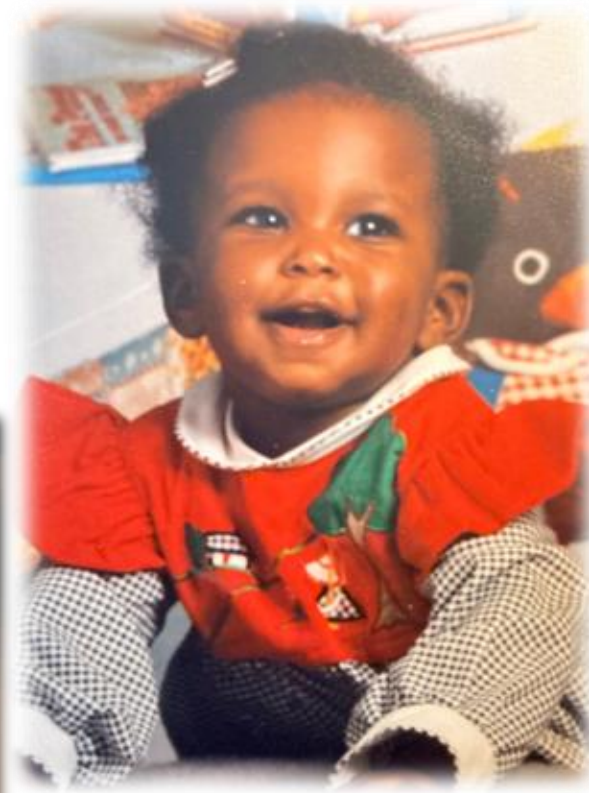


Glucose 6-Phosphate Dehydrogenase (G6PD) Deficiency Screening

Recommendation for inclusion in the New England
Newborn Screening Program



Many are not given the
GIFT that prevents a
hemolytic crisis



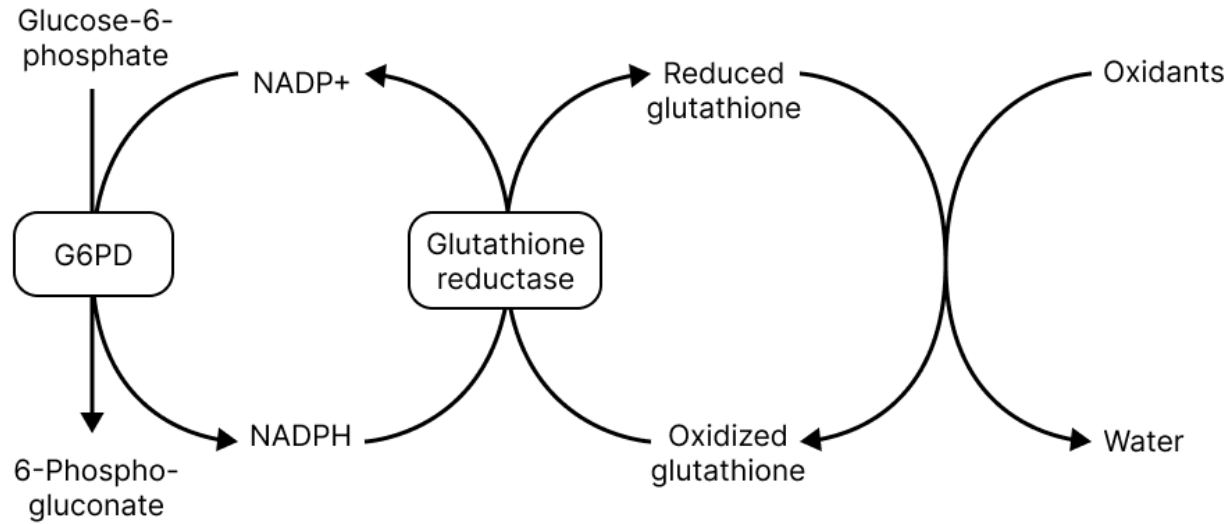
2022 New York State Law

Perform a diagnostic test for every baby that has one or more of the following risk factors:

