Washington State Department of HEALTH

WASHINGTON STATE BOARD OF HEALTH

Newborn Screening Technical Advisory Committee (TAC)

NOTICE OF PUBLIC MEETING

Tuesday, January 14, 2025
9:30 a.m. – 4:00 p.m.

Note: This is a hybrid meeting held via Zoom and in-person at the Seattle Airport Marriott Hotel at 3201 S 176 St, Seattle, WA 98188. Meeting room: Snoqualmie Ballroom. Meeting access and instructions are provided below. Language interpretation available.

Newborn Screening Technical Advisory Committee (TAC) Agenda

Review of the Condition Branch-Chain Ketoacid Dehydrogenase Kinase (BCKDK) Deficiency to the Mandatory Newborn Screening Panel and Review of the Criteria for Adding a Condition to the Mandatory Newborn Screening Panel

Time	Agenda Item	Speaker
9:30 a.m.	1. Welcome and Agenda	Kelly Oshiro, TAC Co-Chair, State Board of Health Nirupama Nini Shridhar, TAC Co-Chair, Department of Health Kelly Kramer, State Board of Health Allegra Calder, BERK Consulting
9:45 a.m.	2. October TAC Recap, November Board Updates, Additional Considerations for Process Recommendation	Kelly Kramer, State Board of Health
10:00 a.m.	3. Overview of BCKDK Deficiency	Kelly Kramer, State Board of Health
10:05 a.m.	4. Family Perspective	Michelle Whitlow, Lewis County, Autism Coalition

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Time	Agenda Item	Speaker
10:20 a.m.	5. BCKDK Deficiency: Natural History, Diagnostic Testing, and Treatment	Phillip J. White, PhD, Associate Professor of Medicine, Division of Endocrinology, Metabolism & Nutrition, Duke University Beth Ogata, University of Washington Genetic Medicine
10:50 a.m.	6. Access and Equity Considerations for BCKDK Deficiency	Roberta “Bobbie” Salveson Mary Bridge Children’s Biochemical Genetics
11:05 a.m.	7. Available Screening Technology	Megan McCrillis, Department of Health
11:15 a.m.	8. Cost-Benefit Analysis	Megan McCrillis, Department of Health
11:30 a.m.	Break	
11:45 a.m.	9. Vote – Evaluate BCKDKD with Newborn Screening Criteria	Kelly Oshiro, TAC Co-Chair, State Board of Health Nirupama Nini Shridhar, TAC Co-Chair, Department of Health Allegra Calder, BERK Consulting
12:00 p.m.	10. Results and Discussion	Kelly Oshiro, TAC Co-Chair, State Board of Health Nirupama Nini Shridhar, TAC Co-Chair, Department of Health Allegra Calder, BERK Consulting
12:25 p.m.	Lunch	
1:00 p.m.	11. Introduction to Criteria Review	Kelly Kramer, State Board of Health

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Time	Agenda Item	Speaker
1:15 p.m.	12. Crosswalk: Recommended Uniform Screening Panel and Other States' Criteria for Condition Review	Megan McCrillis, Department of Health
1:30 p.m.	13. WA Five Criteria Review and Discussion Wisconsin Newborn Screening Nine Criteria	Kelly Kramer, State Board of Health Robert Steiner, Wisconsin Newborn Screening Program, Julie Thiel, Wisconsin Newborn Screening Program, Tami Horzewski, Wisconsin Newborn Screen Program
2:30 p.m.	Break	
2:40 p.m.	14. WA Five Criteria Review and Discussion Continued	Kelly Kramer, State Board of Health Kelly Oshiro, TAC Co-Chair, State Board of Health Nirupama Nini Shridhar, TAC Co-Chair, Department of Health Allegra Calder, BERK Consulting
3:30 p.m.	15. Vote - Criteria review	Kelly Oshiro, TAC Co-Chair, State Board of Health Nirupama Nini Shridhar, TAC Co-Chair, Department of Health Allegra Calder, BERK Consulting
3:45 p.m.	16. Discussion and Next Steps	Kelly Oshiro, TAC Co-Chair, State Board of Health Nirupama Nini Shridhar, TAC Co-Chair, Department of Health Allegra Calder, BERK Consulting
4:00 p.m.	Adjourn	

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Zoom Meeting Information:

Please click the link below to join the webinar:
https://us02web.zoom.us/j/83820442129?pwd=L9aABAWtAELujjHUOV0bpOpAaDt33d.1

You can also dial-in using your phone for listen-only mode:
Call in: +1 (253) 215-8782 (not toll-free)
International numbers available: https://us02web.zoom.us/u/kdeXrOmhZ2
Webinar ID: 838 2044 2129
Passcode: 281973

Important Meeting Information to Know:

- This meeting is open to the public. The public can observe the meeting online.
- The Technical Advisory Committee will not take formal action or receive public comment. If you have comments or materials you would like to share with the full Board, please send them to wsboh@sboh.wa.gov.
- Times are estimates only. We reserve the right to alter the order of the agenda.
- Every effort will be made to provide Spanish interpretation, and American Sign Language (ASL). Should you need confirmation of these services, please email wsboh@sboh.wa.gov in advance of the meeting date.
- If you would like meeting materials in an alternate format or a different language, or if you are a person living with a disability and need reasonable modification, please contact the State Board of Health at (360) 236-4110 or by email wsboh@sboh.wa.gov. Please make your request as soon as possible to help us meet your needs. Some requests may take longer than two weeks to fulfill. TTY users can dial 711.

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AVISO DE REUNIÓN PÚBLICA

Martes, 14 de enero de 2025
9:30 a.m. a 4:00 p.m.

Nota: Esta es una reunión híbrida que se realiza por Zoom y de forma presencial en el Hotel Seattle Airport Marriott en 3201 S 176 St, Seattle, WA 98188. Salas de reunión: Snoqualmie Ballroom. A continuación, le proporcionamos el acceso a la reunión y las instrucciones. Hay servicios de interpretación a otros idiomas disponibles.

TAC (por su sigla en inglés, Comité de Asesoramiento Técnico) del examen del recién nacido

Revisión de la deficiencia de la quinasa de la cadena ramificada de ácido cetoácido (BCKDK) para incluirla en el panel obligatorio de examen del recién nacido y revisión de los criterios para agregar una afección al panel obligatorio de examen del recién nacido.

Hora	Punto del orden del día	Orador/a
9:30 a. m.	1. Bienvenida y orden del día	Kelly Oshiro, copresidente del TAC, Mesa Directiva de Salud del Estado Nirupama Nini Shridhar, copresidenta del TAC, Departamento de Salud Kelly Kramer, Mesa Directiva de Salud del Estado Allegra Calder, BERK Consulting
9:45 a. m.	2. Resumen del TAC de octubre, actualizaciones del consejo de noviembre, consideraciones adicionales para la recomendación de proceso	Kelly Kramer, Mesa Directiva de Salud del Estado

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Hora	Punto del orden del día	Orador/a
10:00 a. m.	3. Descripción general de la deficiencia de BCKDK	Kelly Kramer, Mesa Directiva de Salud del Estado
10:05 a. m.	4. Perspectiva familiar	Michelle Whitlow, Lewis County, Autism Coalition
10:20 a. m.	5. Deficiencia de BCKDK: Historia natural, pruebas y tratamientos de diagnóstico disponibles y tratamiento	Phillip J. White, PhD, Profesor Adjunto de Medicina, División de Endocrinología, Metabolismo y Nutrición, Universidad de Duke Beth Ogata, Universidad de Washington, Medicina Genética
10:50 a. m.	6. Acceso y Equidad Consideraciones de la deficiencia de BCKDK	Roberta "Bobbie" Salveson, Genética Bioquímica de Mary Bridge Children's
11:05 a. m.	7. Tecnología de detección disponible	Megan McCrillis, Departamento de Salud
11:15 a. m.	8. Análisis del costo-beneficio	Megan McCrillis, Departamento de Salud
11:30 a. m.	Receso	
11:45 a. m.	9. Votación – Evaluación de BCKDKD según los criterios de evaluación del recién nacido	Kelly Oshiro, copresidente del TAC, Mesa Directiva de Salud del Estado Nirupama Nini Shridhar, copresidenta del TAC, Departamento de Salud Allegra Calder, BERK Consulting

Hora	Punto del orden del día	Orador/a
12:00 p. m.	10. Resultados y debate	Kelly Oshiro, copresidente del TAC, Mesa Directiva de Salud del Estado Nirupama Nini Shridhar, copresidenta del TAC, Departamento de Salud Allegra Calder, BERK Consulting
12:25 p. m.	Almuerzo	
1:00 p. m.	11. Introducción a la revisión de criterios	Kelly Kramer, Mesa Directiva de Salud del Estado
1:15 p. m.	12. Correspondencia: Panel recomendado de evaluación uniforme y criterios de otros estados para la revisión de afecciones	Megan McCrillis, Departamento de Salud
1:30 p. m.	13. Revisión y debate de los cinco criterios de WA Programa de Pruebas de Detección para Recién Nacidos de Wisconsin	Kelly Kramer, Mesa Directiva de Salud del Estado Robert Steiner, Julie Thiel, Tami Horzewski; Programa de Pruebas de Detección para Recién Nacidos de Wisconsin
2:30 p. m.	Receso	Kelly Kramer, Mesa Directiva de Salud del Estado
2:40 p. m.	14. Revisión y debate de los cinco criterios de WA y discusión continuados	Kelly Oshiro, copresidente del TAC, Mesa Directiva de Salud del Estado Nirupama Nini Shridhar, copresidenta del TAC, Departamento de Salud Allegra Calder, BERK Consulting

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Hora	Punto del orden del día	Orador/a
3:30 p. m.	15. Votación - Revisión de criterios	Kelly Oshiro, copresidente del TAC, Mesa Directiva de Salud del Estado Nirupama Nini Shridhar, copresidenta del TAC, Departamento de Salud Allegra Calder, BERK Consulting
3:45 p. m.	16. Debate y próximos pasos	Kelly Oshiro, copresidente del TAC, Mesa Directiva de Salud del Estado Nirupama Nini Shridhar, copresidenta del TAC, Departamento de Salud Allegra Calder, BERK Consulting
4:00 p. m.	Cierre de la sesión	

Información sobre la reunión por Zoom:

Para unirse al seminario web, haga clic en el siguiente enlace:
https://us02web.zoom.us/j/83820442129?pwd=L9aABAWtAELujjHUOV0bpOpAaDt33d.1

También puede participar por teléfono, mediante la modalidad de solo escucha:
Llamada: +1 (253) 215-8782 (no es un número gratuito)
Números internacionales disponibles: https://us02web.zoom.us/u/kdeXrOmhZ2
Id. del seminario web: 838 2044 2129
Contraseña: 281973

Información importante de la reunión que debe saber:

- Esta reunión es pública. El público puede participar como oyente de la reunión.
- El Comité de Asesoramiento Técnico no tomará medidas formales y no se permitirá la participación del público. Si tiene algún comentario o material que desee compartir con toda la Mesa Directiva, envíelos a wsboh@sboh.wa.gov.

- Los horarios son estimativos. Nos reservamos el derecho de modificar el orden de los puntos que se tratarán en la reunión.
- Se hará todo lo posible para proporcionar interpretación en español y ASL (por su sigla en inglés, lenguaje de señas americano). Si necesita la confirmación de estos servicios, envíe un correo electrónico a wsboh@sboh.wa.gov antes de la fecha de la reunión.
- Si desea acceder a los materiales de la reunión en un formato alternativo o en otro idioma, o si tiene una discapacidad y necesita una modificación razonable, comuníquese con la Mesa Directiva de Salud llamando al (360) 236-4110 o enviando un correo electrónico a wsboh@sboh.wa.gov. Le pedimos que presente su solicitud lo antes posible para ayudarnos a satisfacer sus necesidades. Es posible que algunas solicitudes tarden más de dos semanas en atenderse. Los usuarios de TTY pueden marcar el número 711.

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Newborn Screening Technical Advisory Committee (TAC)

NBS TAC Membership

MEMBER	ALTERNATE	REPRESENTING
Kelly Oshiro, JD Board Co-Chair Assistant Attorney General		Washington State Board of Health (Board)
Nirupama (Nini) Shridhar, MPH, PhD Department Co-Chair State Genetics Coordinator		Department of Health (Department)
Joan Chappel, RN, MSN Nursing Consultant Advisor/Supervisor	**Sunpreet Bhangoo, RN** Occupational Nurse Consultant	Washington Health Care Authority (HCA)
Byron Raynz Parent Advocate		Parent/Child Advocacy
Emily Shelkowitz, MD Pediatrics, Medical Genetics	**Christina Lam, MD** Medical Director, Biochemical Genetics	Pediatric Specialty Care, Seattle Children's Hospital Biochemical Genetics
Eric Leung, MD Neonatologist		Neonatology and Washington Chapter of the American Academy of Pediatrics (WCAAP)
Heather Hinton, MS Certified Genetic Counselor		Genetic Counseling, MultiCare Yakima Memorial
Joon-Ho Yu, MPH, PhD Pediatrics/Public Health Bioethicist		Bioethics, Department of Epidemiology, University of Washington Bioethics, Treuman Katz Center for Pediatric Bioethics and Palliative Care
Kristine Alexander Senior Medical Policy Research Analyst		Private Insurers, Regence Health Plans
Krystal Plonski, ND, LAc, EAMP, FABNP Naturopathic Pediatrics and Acupuncturist		Naturopaths, Seattle Children's Hospital, and Washington Association of Naturopathic Physicians (WANP)

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Newborn Screening Technical Advisory Committee (TAC)

NBS TAC Membership

MEMBER	ALTERNATE	REPRESENTING
Lisa McGill Vargas, MD Neonatologist	**Rucha Shukla, MD** Neonatologist	Pediatrics, Neonatal-Perinatal Medicine, Sacred Heart Medical Center Neonatology Intensive Care Unit (NICU)
Peggy Harris Public Health and Children's Health Advocate		Parent/Child Advocacy, Save Babies Through Screening Foundation
Priyanka Raut, DNP, MHS, RN Senior Director of Nursing		Pediatrics, Yakima Valley Farmworkers Clinic
Roberta (Bobbie) Salveson, ARNP, PhD Pediatric Nurse Practitioner, Medical Genetics		Pediatric Specialty Care, Mary Bridge Children's Hospital Biochemical Genetics
Taylor Kaminski, Community Doula		Perinatal and Postpartum Care, Global Perinatal Services
María Sigüenza Executive Director		State Commissions, Commission on Hispanic Affairs
Molly Parker, MD, MPH Family Medicine Physician		Provider, Population Health, Jefferson Healthcare
Michelle Whitlow, M.S. Executive Director		Parent/Child Advocacy, Lewis County Autism Coalition
Steve Kutz, BSN, MPH Chair, Washington State American Indian Health Commission		State Commissions, American Indian Health Commission

NBS TAC Staff Support

Kelly Kramer, Board Newborn Screening Policy Advisor
John Thompson, Department Director of Newborn Screening
Megan McCrillis, Department Newborn Screening Policy Advisor
Molly Dinardo, Board Policy Advisor

Crystal Ogle, Board Administrative Assistant
Michelle Larson, Board Communications Manager
Anna Burns, Board Communications Consultant

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Newborn Screening Technical Advisory Committee (TAC)

Newborn Screening Technical Advisory Committee (TAC) Charter

Start Date: October 28, 2024 **End Date:** June 30, 2025 (tentative)
Members: See TAC Membership Addendum A

OBJECTIVE

Serve as an expert advisory committee on newborn screening for the Washington State Board of Health (Board). Review and recommend possible updates to the Board's current newborn screening process and criteria. Additionally, evaluate several candidate conditions for potential inclusion in the Washington State mandatory newborn screening panel and provide recommendations to the Board.

BACKGROUND

The Board establishes the rules for newborn screening in Washington, including deciding which conditions all newborns must be tested for at birth. To make these decisions, the Board assembles a multidisciplinary Technical Advisory Committee (TAC) comprised of family representatives and representatives from healthcare, social services, advocacy organizations, public health, and more. Using available evidence, the TAC then assesses candidate conditions using guiding principles and five newborn screening criteria to determine which conditions should be added to the panel.

