Meet Billy†

an infant presenting with hypotonia at birth

Ordering rapid exome as a first-tier genetic test:

Prevented

- Progressive worsening of symptoms
- Possible death

Provided

- The correct diagnosis
- Targeted treatment proven to improve clinical outcome
- Genetic insights for the family

Initial workup revealed severe metabolic acidosis and lactic acidemia, and family history revealed Billy's brother died on day 1 of life with a similar presentation. Given the family history, Billy's healthcare provider **wanted answers quickly and ordered rapid exome sequencing.**

Rapid exome sequencing identified a homozygous pathogenic variant in the *HLCS* gene, which causes autosomal recessive holocarboxylase synthetase (HLCS) deficiency and results in impairment of gluconeogenesis, fatty acid metabolism, and amino acid catabolism. Most patients present in the newborn to early infantile period with metabolic acidosis, organic aciduria, irritability, lethargy, hypotonia, dermatitis, and seizures. **If left untreated, this condition can lead to intractable seizures, coma, developmental delay, and cerebral edema.**

As a **result of this genetic diagnosis,** Billy's care team made **important and informed medical management changes** and administered biotin, which resulted in improved feeding, increased alertness, and resolution of hypotonia.

The rapid exome sequencing delivered actionable results within 5 days that helped determine the correct treatment for Billy and provided likely answers for the family regarding the loss of their other child.

† - Fictionalized case study for illustrative purposes only