- Hemolytic anemia
- Hemolytic jaundice
- Early-onset neonatal jaundice persisting beyond the first week of life (bilirubin level greater than the 40th percentile for age in hours)
- Admitted to the hospital for jaundice following discharge
- Familial, racial or ethnic risk of G6PD Deficiency (**African, Asian, Mediterranean or Middle Eastern ancestry**)



Hexose Monophosphate Shunt



Potential Consequences of G6PD Deficiency:

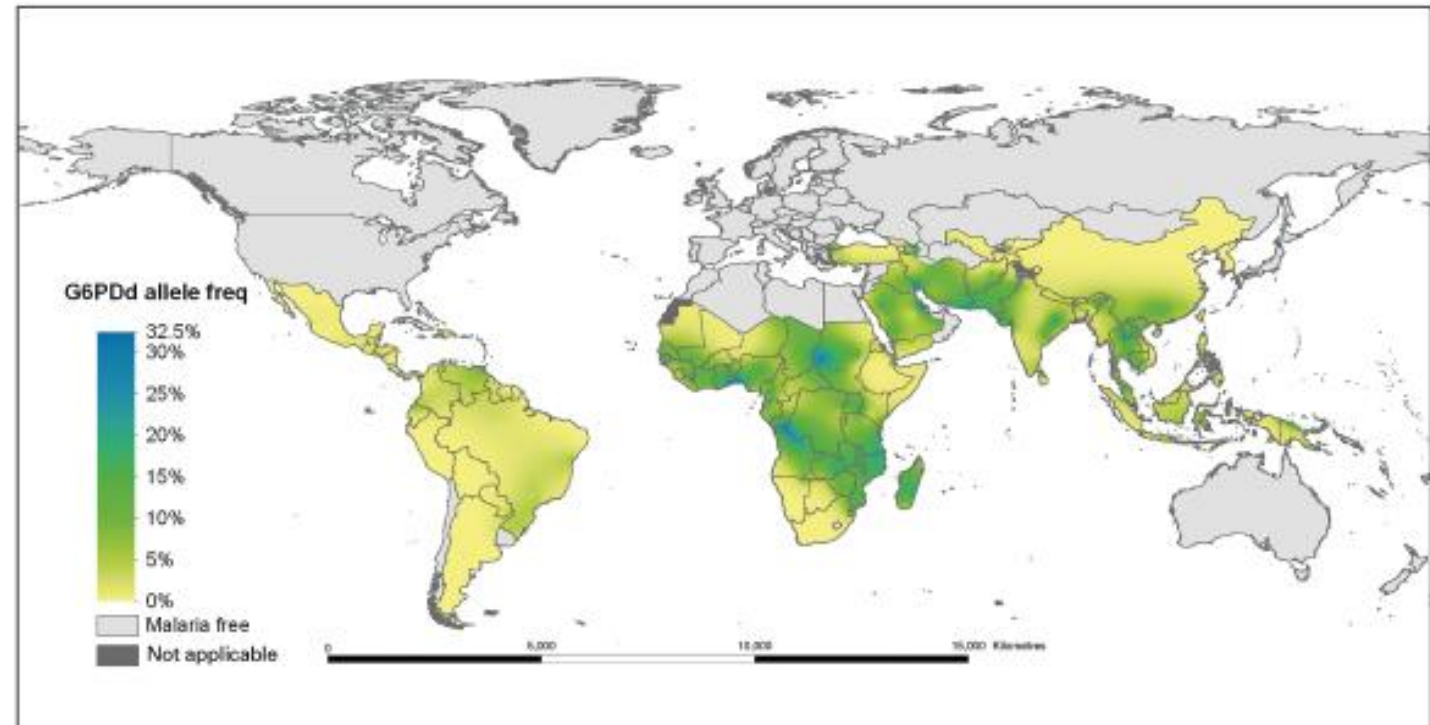
- Kernicterus
- Severe anemia
- Renal Failure
- Death

Estimated to cause 14 instances of kernicterus and 2 deaths annually in the United States

G6PD deficiency overview

- 230+ variants
- 500+ million people

FIGURE 4.
Estimated G6PD deficiency allele frequencies in malaria-endemic countries



Source: Howes RE et al. Spatial distribution of G6PD deficiency variants across malaria-endemic regions. *Malaria J.* 2013;12:418 [13].