KEY ACTIVITIES

This TAC is being convened to complete the following key activities:

- Review the Board's current newborn screening candidate condition review process and criteria and identify opportunities for improvement.
- Determine whether branched-chain ketoacid dehydrogenase kinase (BCKDK) deficiency meets the Board's criteria for newborn screening panel inclusion and provide a recommendation to the Board. This is a requirement of Senate Bill 6234 (**Chapter 105, Laws of 2024**).
- Determine whether congenital cytomegalovirus (cCMV) meets the Board's criteria for newborn screening and provide a recommendation to the Board. This is a requirement of Senate Bill 5829 (**Chapter 96, Laws of 2024**).
- Review other possible candidate conditions recently brought in front of the Board between 2024 and 2025.

TAC TIMELINES (Tentative)

- Meeting 1, Process and Criteria Review – Monday, October 28, 2024
- Meeting 2, BCKDK Deficiency Review – January 14, 2025
- Meeting 3, cCMV Review – February 11, 2025

COMMITTEE NORMS AND EXPECTATIONS

- Be here now and stay purpose-oriented
- Listen for understanding; seek clarification and resist assumptions
- Appreciate the strength of diverse cultures and perspectives
- Engage respectfully; see with new eyes and hear with new ears
- Move up into a speaking role; move into a listening role
- Stay on topic and mind the time
- Assume positive intent; acknowledge and repair harms
- Try to avoid speaking with someone else is speaking
- Commit to using inclusive language in committee discussions and if possible, try to avoid using idioms or slang terms
- State your name each time you begin talking, and speak at a moderate pace to ensure language interpreters can appropriately translate what is being said
- Use acronyms where possible after introducing technical terms or proper nouns and encourage other committee members to do the same.

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Newborn Screening Technical Advisory Committee (TAC)

Newborn Screening Technical Advisory Committee (TAC) Charter

DECISION MAKING

- Proposed voting methods: This committee will use anonymous voting via Microsoft Forms and open discussion of results to inform committee decisions and recommendations.
- Proposed Primary or Alternative Member voting: Both primary and alternative TAC Members may attend these meetings, however, if both are in attendance the primary TAC member will be responsible for speaking and voting during the meeting. The alternative member only speaks and votes when the primary is not in attendance.

INFORMATION SHARING

The Newborn Screening TAC planning team will:

- Email and post meeting materials at least 48 hours before the scheduled meeting.
- Email updates and notices to TAC members and designated alternatives.
- Post information on the Newborn Screening Criteria Review Project webpage.

RESOURCES/REFERENCE MATERIALS

- **Chapter 246-650 WAC** – Newborn Screening.
- Washington State Board of Health **Process to Evaluate Conditions for Inclusion in the Required Newborn Screening Panel.**
- Washington Department of Health **Newborn Screening Webpage**

GUIDANCE FOR SPEAKING WITH LANGUAGE INTERPRETATION

The Washington State Board of Health (Board) offers American Sign Language and Spanish interpretation during our regular public meetings. We do this as a part of our work towards increasing language access.

We ask all speakers at Board meetings to follow this guidance to create an accessible meeting environment. If you have any questions or need guidance for presenting, please contact Board staff for support.

WHAT TO EXPECT DURING A BOARD MEETING

- You will receive a simplified version of this document at your seat on the day of the Board meeting.
- Board staff or interpreters may give you cues to slow down your pace. The cues may include:
  - Raising a paddle sign to signal you to slow down.
  - Making a brief verbal interruption asking you to slow down.

TIPS FOR SPEAKING AND PRESENTING DURING THE MEETING

We ask that you help us mitigate the need for interruptions by speaking at a comfortable pace. Our ASL and Spanish interpreters cannot deliver your message accurately if you speak too quickly.

- Take a breath after each sentence to give the interpreter time to deliver your message.
- If you are reading from a script, please be aware that you may read faster than you speak.
- To help the interpreters and audience identify you, state your name each time you begin talking.
- Wait until someone else finishes speaking before you speak. Interpreters can only choose one person to interpret at a time.
- Pause after introducing technical terms, proper nouns, dates, numbers, or figures to allow for interpretation.

TIPS FOR TECHNICAL TERMS

- We recommend including a pause after introducing technical terms, proper nouns, dates, numbers, or figures.
  - Example: *"This briefing will discuss rulemaking around newborn screening for Ornithine Transcarbamylase Deficiency (OTCD) [pause for interpretation, wait for cue from interpreter to continue], Chapter 246-650 WAC [pause for interpretation, wait for cue from interpreter to continue]."*
- After you introduce technical terms or proper nouns use their acronyms for the remainder of the introduction.
  - Example: *"For the remainder of this discussion, I will refer to this condition as OTCD."*
- If you are using visual materials (e.g., tables), incorporate descriptive language of the visual material.
  - Example: *"This is a table showing XXXX. And now, we'll look at this part of the table…"*

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Newborn Screening Technical Advisory Committee (TAC)

Key Terms and Abbreviations

- Advisory Committee on Heritable Disorders in Newborns and Children (ACHDNC)
- Amino Acids
- Autism Spectrum Disorder
- Branched-Chain Keto Acid Dehydrogenase Kinase (BCKDK) Deficiency
- Cost-Benefit Analysis (CBA)
- Decision Packages (DPs)
- Department of Health and Human Services (HHS)
- False Negative
- False Positive
- Health Resources and Services Administration (HRSA)
- Newborn Screening (NBS)
- Office of Financial Management (OFM)
- Office of Health and Science (OHS)
- Positive Predictive Value (PPV)
- Public Health Lab (PHL)
- Qualifying Assumption (QA)
- Revised Code of Washington (RCW)
- Recommended Uniform Screening Panel (RUSP)
- Sensitivity ("true positive rate")
- Specificity ("true negative rate")
- Technical Advisory Committee (TAC)
- Washington Administrative Code (WAC)
- Washington State Board of Health (Board)
- Washington State Department of Health (DOH, or "Department")
- Washington State Health Care Authority (HCA)

Washington State Board of Health

PROCESS TO EVALUATE CONDITIONS FOR INCLUSION IN THE REQUIRED NEWBORN SCREENING PANEL

Last updated November 13, 2024

Amended Section (Approved November 2024)
The Washington State Board of Health (Board) has the duty under RCW 70.83.050 to define and adopt rules for screening Washington-born infants for heritable conditions. Chapter 246-650-020 WAC lists conditions for which all newborns must be screened. Members of the public, staff at Department of Health (Department), and/or Board members can request that the Board review a particular condition for possible inclusion in the newborn screening (NBS) panel. ~~In order to~~ To determine which conditions to include in the ~~newborn screening~~ NBS panel.~~,~~ the Board convenes a~~n~~ newborn screening technical advisory committee (TAC) to evaluate candidate conditions using guiding principles and an established set of criteria.

~~The following is a description of~~ This document describes the Qualifying Assumption, Guiding Principles, and Criteria ~~which~~ the Board has approved ~~in order~~ to evaluate conditions for possible inclusion in the newborn screening panel. The ~~Washington State Board of Health~~ Board and Department ~~of Health~~ apply the qualifying assumption. The Board-appointed Newborn Screening ~~Advisory Committee~~ TAC applies the following three guiding principles and evaluates the five criteria ~~in order~~ to make recommendations to the Board on which condition(s) to include in the state's required NBS panel.

QUALIFYING ASSUMPTION

Amended Section (Approved November 2024)
Before ~~an advisory committee is convened~~ the Board convenes a TAC to review a candidate condition against the ~~Board's~~ five newborn screening ~~requirements~~ criteria, staff should complete a preliminary review ~~should be done~~ to determine ~~there is~~ whether sufficient scientific evidence is available to apply the criteria for inclusion. If the candidate condition is on the Health Resources and Services Administration (HRSA) Recommended Uniform Screening Panel (RUSP), the Board and Department will consider the qualifying assumption met and convene a TAC.

New Section (Approved November 2024)
A note on the RUSP: The RUSP is a list of conditions that the Secretary of the Department of Health and Human Services (HHS) recommends states screen for as part of their newborn screening programs. Once the HHS Secretary recommends a new condition, the Board and Department will review it for possible inclusion in the Washington NBS panel within two years of the recommendation.

New Section (Pending Board Approval)
Conditions pending RUSP Review or Previously Denied for the RUSP: RCW 34.05.330 of the Administrative Procedures Act (APA) allows any person to petition a state agency to adopt, repeal, or amend any rule within its authority. Agencies must respond to the petitioner within 60 days. If the agency accepts the petition, it must initiate rulemaking. An agency can deny the request for rulemaking, and in doing so, it must explain its reasons and, if appropriate, describe alternative steps it is prepared to take.

If the Board receives a petition for rulemaking regarding a candidate condition currently under review for the RUSP, the Board will wait until the federal committee finishes its review and the HHS Secretary makes a final decision before convening a TAC. For petitions involving conditions that have already been reviewed and denied inclusion on the RUSP, the Board will instruct staff to work with the petitioner to determine if concerns raised during the federal review have been addressed before recommending the Board convene a TAC to review the condition.

THREE GUIDING PRINCIPLES

Three guiding principles govern all aspects of the evaluation of a candidate condition for possible inclusion in the NBS panel.

- Decision to add a screening test should be driven by evidence. For example, test reliability and available treatment have been scientifically evaluated, and those treatments can improve health outcomes for affected children.
- All children who screen positive should have reasonable access to diagnostic and treatment services.
- Benefits of screening for the disease/condition should outweigh harm to families, children and society.

CRITERIA

1. Available Screening Technology: Sensitive, specific and timely tests are available that can be adapted to mass screening.

2. Diagnostic Testing and Treatment Available: Accurate diagnostic tests, medical expertise, and effective treatment are available for evaluation and care of all infants identified with the condition.

3. Prevention Potential and Medical Rationale: The newborn identification of the condition allows early diagnosis and intervention.
Important considerations:

- There is sufficient time between birth and onset of irreversible harm to allow for diagnosis and intervention.
- The benefits of detecting and treating early onset forms of the condition (within one year of life) balance the impact of detecting late onset forms of the condition.
- Newborn screening is not appropriate for conditions that only present in adulthood.

4. Public Health Rationale: Nature of the condition justifies population-based screening rather than risk-based screening or other approaches.

5. Cost-benefit/Cost-effectiveness: The outcomes outweigh the costs of screening. All outcomes, both positive and negative, need to be considered in the analysis. Important considerations to be included in economic analyses include:

- The prevalence of the condition among newborns.
- The positive and negative predictive values of the screening and diagnostic tests.
- Variability of clinical presentation by those who have the condition.
- The impact of ambiguous results. For example the emotional and economic impact on the family and medical system.
- Adverse effects or unintended consequences of screening.

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Newborn Screening Technical Advisory Committee (TAC)

Review of Branch-Chain Ketoacid Dehydrogenase Kinase Deficiency and the Board's Five Newborn Screening Criteria

January 14, 2025

January Meeting Objectives:

- Review the condition branch-chain ketoacid dehydrogenase kinase (BCKDK) deficiency against the Board's five criteria.
- Make a recommendation for the Board on whether to add BCKDK deficiency to the state's mandatory newborn screening panel.
- Review each of the five criteria; make recommendations including but not limited to: inclusion of benchmarks, definitions, updates to language.

October Meeting Recap:

The Newborn Screening TAC met on October 28, 2024, to review the process for evaluating and adding conditions to Washington's mandatory newborn screening panel. The TAC recommended that the Board must review all conditions on or added to the federal Recommended Uniform Screening Panel (RUSP) within two years of the Health and Human Services (HHS) Secretary approval.

On November 13, 2024, the Board approved the TAC's recommendation to the Board, along with two more considerations regarding RUSP conditions:

1. For petitions or condition review requests received for conditions currently under review by the federal committee, the Board should delay convening a TAC until the federal committee has made a final decision (either addition to the RUSP by the Secretary of HHS or not).

2. For petitions or requests related to conditions that have previously been reviewed and rejected by the federal committee for inclusion on the RUSP, the petitioner must work with the Board and Department of Health staff to address any deficiencies or recommendations identified by the federal committee as a part of Washington's initial evidence review.

Overview of January Meeting Activities:

The TAC will meet again on Tuesday, January 14, 2025. The agenda will include a condition review required by the Legislature and a continuation of the review of the Board's newborn screening criteria, which began during the October meeting.

Branch-chain Ketoacid Dehydrogenase Kinase Deficiency Review:

During the 2024 legislative session, the Legislature passed Senate Bill 6234. The bill directs the Board to use its process to review BCKDK deficiency to determine if it should be added to the newborn screening panel. The Board must also submit a report to the Legislature with an outcome of the review by June 30, 2025.

The TAC will evaluate BCKDK deficiency using Washington's current five criteria. The TAC will vote to determine whether BCKDK deficiency meets the following criteria: available screening technology; available diagnostic testing and treatment; prevention potential and medical rationale; public health rationale; and cost-benefit and cost-effectiveness. Based on this evaluation, the TAC will make a final recommendation to the Board as to whether BCKDK deficiency should be added to the newborn screening panel.

Board staff will present the TAC's recommendation to the Board at the March 12, 2025, Board of Health meeting. Board staff will also include the TAC's final recommendations and considerations in the report to the Legislature.

Five Criteria Review:

Once the review of BCKDK deficiency is complete, the TAC will review each of the Board's five criteria used to evaluate conditions for possible inclusion on the state's mandatory newborn screening panel. The TAC will identify how to revise the criteria, such as improving language, adding definitions or benchmarks. The five criteria were last reviewed in 2015.

Board staff will present the TAC's recommendations for updated criteria to the Board at the March 12, 2025, meeting.

November 7, 2024

Dear Newborn Screening Technical Advisory Members,

The Washington State Board of Health (Board) and Department of Health (Department) would like to thank you for participating in the Newborn Screening Technical Advisory Committee (TAC) meeting on October 28, 2024. We appreciate the committee's thoughtful discussions, questions, and recommendations, all of which will help improve Washington's newborn screening process and criteria.

On November 13, 2024, Board and Department staff will present the following TAC recommendations to the Board for consideration:

- All conditions added to the Federal Recommended Uniform Screening Panel (RUSP) meet the Board's qualifying assumption.
- The Board will convene a TAC to review a condition within two years of its addition to the RUSP.

Since the TAC made its recommendations, the Board has received an inquiry from a biotech company, Orchard Therapeutics, Metachromatic Leukodystrophy (MLD). MLD is currently under evidence-based review by the federal Advisory Committee on Heritable Disorders in Newborns and Children (ACHDNC) for inclusion on the RUSP. The committee is expected to issue its recommendation on MLD in May 2025. This inquiry raises important questions and considerations, which require additional input from the TAC.

To address this inquiry and guide the Board's response to future petitions for conditions under review or previously reviewed by ACHDNC, **we'd like your feedback on the following recommendations for Board consideration for conditions currently under review or denied addition to the RUSP:**

We propose:

- For petitions or condition review requests received for conditions currently under review by the ACHDNC, the Board should delay convening a TAC until the ACHDNC has made a final decision.
    - For conditions formally added by the Secretary of Health and Human Services to the RUSP, the Board will convene a TAC to review a condition within two years
    - For petitions or requests related to conditions that have previously been reviewed and rejected by the ACHDNC for inclusion on the RUSP, the petitioner must address any deficiencies or recommendations identified by the ACHDNC as a part of Washington's initial evidence review.

We appreciate your thoughtful consideration of these additional recommendations. We look forward to your feedback.

Sincerely,

Nirupama (Nini) Shridhar, PhD, MPH
Washington State Genetics Coordinator
Technical Advisory Committee Co-Chair

Kelly Oshiro, JD
Washington State Board of Health Vice Chair
Technical Advisory Committee Co-Chair

Minutes for the Newborn Screening Technical Advisory Committee
October 28, 2024
Hybrid Meeting
ASL (or CART) and Spanish interpretation available
Washington State Public Health Laboratory
1610 NE 150 St
Shoreline, WA 98155
Virtual meeting: ZOOM Webinar

Technical Advisory Committee Members present:

In-Room Participants:

Kelly Oshiro, JD, Board Vice Chair and TAC Co-Chair
Nirupama (Nini) Shridhar, MPH, PhD, TAC Co-Chair
Eric Leung, Washington Chapter of the American Academy of Pediatrics (WCAAP)
Joon-Ho Yu, Department of Epidemiology, University of Washington Bioethics, Treuman Katz Center for Pediatric Bioethics and Palliative Care
Byron Raynz, Parent Advocate
Roberta (Bobbie) Salveson, Mary Bridge Children's Hospital Biochemical Genetics
Emily Shelkowitz, Seattle Children's Hospital Biochemical Genetics
Priyanka Raut, Yakima Valley Farmworkers Clinic
Krystal Plonski, Naturopath, Seattle Children's Hospital, and Washington Association of Naturopathic Physicians (WANP)
María Sigüenza, Commission on Hispanic Affairs
Heather Hinton, MultiCare Yakima Memorial

Online Participants:

Joan Chappel, Washington Healthcare Authority (HCA)
Peggy Harris, Parent/Child Advocate, Save Babies Through Screening Foundation
Kristine Alexander, Regence Health Plans
Lisa McGill Vargas, Sacred Heart Medical Center Neonatology Intensive Care Unit (NICU)
Taylor Kaminski, Global Perinatal Services

State Board of Health (Board) staff present:

Michelle Davis, Executive Director
Kelly Kramer, Newborn Screening Project Policy Advisor
Molly Dinardo, Policy Advisor
Melanie Hisaw, Executive Assistant
Crystal Ogle, Administrative Assistant
Michelle Larson, Communications Manager
Anna Burns, Communications Consultant

Guests and Participants:

Allegra Calder, Facilitator
John Thompson, Department of Health
Megan McCrillis, Department of Health
Tony Steyermark, Department of Health
Samantha Fuller, Department of Health
Stephen Kutz, State Board of Health Member

1. **WELCOME & INTRODUCTIONS**

   Allegra Calder, Facilitator, and Kelly Kramer, Board staff, provided introductory remarks and overviews of the language interpretation channels and Zoom meeting functions.

