genetic clinical coordination is necessary for for patient-centered care

Need consistent "standard operating procedurs" so data is stored and accessed in a consistent manner

Need policies for releasing test reports to patients through the EHR portal

With robust molecular data, AI/machine learning technology will benefit research, clinical care, and patient self-managment

Contact sholvey@wedi.org to join the WEDI Genomics Workgroup.