WHO Recommendation: Universal screening if expected positivity rate >3-5% of population

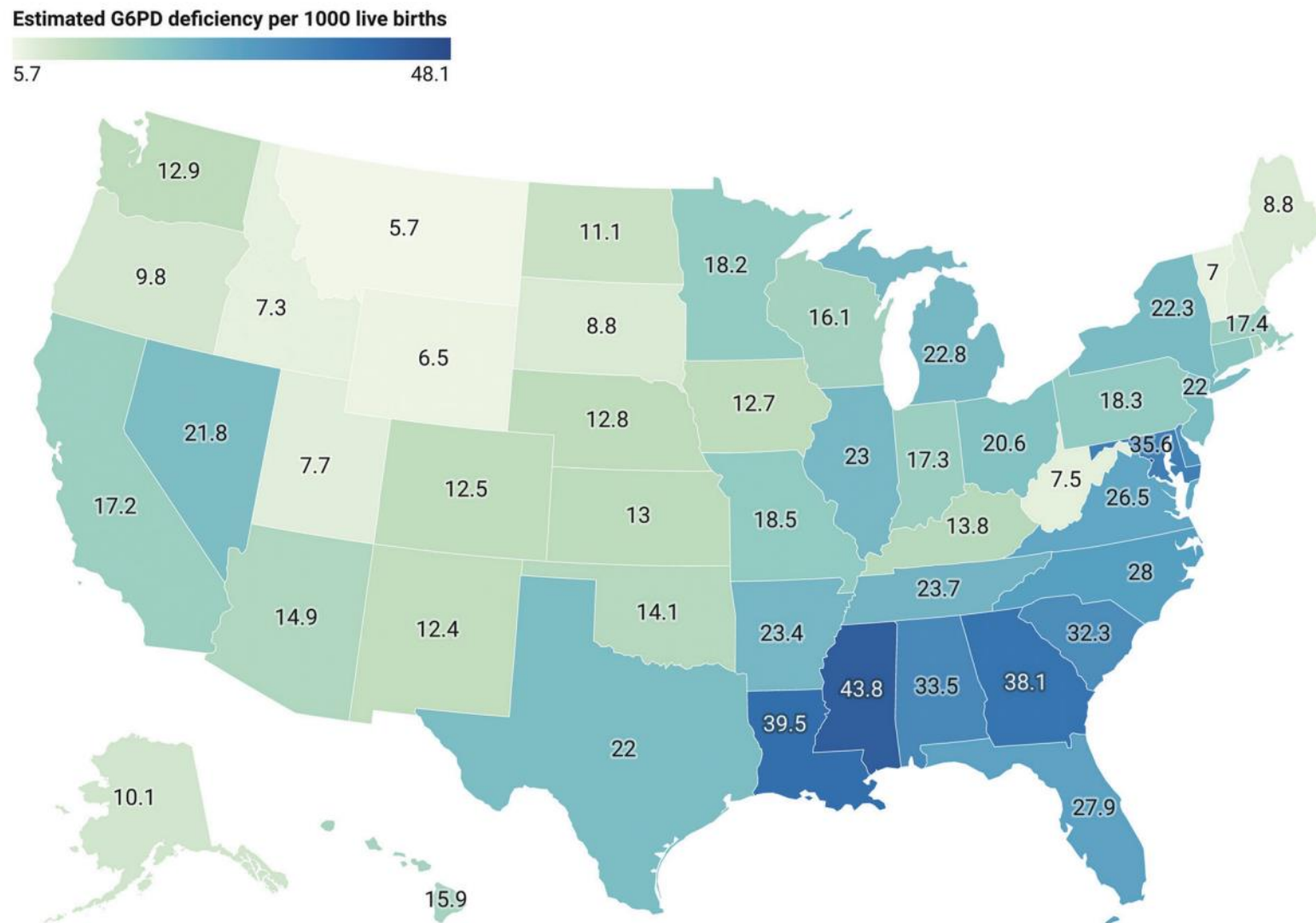


Fig. 1 Glucose-6-phosphate dehydrogenase deficiency (G6PD) in United States. Rate per 1,000 live births based on overall prevalence rates by Lee et al¹⁷ and annual births by states in 2019.