   Facilitator Calder then invited TAC members to introduce themselves and share something they did for the first time over the past year.

2. **TAC OVERVIEW & MEETING NORMS**

   Kelly K. provided an overview of the TAC meeting agenda.

   Facilitator Calder outlined the proposed meeting norms.

   Kelly Oshiro, Board Vice Chair and TAC Co-Chair, and Nini Shridhar, TAC Co-Chair shared details about the TAC, including potential meeting schedules, timelines, and the purpose of today's meeting.

3. **OVERVIEW OF WASHINGTON STATE AGENCY CONDITION REVIEW PROCESS AND IMPLEMANTATION CONSIDERATIONS AND TIMELINES**

   Kelly Kramer, Board staff, provided an overview of the condition review process, Washington agencies and their roles in this process, implementation considerations, and timeline for the committee (see presentation on file).

   Joan Chappel, Committee Member, from the Washington Health Care Authority (HCA) provided additional information about the contracting timeline for managed care organization (MCO) rates and the accompanying fiscal analyses the agency needs to complete. Member Chappel explained that HCA is currently working on MCO rates set to take effect in June 2025 and emphasized that increases to the newborn screening fee impact MCO rates, requiring time to implement any changes.

   Allegra Calder, Facilitator, summarized the condition review timeline and provided additional information about agency decision packages (DPs). Facilitator Calder noted that DPs often face challenges in securing the requested funding.

   Eric Leung, Committee Member, from the Washington Chapter of the American Academy of Pediatrics, shared some perspective on the timeline and suggested that the Board could benefit from aligning its condition review process with the two-year Washington State legislative and budget cycles.

   John Thompson, Department of Health (Department) staff, noted that the process for reviewing candidate conditions and convening a TAC has varied, as petitions can be submitted anytime. However, John agreed with Member Leung that having a set review schedule could be helpful.

4. **INTRODUCTION TO THE RECOMMENDED UNIFOR SCREENING PANEL (RUSP)**

   Megan McCrillis, Department of Health (Department) staff, walked the TAC through the federal process for reviewing conditions for inclusion on the Recommended Uniform Screening Panel (RUSP), which was recently updated in August 2024. Megan outlined the steps involved, including condition pre-nomination and full nomination, the Advisory Committee on Heritable Disorders in Newborns and Children (ACHDNC) evidence-

based review process, and the final committee review, discussion and recommendation (see presentation on file).

Eric Leung, Committee Member, inquired about the pre-nomination and nomination process and whether the nominator can be a member of the public or if it needs to be a person within an ACHDNC committee workgroup who sponsors the nomination.

Megan clarified that the nomination can be submitted by a member of the public or a group of collaborators.

Member Leung asked whether the difference between the pre-nomination and nomination package is that the latter is a more detailed submission.

Megan explained that, as they understood the process, nominators were putting significant effort into submitting ACHDNC condition review packages, only to find that they did not meet basic criteria. To address this, ACHDNC created a pre-nomination form—a simple four-question form—as an initial assessment before allowing nominators to submit the complete nomination package.

Bobbie Salveson, Committee Member, expressed concerns about the RUSP, particularly the lack of parity in newborn screening conditions across states, leading to inequalities in testing and diagnosis.

Facilitator Calder asked Member Salveson to share more about the differences in screenings across states relative to the RUSP.

Member Salveson provided the example that Oregon screens for Fabry Disease and Gaucher's Disease, while Washington does not, and vice versa for Spinal Muscular Atrophy (SMA). Member Salveson noted that Oregon screens for conditions not on the RUSP, while Washington focuses on those on the RUSP. Member Salveson emphasized the lack of consistency across states in their screening practices, even for RUSP conditions.

Byron Raynz, Committee Member, inquired whether the changes in the federal committee's condition review process would affect or change the process in Washington.

Megan responded that Washington's process is not tied to the federal process or RUSP in any way, so these changes did not affect our current process. Megan added that some states follow federal processes more closely, a change that this TAC could potentially recommend to the Board.

Member Leung shared perspective on changes in newborn screening, noting that advances in screening technology and shifting population demographics have made factors that once influenced states' decisions to add conditions to their panels less relevant.

Priyanka Raut, Committee Member, echoed concerns about screening inequities across states.

María Sigüenza, Committee Member, asked if staff had identified any differences between those who submitted reviews before and after the federal process change. Member Sigüenza questioned whether the changes place more responsibility on the person submitting the request and raise equity issues or considerations that the committee should discuss.

Megan responded that adding the pre-nomination step may lower the barrier to submitting an initial request, but getting to the complete nomination package stage likely still requires a well-organized, resourced, and coordinated effort among medical partners, advocacy organizations, researchers, and more. Without this support, it would be hard for a person to complete this on their own.

Member Salveson added that many advocacy groups lead the nomination process. Member Salveson used the example of Krabbe Disease, which took over ten years of work from advocacy groups and other experts for ACHDNC to recommend the condition to the RUSP.

Krystal Plonski, Committee Member, inquired about how the Washington State newborn screening panel compares to the RUSP and whether Washington screens for non-RUSP conditions.

Kelly K. shared that Washington screens for most RUSP conditions, but three are not on Washington's panel.

Emily Shelkowitz, Committee Member, asked if staff could share more about Washington's condition nomination process and how requests are brought to the Board.

Kelly K. responded that the Board reviews conditions on a case-by-case basis, typically through petitions for rulemaking or direction from the Legislature. Kelly K. added that the TAC could consider several options for aligning with the RUSP, which staff plan to share more details about later in the meeting.

Molly Dinardo, Board staff, shared more about how condition requests have been made to the Board, most often through petitions for rulemaking, as the Board's rule establishes the conditions on the newborn screening panel. Molly briefly outlined the petition process, which the Administrative Procedures Act requires. Molly also noted petition submissions vary, ranging from detailed packages with research and data on a condition to an email or form asking the Board to consider a new condition.

Kelly Oshiro, TAC Co-Chair, thanked staff for explaining the process and noted that condition reviews directed by the Legislature are beyond the Committee's control. However, the Committee can address questions such as: If a condition is added to the RUSP, should it bypass TAC review, or would the TAC still want to review these conditions to determine their suitability for Washington? Additionally, does the TAC want to continue reviewing conditions on an ad hoc basis?

Joon-Ho Yu, Committee Member, asked if staff could provide more information about conditions requested through legislation and whether the addition of a condition to the RUSP should initiate a review in Washington.

John Thompson, Department staff, responded that the legislative route is often unpredictable, and the conditions brought to the Board through legislative directives likely stem from confusion or misunderstanding of Washington's candidate condition review process. John hopes this TAC will help clarify the process and create a clearer path forward.

Nini Shridhar, TAC Co-Chair, addressed Member Yu's question about whether adding a condition to the RUSP should initiate a review in Washington and discussed options for the TAC to consider how RUSP conditions could be reviewed in the state.

Member Raynz shared their experience with Washington's process, noting how easy it was to navigate the condition petition process without a medical or health background. Member Raynz highlighted factors like internet access, clear web pages with contact information, and the ability to connect with staff, all of which made the process smooth.

Member Raut thanked Member Raynz for their perspective, which addressed an earlier question about the Washington petition experience. Member Raut also inquired about making petition requests accessible to the public so community members can see ongoing work related to newborn screening in Washington and collaborate on these efforts.

Member Yu asked if the ACHDNC or Health Resources Administration (HRSA) has guidance on how states should implement their RUSP recommendations. Specifically, if the federal committee provides any social, regional, or population context with their recommendations.

Megan said the RUSP is a national guideline that states can use when identifying the conditions to include on their screening panels. If a condition is on the RUSP, it means the committee recommends that states add it.

John agreed with Megan and added that the RUSP is backed by funding from HRSA and the Centers for Disease Control and Prevention (CDC) to provide technical support to newborn screening programs for implementing RUSP conditions. Shortly after something is added to the RUSP, there's a flow of federal funding to help states support that work if they want to apply for it.

Megan asked Member Yu to clarify what they meant by social, regional, or population context.

Member Yu clarified that they were referring to the social conditions and values of states. Member Yu emphasized the importance of understanding the local context of states and their programs when making federal public health and medical recommendations.

Megan responded that Member Yu's question might be addressed in a later presentation.

Member Shelkowitz asked about the two conditions directed by the Legislature and if there is a publicly available list of ACHDNC members.

Megan shared that all ACHDNC meetings and materials are available online, and a membership list is also likely available, and staff would look for it during the break.

Kelly K. responded about the two legislatively directed conditions, which were branched-chain ketoacid dehydrogenase kinase deficiency (BCKDKD) and congenital cytomegalovirus (cCMV). The TAC will review these conditions in January and February.

BREAK

5. **OVERVIEW OF STATE PROCESSES FOR CONDITION REVIEW**
After the break, John Thompson shared a handout with in-person committee members that included the list of ACHDNC committee members.
https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/heritable-disorders/achdnc-membership-roster.pdf

Kelly Kramer, Board staff, gave an overview of condition review processes in other states to compare them with the process in Washington (see presentation on file).

6. **OPTIONS TO CONSIDER FOR THE WA CONDITION REVIEW PROCESS**
Kelly K. then presented three options for adjusting Washington's current process for the TAC's consideration (see presentation on file).

Eric Leung, Committee Member, . asked Kelly K. to clarify if the TAC is considering combining RUSP alignment with a standing two-year advisory committee.

Kelly K. responded that the TAC wouldn't be considering this as an option at this point, but they could discuss it in later meetings.

Member Leung wondered if that would be repeating efforts.

Allegra Calder, Facilitator, asked the TAC members to consider Kelly K's three options and consider any questions or clarification needed since the TAC would vote on them in the afternoon.

Peggy Harris, Committee Member, wondered if any conditions are unique to or specific to babies born in Washington State.

Member Leung couldn't recall recent examples but shared historical perspectives on conditions like sickle cell anemia, which disproportionately affected Black and African American babies. Member Leung also reiterated that, in recent years, the commonality of a condition has not been a significant factor in adding it to federal or state panels.

John Thompson, Department staff, noted that it's less about the prevalence of conditions in certain states and more about the availability of medical experts

specializing in rare conditions in different regions. This can influence whether non-RUSP conditions are reviewed or added to state panels. John cited Wilson's Disease as an example in Washington.

Lisa McGill Vargas, Committee Member, explained that historically, Washington had specific epigenetic patterns where some conditions were more common. However, the influx of new residents changes the disease patterns providers see in newborns. Member McGill Vargas also inquired about the process of obtaining funding for conditions and whether any of the proposed options would increase the likelihood of securing the necessary funding for screening.

Member Leung said that adding a condition requires rulemaking. If the TAC chooses RUSP alignment, maybe the rule could require the budget to accommodate new conditions, or alternative ways to address this through legislation may exist.

John agreed with Member Leung.

Emily Shelkowitz, Committee Member, highlighted the importance of considering local populations, using Pompe Disease as an example. Member Shelkowitz shared that Pompe has pseudo-deficiencies more common in the Asian population and can affect screening. It's essential to consider what Washington screens for and the impact on infrastructure and other factors.

Byron Raynz, Committee Member, noted that Washington appears to be largely RUSP-aligned and asked whether the state has evaluated conditions not on our panel but recommended to the RUSP and whether we've agreed with the federal committee's recommendations.

Kelly K. shared that guanidinoacetate methyltransferase (GAMT) deficiency was recently recommended to the RUSP, and a TAC recommended adding it in Washington. Washington will also reconsider mucopolysaccharidosis type II (MPS II) later this year. Kelly K. noted that Krabbe Disease has not yet been requested for review in Washington.

Member Leung said it's not trivial that Washington is screening for or recommending screening of most of the RUSP conditions and wondered if it's because our criteria are similar.

Molly Dinardo, Board staff, shared that Krabbe Disease was recently recommended for the RUSP, despite lacking full consensus from committee members. Molly explained that somewhat aligning with the RUSP while maintaining Washington's process would allow a TAC to review conditions like Krabbe and assess whether they are appropriate for Washington.

Heather Hinton, Committee Member, asked when the most recent condition was added to the RUSP.

Molly responded that ACHDNC has quarterly meetings, and the committee recommended the most recent condition in the spring. Molly added that federal statute

outlines the timeline for the committee to review condition nominations and issue determinations.

Member Shelkowitz thanked John for sharing the ACHDNC membership roster with the TAC and commented on the perspectives missing from the committee. Member Shelkowitz pointed out that the committee doesn't have a board-certified biochemical geneticist or a parent or family representative.

Facilitator Calder clarified for online attendees that Member Shelkowitz referred to the handout John shared after the break. Staff will send it to all committee members and link the document in the meeting notes.

Joon-Ho Yu, Committee Member, asked the staff to clarify option three for condition review.

John clarified the differences between options two and three. John explained option three would allow a Washington TAC to review a condition already assessed by the federal government. In contrast, option two would have Washington add the condition, if recommended at the federal level, without further review. John also noted that under option three, the Board and Department staff would jointly provide a TAC with information on a condition, a process they'll see for BCKDKD and cCMV.

Molly added that if the committee wanted to recommend option three, it would be helpful for them to discuss timelines for convening a TAC to review a federally recommended condition.

Kelly Oshiro, TAC Co-Chair, asked about MPS II and Wilson's Disease and whether these conditions were on the federal panel or met the Board's current qualifying assumption.

Kelly K. and John responded that the federal committee has not considered Wilson's Disease, and MPS II is a RUSP condition. But the Board determined it needed more information before proceeding with a TAC.

Co-Chair Oshiro said Wilson's Disease is an example of a condition that doesn't seem to fit squarely into the proposed options for condition review, and requests for non-RUSP conditions will continue to add work for our teams.

Krystal Plonski, Committee Member, asked if there is a national trend of states trying to move towards more RUSP alignment or more standardization of which conditions states screen for.

Molly responded that it is a mix of the two. Molly shared that the current Secretary of Health and Human Services (who approves or denies RUSP recommendations) has stated they want states to align with the RUSP. Molly added that a handful of states have passed legislation formally tying them to the RUSP, and it seems to be a conversation other states are having.

Nini Shridhar, TAC Co-Chair, shared a distinction that they see with option three versus option two: Washington will have the opportunity to still review conditions before they are added.

Member Shelkowitz added to Member Plonski's question that there's a website called NewSTEPs (https://www.newsteps.org/) that provides a data visualization map of the conditions screened state by state (https://www.newsteps.org/data-center/state-profiles?q=view-state-profile).

Bobbie Salveson, Committee Member, shared their perspective that RUSP alignment is influenced by who is in charge federally.

Member Leung asked if there is federal funding incentivizing states to align with the RUSP.

John confirmed that HRSA and CDC provide funding to incentivize states to align with the RUSP. John then highlighted challenges with RUSP alignment and new federal rules affecting newborn screening programs. John explained that even among RUSP-aligned states, inequities exist due to differences in how legislation ties states to the RUSP, leading to varying review and implementation requirements. John also mentioned that the FDA published a new rule in May regarding lab-developed tests, which will affect how newborn screening laboratories operate.

Member Salveson asked if the funding support from the CDC and the federal government is for the implementation of screening new conditions only or if it may also cover long-term diagnostic, follow-up, and treatment for these patients.

