The need for rapid lung NGS

The hope

In a study including 326 samples, patients with a genomic profile available for a 1st line (1L) therapy decision had **4x higher** median overall survival [1]. This shows that patients treated based on molecular test results have better clinical outcomes.

80% 261 individuals had a genomic profile **available** before 1L therapy. Median overall survival was **24.6 months.**

20% 65 individuals had a genomic profile **unavailable** before 1L therapy. Median overall survival was **6.2 months.**

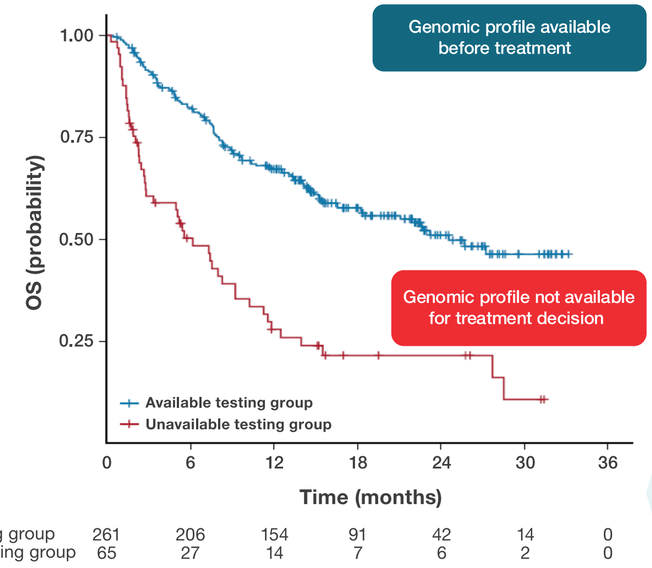


Figure 1. Odds of patient survival (OS) with and without a genomic profile available for a treatment decision.

The limited-access reality [2]

48.7% of non-small cell lung cancer (NSCLC) patients are prescribed therapy in the absence of a genomic profile.

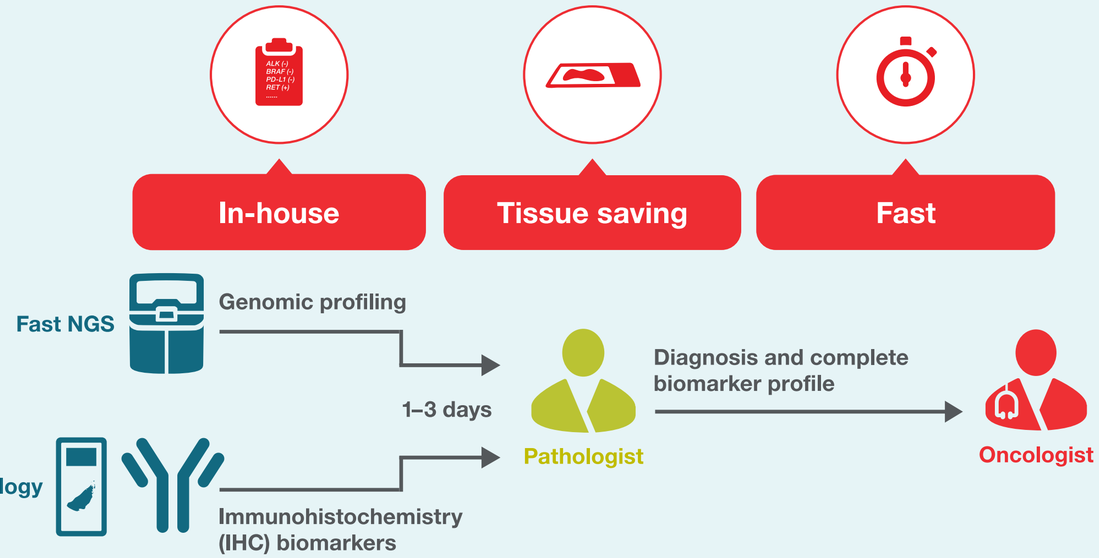
24.7 days is the average turnaround time of NGS-based tumor biomarker results in the US.

26.8% of patients either do not have sufficient tissue for genomic profiling or receive an inconclusive result.

The main gaps in clinical testing [2]

- **Access to the appropriate testing**
- **Sample inadequacy for testing and technical limitations of some tests**
- **Long turnaround time (TAT) for results**

The solution: rapid lung next-generation sequencing (NGS)