The Prevalence of G6PD deficiency (G6PDd) in Massachusetts:

Expected G6PD deficient newborns in Massachusetts			
	G6PDd Prevalence in newborns *	Births**	Expected newborns
White	0.72%	48,981	355
Black	6.55%	11,375	745
Asian	0.50%	5,797	29
Other	2.70%	1,917	52
Male	2.90%	34,710	1006
Female	0.41%	33,474	136
Total			1142
*Racial and sex based prevalence based on Dalldorf et al., Pediatrics, 2026			
** Massachusetts Births in 2024, National Center for Vital Statistics			

Options for Screening Newborns

- Qualitative Testing
 - Cheap, easy
 - False negatives, not reliable for females
- Molecular (DNA) Testing
 - Newborn Dried Blood Spot screening
 - Gold standard for genotype testing
 - Result not back soon enough to alter bilirubin management
- Quantitative Testing
 - Gold standard for phenotype testing
 - Cheap
 - Can potentially be run by hospital labs, more often done by outside reference laboratories

How Early Diagnosis Changes Outcomes

Newborn		Child/Adult
Education	Bilirubin Management	Education
Trigger Avoidance for baby	Use “neurotoxicity” phototherapy and exchange transfusion thresholds	Trigger Avoidance
Trigger Avoidance for breastfeeding mother	Closer follow up with the Pediatrician after discharge	Viral/Bacterial infections
	Monitor bilirubins until downtrending spontaneously	- Immunizations



Countries that have implemented universal G6PD screening report decreased rates of kernicterus



One country reported a 95% reduction in hospitalizations related to G6PD deficiency trigger induced hemolytic crises after G6PD testing introduced

Resources



G6PD deficiency Lifestyle Guide

Written by: Brienne Brathwaite MS RDN CDN

Visit
G64Health.org for more.

DONATE

MEDICATION AWARENESS GUIDE FOR G6PD DEFICIENCY

THIS GUIDE SERVES AS A REFERENCE FOR POTENTIAL TRIGGER
MEDICATIONS FOR THOSE WITH G6PD. PRIOR TO TAKING ANY
MEDICATIONS, CONSULT YOUR DOCTOR FIRST

Antibiotics

- Sulphonamides
- Co-trimoxazole (Bactrim, Septrin)
- Dapsone
- Chloramphenicol
- Nitrofurantoin
- Nalidixic Acid

Antimalarials

- Chloroquine
- Hydroxychloroquine
- Primaquine
- Quinine
- Mepacrine
- Tafenoquine

Sulfa Drugs

- Sulfonamides & Sulfones (Dapsone)
- Acne Medication (Aczone)

Urinary Infection Drugs

- Bardium (Phenazopyridine)
- Macrobid (Nitrofurantoin)
- Maldiic Acid
- Sulfamethoxazole

Aspirin Based Over the counter

- Aspirin (acetylsalicylic acid)
- Anacin
- Excedrin
- Pepto Bismol

Chemicals

- Moth Balls (Naphthalene)
- Methylene Blue
- Henna Dyes
- Mentholated Products
- Napthylhydroxylamine (household drain, oven & bathroom cleaners)

Other Chemicals

- Detoxifying agents for chemotherapy treatment (Elitek-rasburicase)
- Beta-Naphthol or 2-Naphthol (Sudan Dyes)
- Large doses of Vitamin C (ascorbic acid)

Disclaimer: this list serves as a guide to bring awareness to potential trigger medications as dosages may affect individuals differently. Please consult your doctor for you medical questions.



Thank you!