John said the most recent round of federal funding included long-term follow-up but less on the clinical side, such as providing therapies.

Member Raynz inquired about the current pipeline of conditions under review by the RUSP and the typical number of conditions added each year. Member Raynz also asked if the newborn screening program has any concerns with option two, specifically whether the program could be overwhelmed by new conditions on top of ad hoc condition review requests.

John acknowledged concerns about this, particularly with the new FDA rule change and its potential impact. John also noted other challenges, such as funding and the complexities of condition testing. John mentioned that laboratory space could become an issue in the future.

Member Leung commented that option number two seems to be the least expensive option because you could trust the federal committee and the RUSP to have done their homework and due diligence, and you wouldn't repeat the work.

Member Shelkowitz inquired about the RUSP criteria and asked if the TAC would review it during the meeting.

Facilitator Calder said the TAC would review the RUSP criteria after lunch and the

voting period. Facilitator Calder wondered if staff should move up the criteria overview and then vote. It sounded like committee members wanted to learn more about the RUSP criteria before voting and discussion.

Member Shelkowitz said the other piece they hope the committee will discuss is the impact of adding new conditions on providers' workloads and how this may differ from state to state based on birth rates and other factors.

Member Salveson agreed with Member Shelkowitz and said that the RUSP doesn't always consider the impact on clinicians and their perspectives. Member Salveson added that the two ACHDNC members who voted against recommending Krabbe Disease were both clinicians, which speaks loudly, and why overall RUSP alignment might not be the best idea.

Priyanka Raut, Committee Member, spoke from the perspective of living in an area where the federally qualified healthcare center is the leading facility managing primary care. Member Raut asked what perspective is given at the federal level to populations receiving care in these communities.

Facilitator Calder thanked the committee for a productive discussion and acknowledged the complexity of the topic. Facilitator Calder summarized the key points, highlighting the various perspectives and systems that must be balanced in these considerations. Facilitator Calder asked committee members to reflect further, with the TAC planning to continue the discussion after lunch.

LUNCH

7. **FEDERAL CRITERIA (RUSP) REVIEW** *(moved up in the committee agenda – from item 10 to 7)*
   Megan McCrillis, Department staff, guided TAC members through the criteria used to review conditions for the federal panel. Megan outlined the federal committee's evidence-based review questions, the decision-making matrix for assessing net benefit, and the feasibility of screening for state programs (see presentation on file).

   Bobbie Salveson, Committee Member, asked about the public health readiness piece of the review and whether it's dependent upon the number of public health surveys returned to the committee.

   Megan said they were not sure.

   Member Salveson raised a concern that if that part of the review depends on returned surveys, it could be skewed by the percentage of states that complete them, relying only on those states' responses for the readiness rating.

   Joon-Ho Yu, Committee Member, commented on the challenges of assessing the universality of newborn screening benefits using a simple yes/no binary. Member Yu raised the question: How do we understand the differential benefits for specific populations within the broader population, and how are these factors incorporated into the federal assessment?

Megan responded that the federal committee likely discusses this in their deliberations and explained that the committee's criteria differentiate between benefits for the newborn and the population.

Eric Leung, Committee Member, commented that the federal committee's approach seems like the current Washington state process.

Emily Shelkowitz, Committee Member, said it seems like a key part of the RUSP is still that treatability for the condition is limited within the first year. Member Shelkowitz asked if other states have amended this criterion in considering which conditions to add to their panels.

John Thompson, Department staff, mentioned they are unaware of state-specific nuisances when interpreting this part of the RUSP criteria.

Megan suggested that providing more detail on the four initial questions in the RUSP pre-nomination form may be helpful, as they haven't been discussed yet. Megan shared the four questions: 1) Is a newborn screening test available? 2) Is there agreement on the case definition of the targeted condition and diagnostic confirmation after a positive newborn screen? 3) Is there a prospective population-based newborn screening project identifying at least one infant with the condition? 4) Can identifying the targeted condition before clinical presentation allow for effective therapy and improved outcomes for screened infants?

8. **INTRODUCTION TO CRITERIA REVIEW** *(moved up in the committee agenda – from item 9 to 8)*
Kelly Kramer, Board staff, provided an overview of Washington's five newborn screening criteria (presentation on file).

Byron Raynz, Committee Member, inquired if there are any intentional differences between the Washington criteria and RUSP criteria.

John Thompson, Department staff, provided historical context on the development of Washington's newborn screening criteria and the initial RUSP, noting that the original Washington criteria were established in 2001 and 2002, before the RUSP, and updated again in 2015. John added that the original RUSP was less rigorous than Washington's criteria, but the federal group has improved its evidence review over time.

Allegra Calder, Facilitator, asked if any key distinctions between the Washington and RUSP criteria should be highlighted.

John said the fifth criterion, cost-benefit analysis, is specific to Washington and is a strength of our current process; we don't get this same level of state-specific economic analysis from the federal review.

Molly Dinardo, Board staff, noted that criterion five is a key point to consider between the three options presented to the committee before lunch. With option three, Washington would conduct its own cost-benefit analysis to determine if a federally

recommended condition is suitable for the state before proceeding. In contrast, option two would involve conducting the cost-benefit analysis only after the condition is already in the process of being added to the state panel.

Member Raynz inquired about what initiated the Board and Department to review its process and criteria.

Molly explained that this work was initiated in response to multiple newborn screening bills introduced during the last legislative session, as well as a request from the Governor's Office for the Board and Department to improve the current process and criteria to help minimize the number of newborn screening condition bills in the future. Molly also shared that there is work related to this topic at the federal level. The National Academies for Sciences Engineering and Medicine (NASEM) is conducting a national study, including a review of the RUSP review and recommendation process.

Emily Shelkowitz, Committee Member, inquired about how Washington State's newborn screening principles and criteria compare to RUSP trends. For example, the Washington criteria clearly state that universal screening is not appropriate for conditions that present in adulthood, but what about conditions that present later in childhood or adolescence?

Molly said this was a good question, and it could be explored in the TAC's discussion of possible criteria updates.

Member Shelkowitz added that another area that could be helpful to expand on in the criteria is what effective treatment means.

9. VOTING

Allegra Calder, Facilitator, provided voting instructions for committee members.

TAC Members then participated in an anonymous online vote via Microsoft Forms to select which of the three newborn screening condition review process options they would like to recommend for the Board's consideration.

10. RESULTS AND DISCUSSION

Allegra Calder, Facilitator, reviewed the TAC's voting results. Twelve TAC Members voted for option three, RUSP Meets Qualifying Assumption + Ad Hoc, while four voted for option two, RUSP Alignment + Ad Hoc.

Facilitator Calder then asked if any of the four TAC Members who voted for option two would be willing to share their perspective.

Members Sigüenza and Leung shared that they voted for option two because additional processes typically delay condition reviews and incur higher costs. They believed this option would maximize limited resources by utilizing an existing, proven federal process. Therefore, the RUSP alignment option would be the most economical and time efficient.

Peggy Harris, Committee Member commented that they had difficulty choosing between options two and three and that if they were to vote again, they would change their vote to option three; selecting option two would maybe give over too much control of our process in Washington.

Co-Chair Oshiro said they voted from the perspective of a healthcare consumer. They believed it would be better for candidate conditions to be implemented more quickly in Washington, which is why they voted for option two.

Facilitator Calder explained that, as a facilitator, their role is not to achieve consensus on a vote but to understand the reasons behind members' votes. The goal is to try to align the TAC with a majority vote, after which the Board can review the recommendations and make a final determination.

Emily Shelkowitz, Committee Member, commented on the international landscape of newborn screening and that it seems divergent from the U.S.'s processes and trajectory. The committee hadn't discussed this, but Member Shelkowitz wanted to share it to raise awareness. Member Shelkowitz added that well-resourced European countries are screening for fewer conditions, not because they don't have the infrastructure but because they have different interpretations of treatment availability and medical rationale.

Member Raynz said that, as a parent who had a child go through this process, they would have voted for option two, but having been a part of the process in Washington changed their perspective.

Member Leung said they still think Washington should consider a standing advisory committee in addition to RUSP alignment. They said if the TAC looks at the other four states that staff used for comparison to the process in Washington – California, Pennsylvania, Iowa, and Minnesota – three out of these four states are RUSP aligned and have a standing committee. They commented that a standing committee also allows Washington to review conditions at set intervals, which may be more efficient than convening ad hoc committees.

John agreed with Member Shelkowitz, noting that while several European countries can screen for more conditions, their government structures limit the scope of condition reviews. John also invited Tony Steyermark to weigh in on the condition review options.

Tony Steyermark, Deputy Director of the Washington State Newborn Screening Program, reflected on the TAC's morning discussion and shared their perspective on condition reviews. Tony explained that these reviews help Washington assess whether they have the resources to add new candidate conditions to the screening panel. If the program lacks the necessary resources, Tony emphasized that the reviews could help identify strategies for developing the infrastructure needed to improve the system and incorporate these conditions.

Co-Chair Shridhar shared their perspective that Washington has a robust process predating the RUSP and expressed concern that RUSP alignment could overwhelm the newborn screening program.

Member McGill Vargas expressed a desire for Washington to align with the RUSP and for the state to identify every newborn who could benefit from treatment. However, they voted for option three due to concerns about overburdening both the screening system and the systems responsible for counseling, intervention, and care. If Washington were equipped to implement RUSP conditions easily, they would have voted for option two.

Member Shelkowitz said that as a clinician who delivers the screening results to families and their newborns, they are concerned about some of the recent RUSP recommendations, such as Krabbe Disease. They emphasized that Krabbe is not a highly treatable condition and there are serious equity considerations around treatment.

Members Raut and Hinton shared that they voted for option three because they recognize that not all communities in Washington have access to the resources and specialized treatments needed for some rare diseases. They believe that the most equitable approach is to review each condition and determine its suitability for different communities.

Bobbie Salveson, Committee Member, inquired if the Legislature could overturn a TAC or Board decision on a candidate condition review.

John responded that the Legislature could technically overturn a TAC or Board decision through legislation.

Eric Leung, Committee Member, asked Co-Chair Oshiro how much the Board considers the RUSP when reviewing condition requests and whether making it a criterion for the qualifying assumption would save the Board time.

Kelly Oshiro, TAC Co-Chair, said it would save some time.

John estimated that the qualifying assumption work would not require four months of full-time effort but could total about four months of work. John added that the Board or the Department handles the qualifying assumption research. John mentioned that under option three, a formal nomination would no longer be required to be submitted to the Board; the condition would automatically become a candidate, speeding up the process.

Molly asked the TAC what timeline they would recommend for reviewing RUSP conditions if the Board agreed with the majority recommendation of option three.

Member Leung commented that based on the table staff presented earlier in the meeting comparing processes in other states, it seems they use either a two-year review or implementation timeframe or a twelve-month review. Member Leung noted that twelve months feels too quick and wouldn't be enough time.

Priyanka Raut, Committee Member agreed with Member Leung and noted that the biennial legislative period should be considered when timing reviews.

Facilitator Calder asked staff if a two-year timeline was a reasonable recommendation.

John said that if the TAC recommends that the Board adopt a biennial calendar for RUSP condition reviews, then in January of next year, staff will know what to expect and can plan accordingly.

Facilitator Calder asked any TAC Members if based on the discussion, they'd change their vote. One TAC member said they could be amenable to it, while two other members said they'd like to keep their vote but would be interested in hearing the Board's deliberations.

John commented that a goal of the TAC meeting is to discuss the Board's process and build understanding. John stated it's okay if TAC members vote differently, as consensus is not required. John also mentioned that the committee's discussions and votes will be presented to the Board at the November meeting, and they will make the final decisions.

Board staff asked Facilitator Calder if there should be another TAC vote regarding the timeline. After a brief discussion with the committee, it was determined that another form should be created to vote on a recommended timeline.

Second Vote on Timeframe for Review of RUSP Conditions
TAC members then participated in an anonymous online vote via Microsoft Forms to provide recommendations on: 1) whether the Board should establish a timeline for reviewing recently added RUSP conditions, and 2) the length of the timeline.

Facilitator Calder reviewed the TAC's voting results. All TAC Members voted that the Board should establish a timeline for reviewing recently added RUSP conditions. Fourteen respondents voted for a two-year review process, starting from the date of the HHS Secretary's recommendation, and one respondent voted for an eighteen-month timeline.

11. WA FIVE CRITERIA REVIEW AND DISCUSSION

Allegra Calder, Facilitator, briefly previewed the next discussion for the TAC's consideration. Facilitator Calder summarized some of the comments that TAC members had already made about the criteria, including whether the Board should consider conditions identified outside of the newborn period. Facilitator Calder said a larger discussion on this topic would need to be continued at another time. Facilitator Calder then asked the TAC to consider whether other criteria aspects could be defined better or identify if anything was missing from the requirements.

12. DISCUSSION AND NEXT STEPS

Allegra Calder, Facilitator, outlined the next steps for the TAC, including the November Board Meeting, and that staff would send a survey to identify the next TAC meeting date. Facilitator Calder then offered an opportunity for TAC members to share closing thoughts on the criteria.

Emily Shelkowitz, Committee Member, said they would be interested in better defining available and effective treatment.

Bobbie Salveson, Committee Member, agreed with Member Shelkowitz and added that obtaining coverage or payment for treatments can be challenging for patients. Member Salveson wondered how this factor influences whether a treatment is truly accessible.

Priyanka Raut, Committee Member, added that access and outreach are additional components of the testing and available treatment criteria.

Kelly Oshiro, TAC Co-Chair shared the desire to incorporate equity more into the criteria.

Byron Raynz, Committee Member, added that false positive rates are also a concern, and that this should be highlighted in the criteria.

Member Shelkowitz reflected on how to define the treatability of a condition, noting that none of these conditions are curable. Member Shelkowitz questioned how to determine when a condition has been sufficiently modified to achieve a desirable outcome for the child rather than simply adding more medical complexity and treating one diagnosis for another.

Joon-Ho Yu, Committee Member, wondered if it could be helpful to categorize the treatment criteria based on different types of treatment.

Member Raut noted that the current criteria don't reflect the availability of community resources and the importance of community outreach and support.

Eric Leung, Committee Member, asked if the state has obligations to maintain a database or track patients long-term.

John Thompson, Department staff, responded that building out the long-term follow-up program is one of Tony Steyermark's responsibilities as Deputy Director. John shared that limited efforts are in place to provide metabolic treatment products to patients needing them. Additionally, they are partnering with the Center for Public Health Innovation on a grant to explore long-term follow-up from a health information technology perspective. This involves pulling data from electronic medical records to track which patients are being seen. John noted that they are still in the early stages of this work.

Member Raut said that technology systems and technology integration are issues and concerns for the facilities in their community in Yakima.

John added that in addition to the false positive rates Member Raynz mentioned, their program is also concerned about false negatives. John could see the benefit of tightening the language around the sensitivity and specificity of tests.

Lisa McGill Vargas, Committee Member, commented that evaluating every disease or

condition using the same criteria can be challenging. Member McGill Vargas noted that, depending on the condition, the number of false positives may not impact their work as much as expected, while other conditions may cause a lot of stress and uncertainty for parents. Not all conditions require or have the same threshold for sensitivity and specificity.

Kelly Kramer, Board staff, shared the next steps for the criteria discussion and noted that the TAC would also review BCKDKD at the next meeting.

ADJOURNMENT

Kelly Oshiro and Nini Shridhar, TAC Co-Chairs, adjourned the meeting at 2:30 p.m.

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_____
Kelly Oshiro, TAC Co-Chair and Nini Shridhar, TAC Co-Chair

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A condition review request is made to the Board through a petition for rulemaking[1] or legislative action. Or a condition is added to the RUSP.

The Board decides whether there is enough information about the condition to form a TAC for conditions not on the RUSP.

If there is enough information, the Board will direct staff to convene a TAC no later than **November.**

April-May
The TAC evaluates the condition against the Board's criteria using available information. Then, they make a recommendation to the Board.

The Board reviews the TAC's recommendation in **June**. If they approve the recommendation, the Board initiates rulemaking for chapter 246-650 WAC.

The Board coordinates with the Department and HCA to determine the resources [2] needed to add the new screening test.[3]

If necessary, the Department requests funding from the Governor and Legislature through the agency DP process[4] to increase the newborn screening fee. HCA will also request funding for additional Medicaid spending. DPs are due internally in **July.**

All state agency DP requests must be sent to the OFM **by September.**

The Governor's proposed budget with approved agency DP requests is released in **December.**

The Legislative session starts **January**.
If the Legislature approves the funding request, the updated budget will go into effect **July 1**.

