

Next Generation Sequencing Trends (Clinical Applications, Systems Used, Accreditation Status, Regulated Patient Sample Handling and Other Trends)

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Abstracts

Next generation sequencing is discussed frequently as a key to clinical diagnostics in the future. This report looks at the status of NGS today, and seeks to provide insights on the “on-the-ground” status of clinical sequencing. In the course of doing this, the report seeks to answer the following questions: What is the status of clinical applications for Next Generation Sequencing in laboratories currently? What vendors are winning? What systems are seeing usage and for what applications? How are labs responding to business pressures and regulatory challenges? What disease areas are seeing the most applications? What are labs future purchasing plans and how are clinical applications driving these decisions?

This study focuses on an email and telephone consultation of 110 laboratories which was carried out from April to June of 2013, with the majority in the latter portion. The survey effort targeted labs likely to be doing, or likely to be planning, applications of sequencing in either diagnostic or clinical research settings. Due to the increasing importance of 2nd and 3rd-generation systems in the market, the scope leans towards these types of sequencers. There are only 13 laboratories that have exclusively capillary systems, but these systems are still widely used. About 30% of the systems in the respondents' labs overall are capillary systems. The mix of labs reached in the surveys provides both a range of industry segments as well as groups of labs with both types of systems.

The survey asked labs about the following trends in Next Generation Sequencing and provides insights into the status of sequencing applications, including the following:

Number of Sequencers Owned

Models Owned

Applications Run

Number of Samples Run

Outsourcing Trends

Accreditation Status For Regulated Patient Samples

Sequencers Used for Regulated Patient Samples

Volume Change Expected In NGS

Use of Capillary Systems and Expectation for Future

Bottlenecks in Sequencing Process

Future Purchase Plans

Data Analysis and Management Challenges

Regional Differences (Europe, US, ROW)

A particular focus of this report is on the clinical future of sequencing. Questions address how labs are dealing with the handling of regulated patient samples and what disease areas are seeing the most applications and sample runs. Labs were queried on which systems were seeing the most clinical applications and the usage. Capillary systems are covered in the survey's scope, and survey details the extent to which these systems are used vs. NGS and what future purchasing plans are.

The survey effort targeted any lab that uses a sequencer for any application, but with the goal of achieving as close a representative breadth of labs as possible. Due to the increasing importance of next generation systems in the market, the scope leans towards these types of sequencers. However, the market inevitably includes labs that use capillary systems as well.

Labs were mostly contacted by phone and asked to participate in a phone interview/survey for around 10 to 15 minutes. A small fraction of the labs completed the survey on a website set up with the questions. The survey included both open-ended and multiple-choice type questions. In most cases, 49% of labs, the lab manager was the party interviewed. Research scientists or associates were spoken to in 35% of cases. The remaining respondents were technicians, executives, professors or others.

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