



# PRECISION MEDICINE IN MICHIGAN TO SAVE LIVES AND RESOURCES

## INCLUSION CRITERIA

- > Inpatient at a MI project site
- > <18 years old
- > Meets one of the following criteria:
  - Admitted to a critical care unit OR
  - Admitted to another high-acuity in-patient unit and is suspected of having a genetic diagnosis
- > Meets one of the following criteria:
  - Within 1 week of admission OR
  - Within 1 week of development of an abnormal response to standard therapy for an underlying condition

## EXCLUSION CRITERIA

- Patients whose clinical course is entirely explained by:
- > Infection or sepsis with normal response to therapy
  - > Isolated prematurity
  - > Isolated unconjugated hyperbilirubinemia
  - > Hypoxic ischemic encephalopathy with clear precipitating event
  - > Previously confirmed genetic diagnosis that explains the clinical condition (e.g. have a positive genetic test)
  - > Isolated transient neonatal tachypnea
  - > Trauma
  - > Meconium aspiration

PILOT SITE	# OF CHILDREN WHO RECEIVED RWGS	CHILDREN DIAGNOSED (DIAGNOSTIC RATE)	CHILDREN WHOSE CARE WAS CHANGED (CHANGE IN MANAGEMENT RATE)
Beaumont Health – Dearborn	2	1 (50%)	1 (50%)
Beaumont Health – Royal Oak	2	0 (0%)	1 (50%)
Bronson Methodist Hospital	6	3 (50%)	3 (50%)
Children’s Hospital of Michigan	3	0 (0%)	0 (0%)
Helen DeVos Children’s Hospital	14	6 (43%)	7 (54%)
Sparrow Hospital	3	2 (67%)	2 (67%)
<b>TOTALS</b>	<b>30</b>	<b>12 (40%)</b>	<b>13 (45%)</b>

## PRELIMINARY RESULTS OF RAPID WHOLE GENOME SEQUENCING (rWGS):

- > 40% of rapid genomes resulted in a diagnosis confirmed by the treating physician
- > 45% of children had changes to their care as a result of rWGS
- > **Oldest PBD patient:** 14 years of age
- > **Youngest PBD patient:** 6 days
- > **Race:** White - 73%; Black or African-American - 13%; Asian - 3%; Other - 3%; Unknown - 7%
- > **Ethnicity:** Non-Hispanic - 53%; Hispanic - 7%; Other - 3%; Unknown - 37%
- > **Sex:** Female - 33%; Male - 67%

## THESE CHANGES LED TO:

- > Avoided between 46 and 137 inpatient hospital days
- > Multiple avoided surgeries and procedures (including a tracheostomy, cerebral angiography, muscle biopsy, and skin biopsy)
- > Appropriate medications prescribed based on genetic diagnosis
- > Initiation of a heart transplant

## PROJECT SAVINGS\*:

NET BENEFIT PER PATIENT DUE TO REDUCTION IN HOSPITALS DAYS AND MAJOR PROCEDURES

**\$3,695**  
PER PATIENT FOR A TOTAL OF  
**\$110,850**

*\*as of 2/28/21*