Once agencies secure appropriate funding, the Board works with these agencies to determine a rulemaking and screening implementation timeline.

If the Department wants to start screening the following **January**, the Board must hold a public comment period and hearing **by October** to formally add the condition to the rule by the end of the year.

Updated HCA MCO[5] rates go into effect the following **January 1.**

January 1, updated rules are in effect, and screening can begin (or at a date otherwise specified by the Department).

1. *If a condition review request is made through a petition, the Board has 60 days to review and respond to the petition.*
2. *Adding a new condition may require the Department and HCA to request an increase to the newborn screening fee. An increase may cover the cost of the new test(s), staff time, follow-up services for babies with positive screens, and other programmatic and administrative expenses.*
3. *If there is an FDA-cleared kit for the new test(s), the time to implementation can follow the above schedule. If not, implementation will take longer. The FDA modified LDT oversight in May 2024. The WA PHL can perform LDTs already in effect when the rule change was made. Any modification or new LDT must be approved through the FDA.*
4. *Agency division concept papers for DP budget requests must be submitted in the spring (May), after the most recent Legislative session, for agency review and consideration. Once the agency has approved the request, formal DP development occurs through the end of July/early August. Agency DP approvals depend on the state budget. If OFM is cautioning agencies that there's a tight budget, getting new DP requests approved can be challenging.*
5. *Each year, January 1st and July 1st, updated MCO rates typically go into effect.*

List of Abbreviations/Acronyms
- Decision Package (DP)
- Food and Drug Administration (FDA)
- Laboratory-Developed Test (LDT)
- Managed Care Organization (MCO)
- Office of Financial Management and Budget (OFM)
- Public Health Lab (PHL)
- Technical Advisory Committee (TAC)
- Washington Administrative Code (WAC)
- Washington State Board of Health (Board)
- Washington State Department of Health (Department)
- Washington State Health Care Authority (HCA)

Washington State Board of Health

PROCESS TO EVALUATE CONDITIONS FOR INCLUSION IN THE REQUIRED NEWBORN SCREENING PANEL

The Washington State Board of Health has the duty under RCW 70.83.050 to define and adopt rules for screening Washington-born infants for heritable conditions. Chapter 246-650-020 WAC lists conditions for which all newborns must be screened. Members of the public, staff at Department of Health, and/or Board members can request that the Board review a particular condition for possible inclusion in the NBS panel. In order to determine which conditions to include in the newborn screening panel, the Board convenes an advisory committee to evaluate candidate conditions using guiding principles and an established set of criteria.

The following is a description of the Qualifying Assumption, Guiding Principles, and Criteria which the Board has approved in order to evaluate conditions for possible inclusion in the newborn screening panel. The Washington State Board of Health and Department of Health apply the qualifying assumption. The Board appointed Advisory Committee applies the following three guiding principles and evaluates the five criteria in order to make recommendations to the Board on which condition(s) to include in the state's required NBS panel.

QUALIFYING ASSUMPTION

Before an advisory committee is convened to review a candidate condition against the Board's five newborn screening requirements, a preliminary review should be done to determine whether there is sufficient scientific evidence available to apply the criteria for inclusion.

THREE GUIDING PRINCIPLES

Three guiding principles govern all aspects of the evaluation of a candidate condition for possible inclusion in the NBS panel.

- Decision to add a screening test should be driven by evidence. For example, test reliability and available treatment have been scientifically evaluated, and those treatments can improve health outcomes for affected children.
- All children who screen positive should have reasonable access to diagnostic and treatment services.
- Benefits of screening for the disease/condition should outweigh harm to families, children and society.

CRITERIA

1. **Available Screening Technology:** Sensitive, specific and timely tests are available that can be adapted to mass screening.
2. **Diagnostic Testing and Treatment Available:** Accurate diagnostic tests, medical expertise, and effective treatment are available for evaluation and care of all infants identified with the condition.
3. **Prevention Potential and Medical Rationale:** The newborn identification of the condition allows early diagnosis and intervention. Important considerations:
    - There is sufficient time between birth and onset of irreversible harm to allow for diagnosis and intervention.
    - The benefits of detecting and treating early onset forms of the condition (within one year of life) balance the impact of detecting late onset forms of the condition.
    - Newborn screening is not appropriate for conditions that only present in adulthood.
4. **Public Health Rationale:** Nature of the condition justifies population-based screening rather than risk-based screening or other approaches.
5. **Cost-benefit/Cost-effectiveness:** The outcomes outweigh the costs of screening. All outcomes, both positive and negative, need to be considered in the analysis. Important considerations to be included in economic analyses include:
    - The prevalence of the condition among newborns.
    - The positive and negative predictive values of the screening and diagnostic tests.
    - Variability of clinical presentation by those who have the condition.
    - The impact of ambiguous results. For example the emotional and economic impact on the family and medical system.
    - Adverse effects or unintended consequences of screening.

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Newborn Screening Technical Advisory Committee (TAC)

Branch-chain Ketoacid Dehydrogenase Kinase (BCKDK) Deficiency Overview

Newborn Screening Technical Advisory Committee

January 14, 2025

ABOUT THE CONDITION

- BCKDK deficiency is a rare inherited genetic disorder that leads to a deficiency of branched-chain amino acids[1]
- There are 21 cases of BCKDK deficiency identified worldwide, with no cases yet reported in the United States[2]
- BCKDK deficiency is caused by changes in the BCKDK gene, which produces the BCKDK enzyme[1]
- The BCKDK enzyme regulates the metabolism of branched-chain amino acids
- Mutations with the BCKDK enzyme causes an overactive break down of branched-chain amino acids[1]
- Without enough amino acids, proteins can't form properly, which impairs neurodevelopmental growth and development[1,2]

SIGNS & SYMPTOMS

- Signs and symptoms can vary but may include autism spectrum disorder, language impairment, seizures, and microcephaly[2]

DIAGNOSIS

- BCKDK deficiency may be detectable through a newborn screening blood spot using tandem mass spectrometry, although it is not a part of any newborn screening program[2]
- BCKDK deficiency can be confirmed with DNA testing

TREATMENT

- Treatment for BCKDK deficiency includes a diet high in total protein intake and branch-chain amino acid supplementation[2]

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1. Novarino, G., et al. Mutations in BCKD-kinase lead to a potentially treatable form of autism with epilepsy. Science 338: 394-397, 2012. [PubMed: 22956686]
2. Tangeraas, T., et al. BCKDK deficiency: a treatable neurodevelopmental disease amenable to newborn screening. Brain 146: 3003-3013, 2023. [PubMed: 36729635]

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Branch-Chain Ketoacid Dehydrogenase Kinase Deficiency

Overview for Newborn Screening Technical Advisory Committee (TAC) Members

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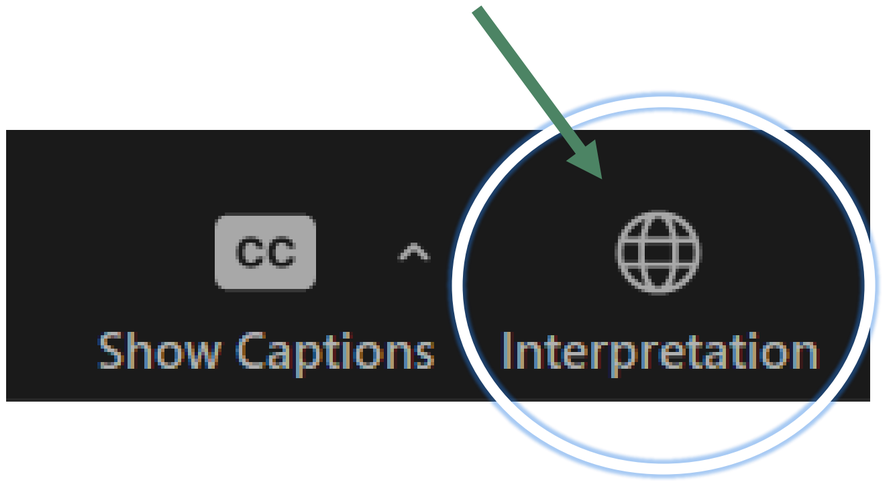

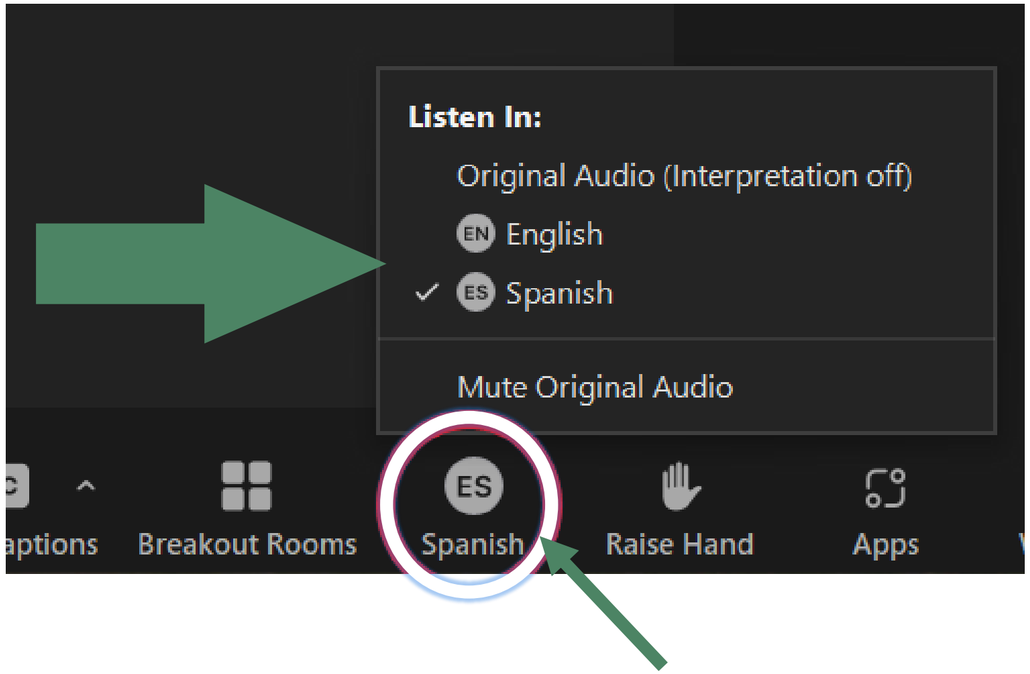

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Introductions

Agenda

- Meeting Introduction and Overview

- Meeting Recap

- Part 1: Review of Branch-chain Ketoacid Dehydrogenase Kinase (BCKDK) Deficiency
  - Overview of BCKDK Deficiency
  - Patient/family perspective
  - Evaluate against current five criteria
  - Vote on options

- Part 2: State Board of Health Newborn Screening Criteria
  - Introduce the proposed plan for the criteria review
  - Learn about the criteria used at the federal level
  - Review and discuss the criteria
  - Discuss options for WA to consider
  - Vote on options

- Identify the Committee's Next Steps and Recommendations for the Board

Meeting Recaps

October 28, 2024, TAC Meeting: Review of Washington's Process for Adding New Conditions to the Mandatory Newborn Screening Panel

- The TAC voted to recommend that all conditions on or added to the Recommended Uniform Screening Panel (RUSP) meet the Board's qualifying assumption.
- The Board must convene a TAC to review a condition within two years of its addition to the RUSP.

November 13, 2024, Board Meeting

- The Board approved the TAC's recommendations
- Along with further considerations:
  - Conditions undergoing federal review, the Board will wait until federal review is complete before conducting review.
  - Conditions previously denied for the RUSP, Board staff will work with the petitioner to address issues or concerns raised by the federal review.

Meeting Objectives

- Review the condition branch-chain ketoacid dehydrogenase kinase (BCKDK) deficiency against the Board's five criteria.
- Make a recommendation for the Board on whether to add BCKDK deficiency to the state's mandatory newborn screening panel.
- Review each of the five criteria; make recommendations including but not limited to: inclusion of benchmarks, definitions, updates to language.

Overview of BCKDKD

- Last legislative session, Senate Bill 6234 was passed
  - Directed the Board of Health to conduct a review of BCKDK Deficiency to determine if this condition should be added to our mandatory newborn screening panel
- Not being screened for by any state program
- Has not been reviewed for the RUSP

Overview of BCKDKD Cont

- Branch-chain ketoacid dehydrogenase kinase deficiency (BCKDKD)
  - Rare, genetic amino acid disorder[1]
    - 1 BCKDKD case per 1,000,000 people[1]
  - Characterized by epilepsy, autism and intellectual disability[1]
  - Reduced levels of branched chain amino acids[1]
    - Prevents protein production, inhibits development and growth[2]

- Treatment for BCKDKD:
  - High protein diet[2]
  - Supplement branch-chain amino acids[2]

1.Novarino G, et al. Mutations in BCKD-kinase lead to a potentially treatable form of autism with epilepsy. Science. 2012 Oct 19;338(6105):394-7. doi: 10.1126/science.1224631. Epub 2012 Sep 6. PMID: 22956686; PMCID: PMC3704165.
2.Trine Tangeraas, et al BCKDK deficiency: a treatable neurodevelopmental disease amenable to newborn screening, *Brain*, Volume 146, Issue 7, July 2023, Pages 3003–3013, https://doi.org/10.1093/brain/awad010

Patient and Family Perspective

BCKDK Deficiency

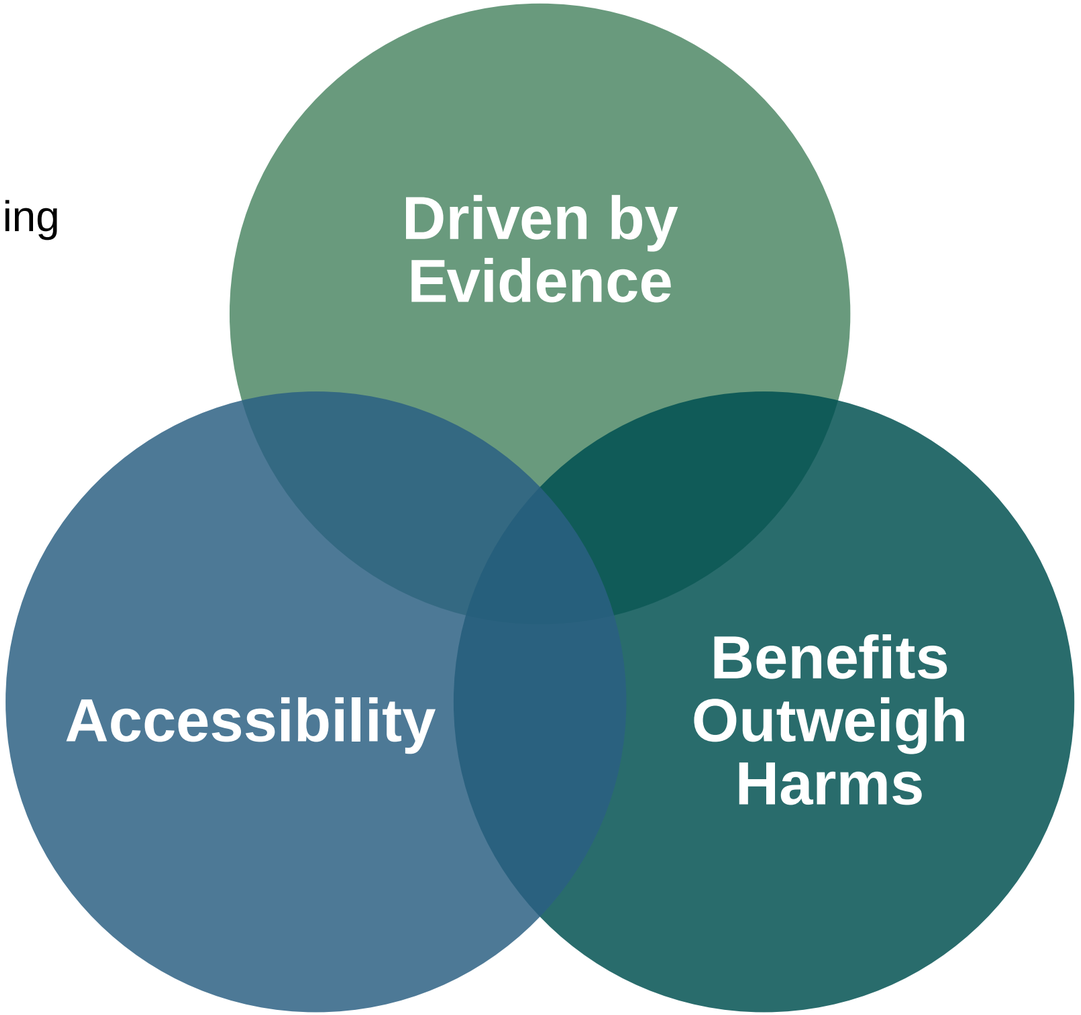
Access and Equity

Available Screening Technology

Cost-Benefit and Cost-Effectiveness Analysis

Guiding Principles for Evaluating Candidate Conditions

The Board follows three guiding principles when assessing candidate conditions for the Washington NBS panel.