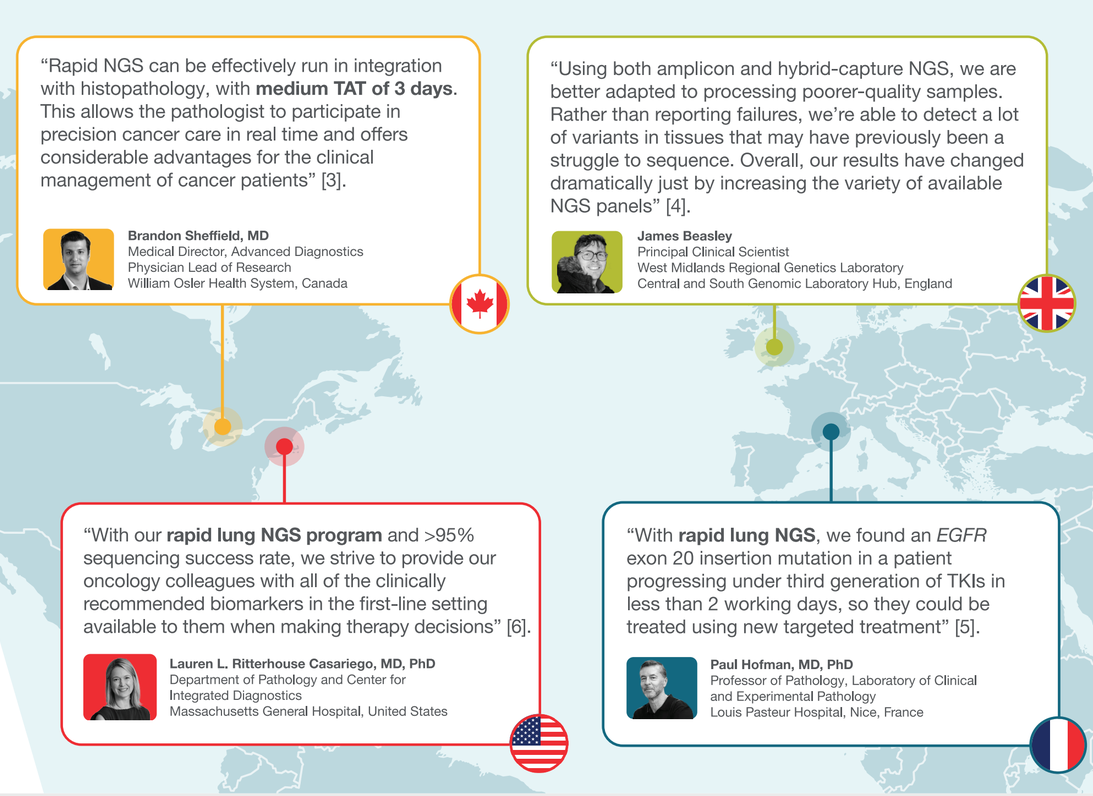


Reduction of pretest QNS (quantity not sufficient) from **24.6% to 0%**

24.6% ↓ 26.2% ↑

Increased detection of actionable oncogenic drivers from **35.2% to 61.4%**

By incorporating an amplicon-based NGS panel, a genomic hub laboratory achieved a significant drop in failure rates and an increase in the targetable-variant detection rate [4]



"Rapid NGS can be effectively run in integration with histopathology, with **medium TAT of 3 days**. This allows the pathologist to participate in precision cancer care in real time and offers considerable advantages for the clinical management of cancer patients" [3].

Brandon Sheffield, MD
Medical Director, Advanced Diagnostics
Physician Lead of Research
William Osler Health System, Canada

"Using both amplicon and hybrid-capture NGS, we are better adapted to processing poorer-quality samples. Rather than reporting failures, we're able to detect a lot of variants in tissues that may have previously been a struggle to sequence. Overall, our results have changed dramatically just by increasing the variety of available NGS panels" [4].

James Beasley
Principal Clinical Scientist
West Midlands Regional Genetics Laboratory
Central and South Genomic Laboratory Hub, England

"With our **rapid lung NGS program** and >95% sequencing success rate, we strive to provide our oncology colleagues with all of the clinically recommended biomarkers in the first-line setting available to them when making therapy decisions" [6].

Lauren L. Ritterhouse Casariego, MD, PhD
Department of Pathology and Center for Integrated Diagnostics
Massachusetts General Hospital, United States

"With **rapid lung NGS**, we found an *EGFR* exon 20 insertion mutation in a patient progressing under third generation of TKIs in less than 2 working days, so they could be treated using new targeted treatment" [5].

Paul Hofman, MD, PhD
Professor of Pathology, Laboratory of Clinical and Experimental Pathology
Louis Pasteur Hospital, Nice, France

References
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2. Sadik H et al. (2022) Impact of clinical practice gaps on the implementation of personalized medicine in advanced non–small-cell lung cancer. *JCO Precis Oncol.* 6:e2200246.
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4. Creating made-to-measure NGS yesting with multiple panels: an interview with Yvonne Wallis and James Beasley on their experience using a multi-panel approach to oncology biomarker sequencing. *The Pathologist.* October 2022.
5. Illié M et al. (2022) The need for rapid lung NGS: speeding up lung cancer NGS so oncologists and NSCLC patients don't have to wait. *The Pathologist.*
6. Illié M et al. (2022) Setting up an ultra-fast next-generation sequencing approach as reflex testing at diagnosis of non-squamous non-small cell lung cancer. *Cancers* 14(9):2258.

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