Newborn Screening Criteria

The NBS TAC, appointed by the Board, uses the three guiding principles and five newborn screening criteria to recommend which conditions to add to the required newborn screening panel. These criteria are:

1) Available Screening Technology

2) Diagnostic Testing and Treatment Available

3) Prevention Potential and Medical Rationale

4) Public Health Rationale

5) Cost-Benefit and Cost Effectiveness

1. Available Screening Technology

Sensitive, specific and timely tests are available for the condition that can be adapted to mass screening.

- Sensitivity- the ability of the screen to correctly identify babies with BCKDKD
  Sensitivity = 1 – false negative rate

- Specificity- the ability of the screen to correctly identify babies who don't have BCKDKD
  Specificity = 1 – false positive rate

- Positive predictive value (PPV)- the percent of babies with a positive screen who have BCKDKD

$$PPV = \frac{\#\ true(+)}{\#\ true(+) + \#\ false(+)}$$

2. Diagnostic Testing and Available Treatment

Accurate diagnostic tests, medical expertise, and effective treatment are available for evaluation and care of all infants identified with the condition.

3. Prevention Potential and Medical Rationale

The newborn identification of the condition allows early diagnosis and intervention. Important considerations include:

- There is sufficient time between birth and onset of irreversible harm to allow for diagnosis and intervention.
- The benefits of detecting and treating early onset forms of the condition (within one year of life) balance the impact of detecting late onset forms of the condition.
- Newborn screening is not appropriate for conditions that only present in adulthood.

4. Public Health Rationale

The nature of the condition justifies population-based screening rather than risk-based screening or other approaches.

5. Cost-benefit and Cost-effectiveness

The outcomes outweigh the costs of screening. All outcomes, both positive and negative, need to be considered in the analysis. Important considerations to be included in economic analyses include:

- The prevalence of the condition among newborns.
- The positive and negative predictive values of the screening and diagnostic tests.
- Variability of clinical presentation by those who have the condition.
- The impact of ambiguous results. For example, the emotional and economic impact on the family and medical system.
- Adverse effects or unintended consequences of screening.

Voting

BCKDK Deficiency Ballot #1 - Condition Evaluation, 5 Newborn Screening Criteria Assessment

Voting

BCKDK Deficiency TAC Ballot #2 - Final TAC Recommendation

Results

Introduction to Criteria Review

- Refresher on the Board's five newborn screening criteria

- Review and discuss each criterion and explore potential options for updates. Some options could include:
  - Including updated language where applicable
  - Adding definitions for terms
  - Adding criteria "benchmarks"
  - Other items?

RUSP Criteria/ State Crosswalk

Newborn Screening Criteria

1) Available Screening Technology

2) Diagnostic Testing and Treatment Available

3) Prevention Potential and Medical Rationale

4) Public Health Rationale

5) Cost-Benefit and Cost Effectiveness

1. Available Screening Technology

Sensitive, specific, and timely tests are available for the condition that can be adapted to mass screening.

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Discussion

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Comment for TAC Meeting
January 14th, 2025

Good morning, members of the Technical Advisory Committee and the Board of Health,

Thank you for the opportunity to participate in this important discussion regarding the potential inclusion of branch-chain ketoacid dehydrogenase kinase (BCKDK) deficiency in Washington State's mandatory newborn screening panel. My name is Michelle Whitlow, and I am the Executive Director of the Lewis County Autism Coalition. Today, I hope to provide insights to support a thorough and thoughtful review of this issue.

First, I would like to acknowledge the complexity of this matter. BCKDK deficiency is an extremely rare metabolic disorder that affects amino acid processing, with only about 20 documented cases worldwide. This makes it significantly rarer than conditions like phenylketonuria (PKU), which is already included in the newborn screening panel. Although testing for both PKU and BCKDK uses a heel prick for blood collection, the clinical frameworks and cost-benefit implications for these conditions differ significantly. PKU benefits from well-established treatment protocols, while BCKDK's rarity has hindered the development of robust, evidence-based interventions.

Notably, research has shown a connection between autism and unusual amino acid metabolism. For instance, one clinical trial found that nearly 17 percent of autistic participants exhibited signs of unusual amino acid metabolism. Similarly, a 2012 study linked mutations in a gene involved in carnitine synthesis, a compound derived from amino acids to autism. Washington State already screens for several amino acid metabolism disorders, including PKU and maple syrup urine disease (MSUD), demonstrating the state's commitment to addressing rare metabolic conditions. These findings suggest that existing newborn screening efforts may already address related metabolic concerns, further illustrating the state's diligence in this area.

However, the extremely low prevalence of BCKDK deficiency raises questions about its inclusion in the panel. To provide context, the last condition proposed for inclusion—Ornithine Transcarbamylase Deficiency (OTCD)—has been put on hold due to a lack of funding. OTCD, which has a higher documented prevalence of approximately 1 in 14,000 to 113,000 live births, underscores the challenges of implementing new screenings without sufficient resources.

Adding to this complexity is Washington State's projected $10 billion budget deficit. Expanding the newborn screening panel without a clear plan for sustainable funding risks straining an already underfunded system and diverting resources from existing public health priorities.

This discussion highlights several key considerations:

1. **Rarity of BCKDK Deficiency**: While early screening and intervention offer immense benefits, the extremely low prevalence of this condition raises questions about cost-effectiveness, particularly in light of the financial constraints demonstrated by the OTCD example.

2. **Need for Additional Research**: The need for further research and data collection to better understand the prevalence, long-term outcomes, and treatment efficacy for BCKDK deficiency. Without sufficient data, decisions may rely on incomplete information, leading to unintended consequences.
3. **Community Input**: As part of the autism community, we hold the principle of "Nothing About Us Without Us" as a cornerstone of our advocacy. While there is a connection between BCKDK deficiency and autism spectrum disorder (ASD), the broader ASD community's perspective on this specific condition has not been widely explored and may be worthy of consideration. This underscores the importance of meaningful engagement with individuals and families who may be directly impacted by this decision in the future.

In light of these considerations, my intent today is exploratory rather than declarative. I aim to raise critical questions and advocate for a comprehensive and inclusive review process. I encourage the committee to carefully weigh the costs and benefits, prioritize additional research, and ensure that any decision reflects the best interests of both individuals with BCKDK deficiency and the broader community.

Lastly, I deeply appreciate the Board of Health for including the autism community in this vital conversation. This inclusive approach ensures that diverse perspectives are considered, aligning with our coalition's mission to foster thoughtful, community-driven decision-making.

Thank you for your time and for allowing me to contribute to this discussion. I am happy to do my best to answer any questions or provide additional insights as needed.

Warm regards,
Michelle Whitlow
Executive Director
Lewis County Autism Coalition

References

Below are some sources/references that I accessed but did not include above via in-text citations because I figured it a less formal submission… I

- 1 Science. 2012 Oct 19; 338(6105): 394–397
- 2, 4 Spectrum News December 17, 2019
- 3 Science. 2012 Oct 19; 338(6105): 394–397, paragraph before Supplementary Material
- 5 Biol Psychiatry. 2019 Feb 15;85(4):345-354. doi: 10.1016/j.biopsych.2018.08.016. Epub 2018 Sep 6
- 6 Proc Natl Acad Sci U S A. 2012 May 22;109(21):7974-81. doi: 10.1073/pnas.1120210109. Epub 2012 May 7
- 7, 8, 9 Brain February 2, 2023
- 10, 11, 12 Spectrum News February 21, 2023

- 13 J Pers Med. 2021 Aug; 11(8): 784
- 14 MedIndia March 14, 2019
- 15 J Child Adolesc Psychopharmacol. 2016 Nov;26(9):774-783. doi: 10.1089/cap.2015.0159. Epub 2016 Feb 18
- 16 Pharmacy Times February 18, 2014
- 17, 21 Children's Health Defense July 14, 2022
- 18, 19, 20 Seminars in Pediatric Neurology October 2020, Volume 35, 100829
- 22, 23 UVA Health Newsroom December 19, 2022
- 24 Brain, Behavior, and Immunity February 2023, Volume 108, Page 80-97
- 25 JAMA Psychiatry October 30, 2019 doi: 10.1001/jamapsychiatry.2019.3259, Conclusions and Relevance
- 26 Substack, 'Toxic Legacy' — How Glyphosate Destroys Your Health June 27, 2021
- 27 Pediatric Health, Medicine and Therapeutics September 21, 2020, Volume 11, Pages 369-378
- 28 Journal of Trace Elements in Medicine and Biology March 2018; 46: 76-82
- 29 Neurotoxicology. 2009 Sep; 30(5): 822–831
- 30 Environ Health Perspect. 2013 Mar;121(3):380-6. doi: 10.1289/ehp.1205827. Epub 2012 Dec 18
- 31 Autism Research May 22, 2019 [Epub ahead of print]
- 32 Anim Sci J. 2018 Jan;89(1):3-11. doi: 10.1111/asj.12937. Epub 2017 Nov 22

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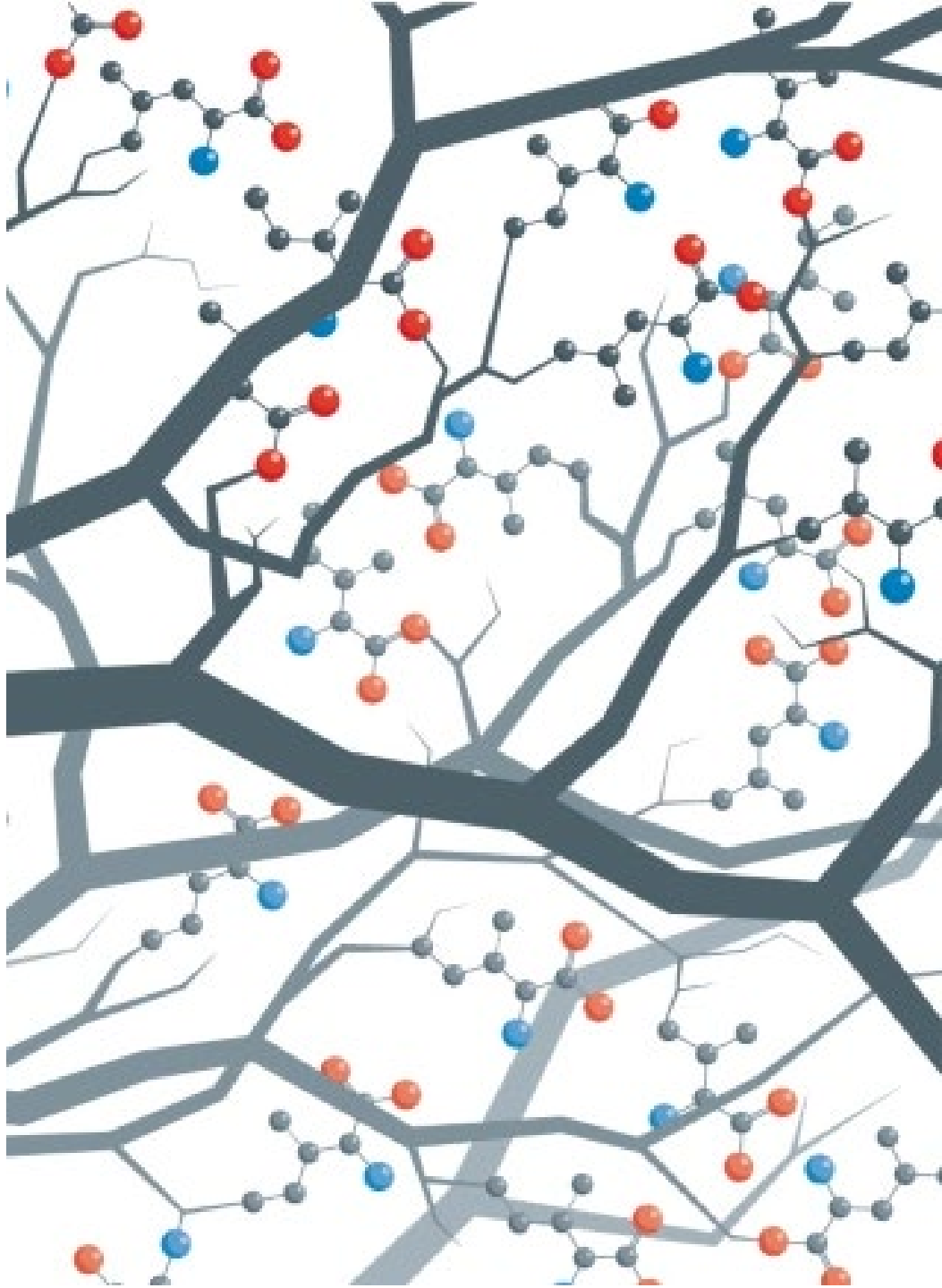
BCKDK Deficiency:
Natural History and Diagnostic Testing

Phillip J White, PhD

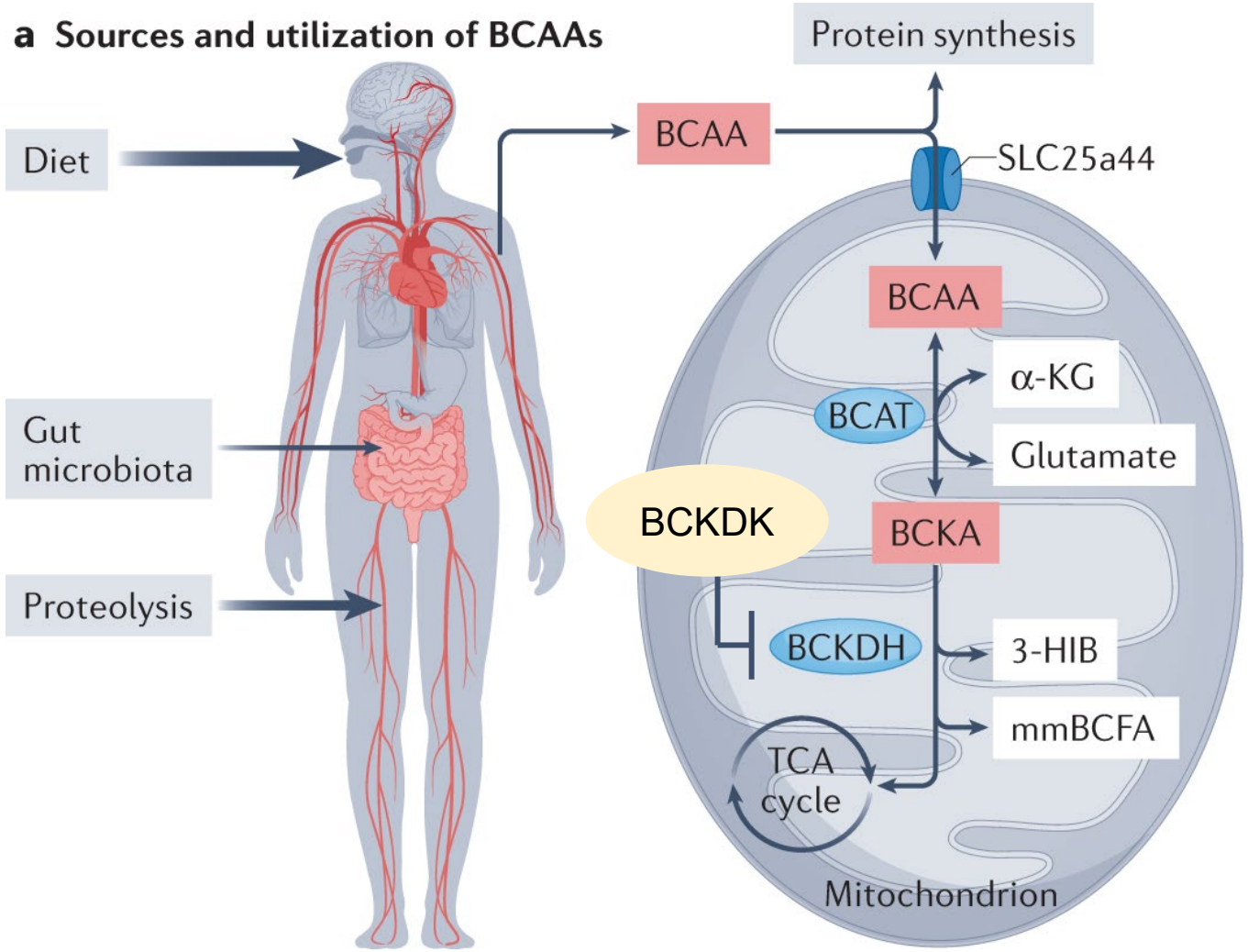
Associate Professor of Medicine

Duke University



Washington State Board of Health, Newborn Screening Technical Advisory Committee Meeting, January 14 2025

BCKDK Deficiency is a Disorder of Impaired Branched-Chain Amino Acid (BCAA) Homeostasis



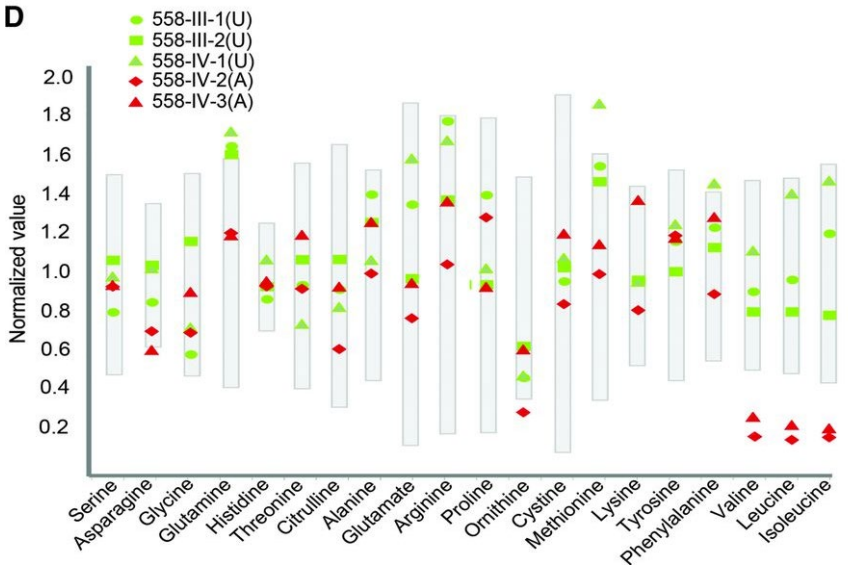
KEY POINTS

- The branched-chain keto acid dehydrogenase kinase (BCKDK) is an enzyme that controls the breakdown of BCAA by inhibiting the rate limiting step in the catabolic pathway.
- BCAA are essential amino acids that are required for protein synthesis and growth.
- BCAA play a major role in maintaining nitrogen balance.
- In the brain, BCAA are used to generate neurotransmitters.
- Loss of BCKDK results in BCAA wasting and extremely low levels of BCAA in blood, urine, and cerebrospinal fluid.

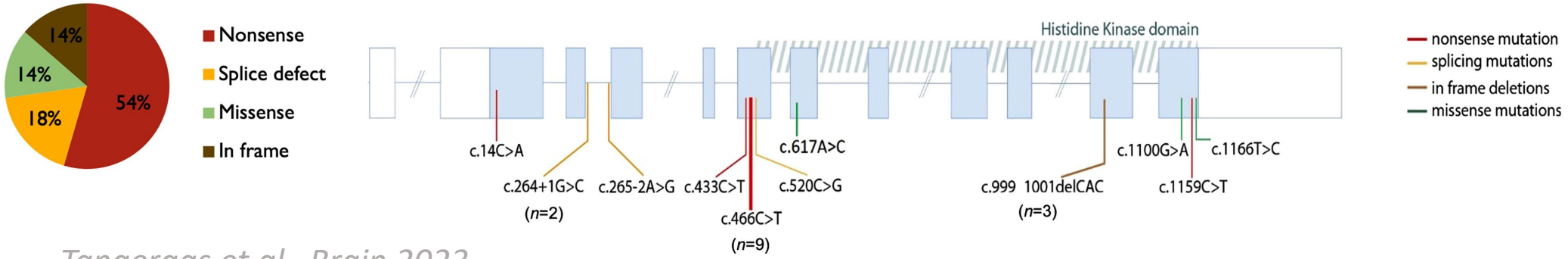
McGarrah & White, Nature Reviews Cardiology 2022

Natural History of BCKDK Deficiency

- BCKDK Deficiency was first described by Novarino *et al* in 2012 in a population of six patients aged 5-22 as a Mendelian form of Autism (100%), with Intellectual Disability (100%), and Epilepsy (50%).
- The disorder is characterized by low BCAA levels in blood and CSF.
- Additional cases have since been reported all are linked to genetic mutations that either alter BCKDK abundance or function
- The largest published study from Tangeraas et al describes 22 persons and provides the most insight into BCKDK deficiency.
- NOTE: No report on the condition to date has provided a complete natural history of the disorder.



Novarino et al Science 2012



Tangeraas et al Brain 2023

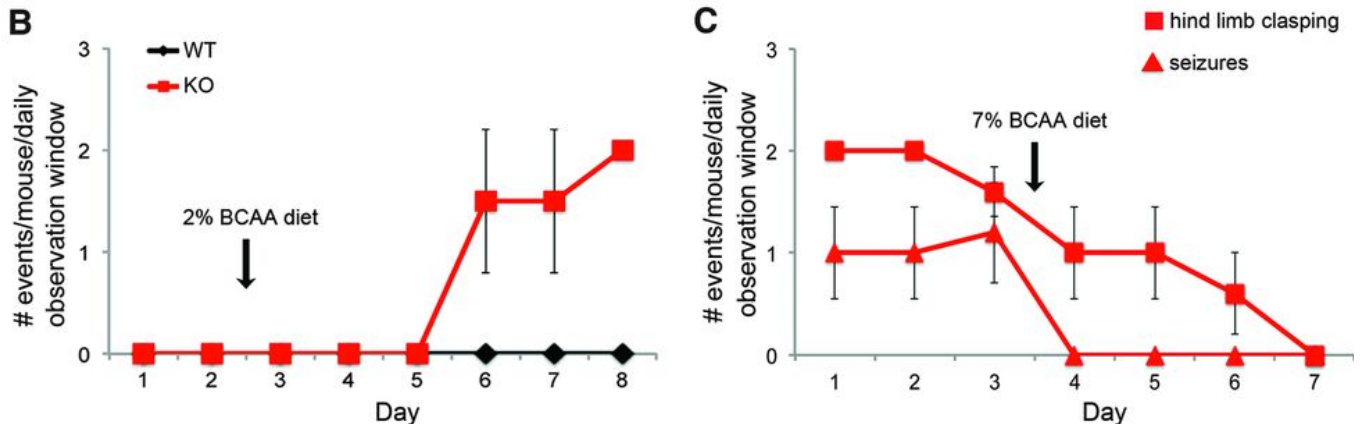
Natural History of BCKDK Deficiency

- All BCKDK-deficient patients show global developmental delay at diagnosis.
- Seventy-five per cent present autistic traits or ASD
- Microcephaly is not present at birth in any of the cases, but appears postnatally in most patients.

Of the 22 cases in the Tangeraas study:

- All 17 patients older than 2YO had language impairment. 9 were non-verbal
- Delayed motor milestones present in all include: lack of head control, delayed rolling over, unsupported sitting and walking.
- 19/21 gross motor function impairment.
- 16/16 intellectual disability.
- 12/17 met DSM-5 criteria for autism spectrum disorder
- 9/20 had epilepsy

- All published studies show dietary modifications can raise BCAA levels to normal range in affected persons.



Novarino et al Science 2012

Natural History of BCKDK Deficiency

- The findings of Tangeraas, suggest there is a marked difference in clinical outcome depending on whether BCAA supplementation occurs in early development (before 2 years old) or at later stages (beyond 2 years of age).

- In the three patients where BCAA treatment was initiated <2 years of age, follow-up indicated amelioration of the developmental delay compared to older patients.

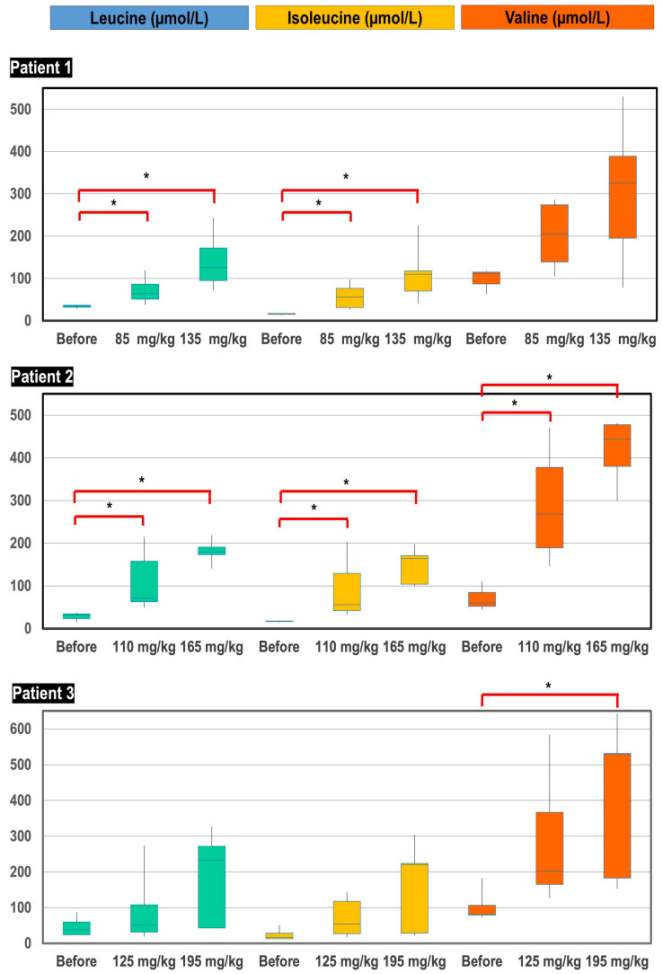
- Head circumference and motor function were the two main items that improved with treatment.

- Motor functions stabilized or improved in all patients

- Cognition and neuropsychiatric features did not improve after treatment. However, patients who initiated treatment before 2 years of age did not develop autism over time.

- P15, who had the earlier diagnosis and treatment (8 months), presented normal cognition and almost normal global neurodevelopment when evaluated at 3 years.

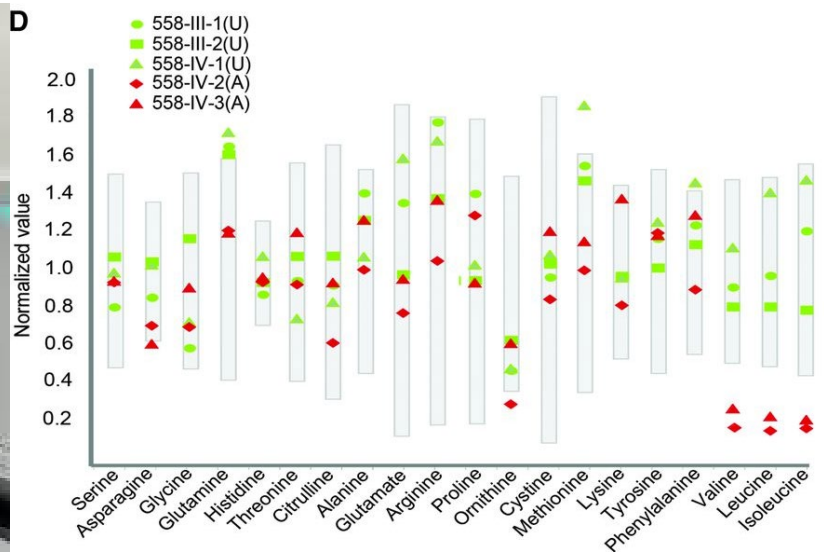
- BCAA treatment improved seizure control in 3 siblings with BCKDK deficiency (Boemer et al 2022)



Boemer et al Int J Mol Sci 2022

Diagnostic Testing for BCKDK Deficiency

- BCAA are measured in neonatal dried blood spots as part of standard testing.
- High BCAA are currently used to identify Maple Syrup Urine Disease.
- All cases of BCKDK deficiency have BCAA levels below the standard range.
- A lower threshold could be used to indicate a need for further genetic testing and evaluation.



BCKDK Deficiency

Natural History, Diagnostic Testing, Treatment

Natural History

Clinical features compiled from 4 reports:

- Novarino et al (2012) - 3 families, 6 individuals
- Garcia-Carzola (2014) – 2 families, 2 individuals
- Boemer (2022) – 1 family, 3 individuals
- Tangeraas et al (2023) - 13 families, 21 individuals

↓ plasma/CSF BCAA levels

Global developmental delay
Autism
Seizures
Progressive microcephaly
Language impairments
Intellectual disability
Gross motor function impairments
Epilepsy
Skin issues

Diagnostic Testing

Will leave this part to the testing experts, but it appears there are pilot studies that use existing NBS methods and confirmatory testing to identify individuals with BCKDK deficiency

Treatment

Information compiled from 3 reports:

- Novarino et al (2012) - 2 families, 4 individuals
- Garcia-Carzola (2014) – 1 family, 1 individual
- Boemer (2022) -1 family, 3 individuals
- Tangeraas et al (2023) - 13 families, 19 individuals

Supplement BCAA
- ➢ Short-term ↑ in plasma BCAA
- ➢ No adverse effects

High protein + BCAA via tube feeding
- ➢ Improved communication, social
- ➢ Improved gross motor sills

Supplement BCAA
- ➢ Subjective behavior improvement; Vineland
- ➢ Improved seizures

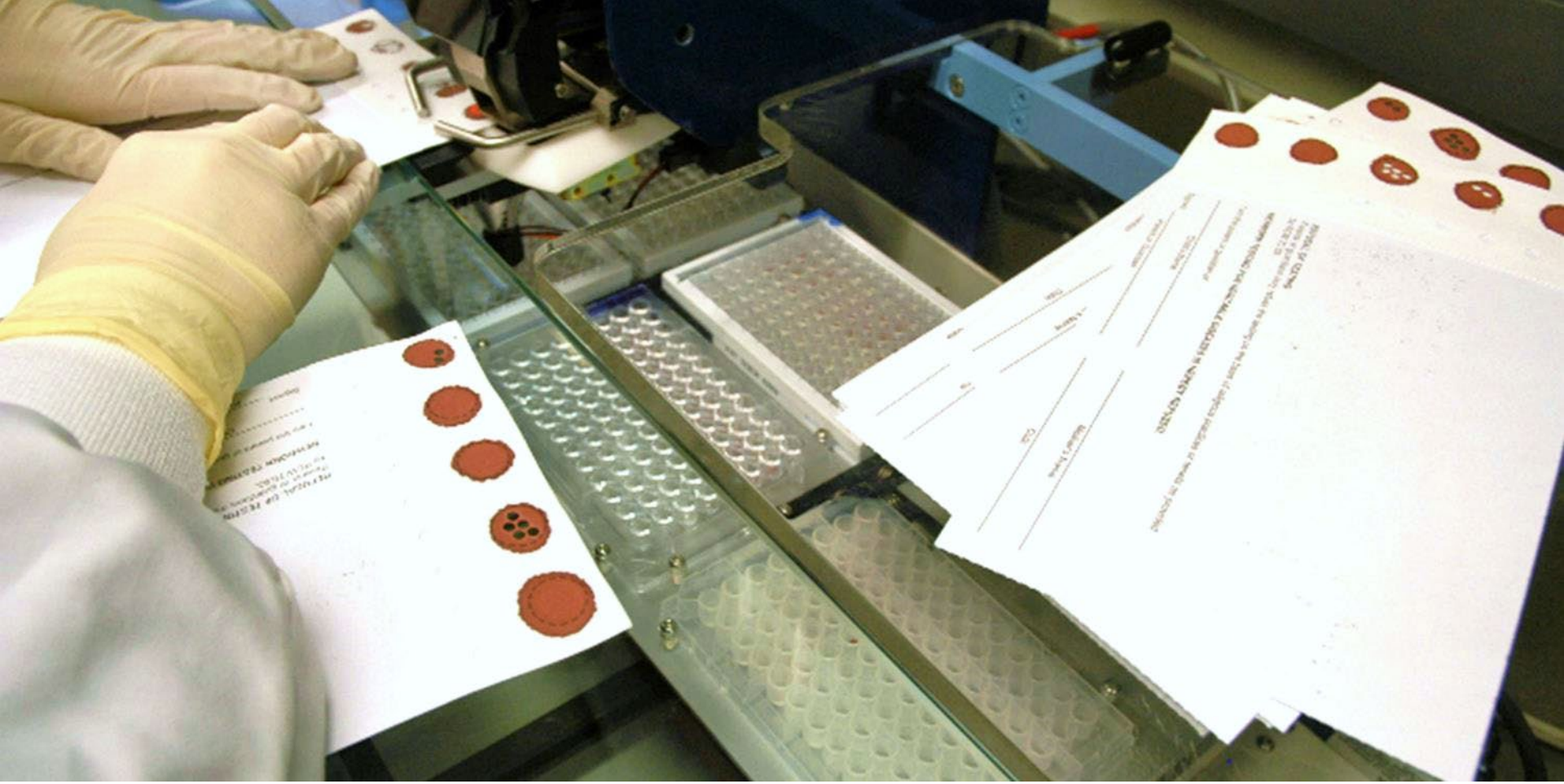
High protein diet + supplement BCAA
- ➢ Improved plasma BCAA
- ➢ Stabilization of head circumference (11)
- ➢ Language improvement (3)
- ➢ Motor function improvement (13)
- ➢ ≤2 yo did not develop autism (3)

Clinical Practice

- ➔ Referral to Biochemical Genetics Clinic
- ➔ Confirmation of diagnosis, assessment
- ➔ Individualized treatment plan might include
  - ◆ Increase dietary protein intake
  - ◆ BCAA supplements (oral powder/tablets taken 4-7 times per day)
  - ◆ Plasma BCAA monitoring
  - ◆ Developmental surveillance and referral
  - ◆ Regular clinic visits for monitoring, education, and adjustment of plan

NBS-Related Treatment Considerations (Clinician's Lens)

- Access to treatment
  - "Increased natural protein" not covered by insurance
  - BCAA supplements poorly reimbursed and/or not readily accessible
- Treatment burden and fatigue
- False positives
- "Mild" presentations
- Potential to improve lives and contribute to knowledge base



AVAILABLE SCREENING TECHNOLOGY FOR BCKDK DEFICIENCY

Megan McCrillis, MPH

Policy Analyst, WA State Newborn Screening Program

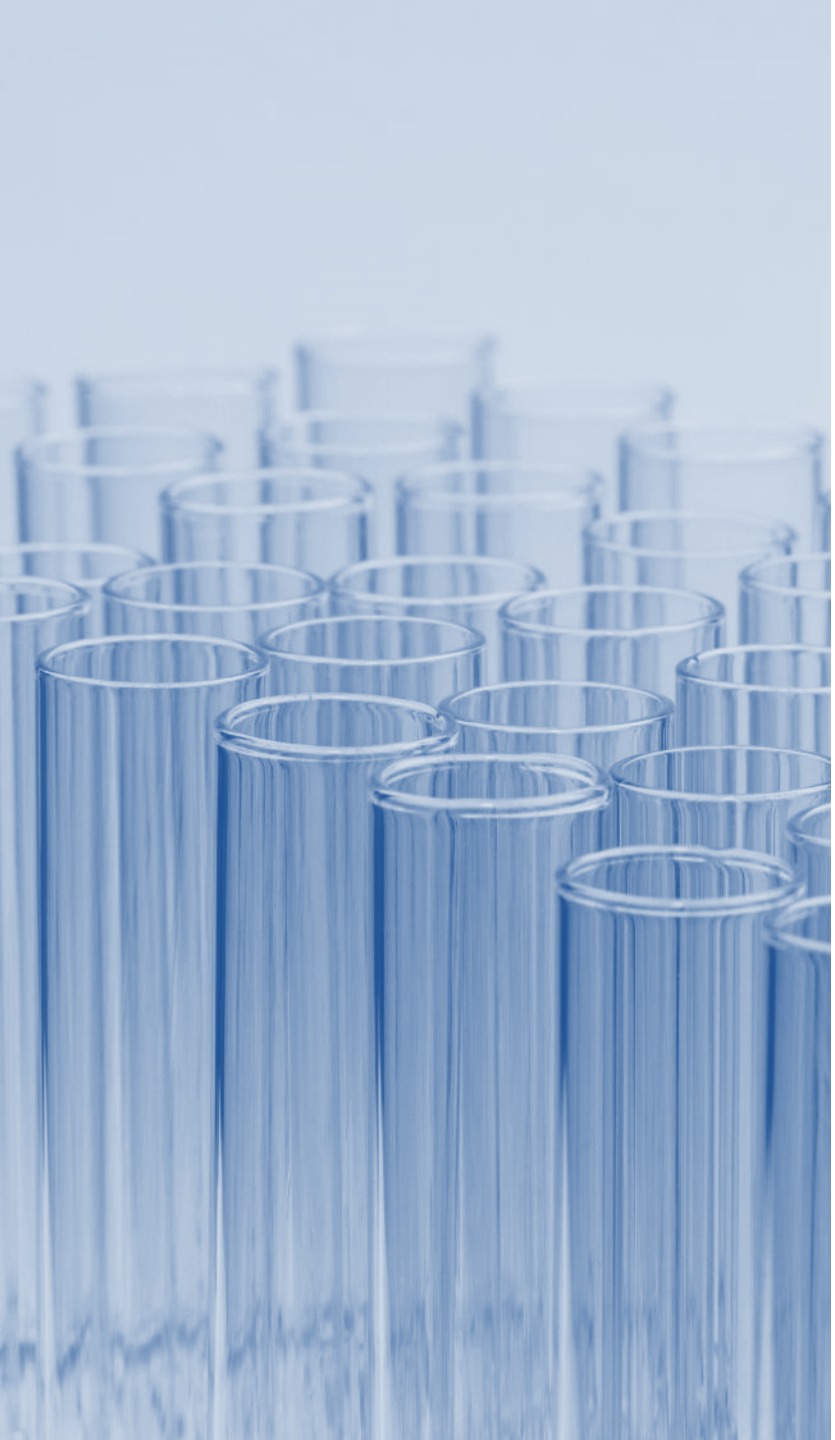
Washington State Department of HEALTH

Does BCKDK Deficiency meet the "Available Screening Technology" criterion for inclusion on the WA State Newborn Screening Panel?

Available Screening Technology Criterion

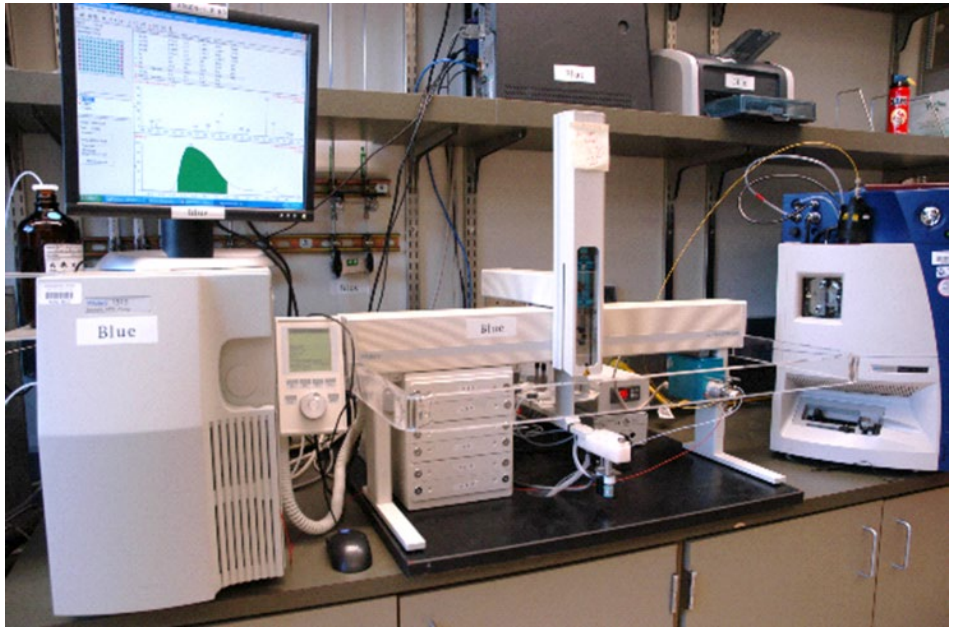
- Sensitive, specific and timely tests are available that can be adapted to mass screening

- No U.S. states or other countries currently screening for BCKDK deficiency
  - Possibly the autonomous region of Catalonia
- No prospective screening pilot studies



Available Screening Technology Criterion

- Sensitive, specific and timely tests are available that can be adapted to mass screening



- Screening test available that looks for abnormally low levels of branched-chain amino acids (valine, leucine, isoleucine) in dried blood spots
- Analysis done by tandem mass spectrometry (MS/MS)
- WA State already has this equipment and already tests for those analytes to look for other conditions on panel

- Unaffected newborns can have low amino acids for a variety of reasons (such as illness or diet) and may produce false positive results
- Post-analytical tools such as CLIR (Collaborative Laboratory Integrated Reports) can help to clarify NBS results by pooling data from many screening sites with values of confirmed BCKDK deficiency cases

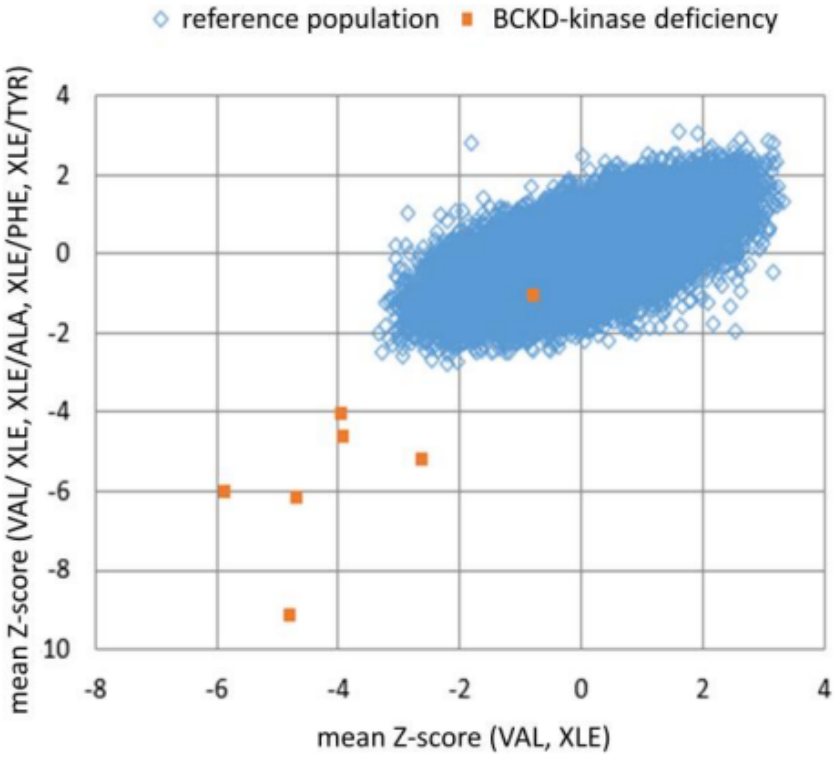
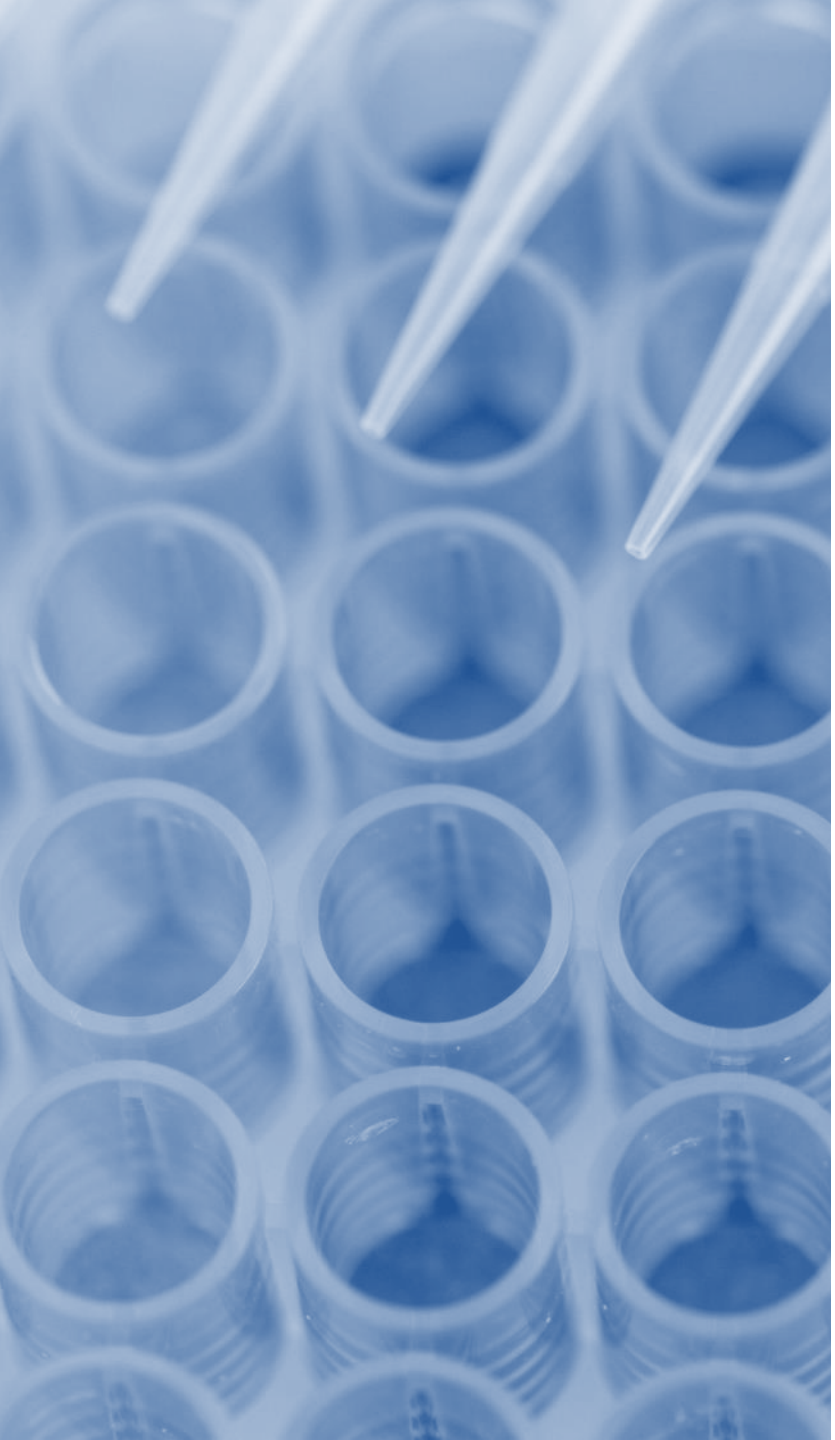


Figure 6 DBS newborn screening from BCKDK deficiency. Amino acid plot from seven newborns later diagnosed with BCKDK deficiency (orange squares) compared to a subpopulation of healthy newborns (blue diamonds). Algorithm by courtesy of Prof. Piero Rinaldo.



Available Screening Technology Criterion

- Sensitive, specific and timely tests are available that can be adapted to mass screening

- No prospective screening means no real-time data regarding sensitivity and specificity of test
- Sensitivity is unknown
- Specificity is unknown
  - CLIR tool is available, but nobody knows how many babies with positive CLIR results would need diagnostic testing or if they would be resolved by a normal second screen

Available Screening Technology Criterion

- Sensitive, specific and timely tests are available that can be adapted to mass screening

- Screening results for BCKDK deficiency would likely be available within one or two days of specimen receipt
- In one study, no BCKDK deficiency patients who initiated treatment before the age of 2 years developed autistic features (n=3)
- A MS/MS screening test for BCKDK deficiency would be timely enough to intervene before 2 years of age

Other Considerations

- Supplemental nutrition in NICU babies would be an interfering substance and require a repeat screen once off HA/TPN
- Babies may have low amino acid results for a variety of reasons which may result in false positive screening results

Questions?

Washington State Department of HEALTH

COST BENEFIT ANALYSIS FOR BCKDK DEFICIENCY

Megan McCrillis, MPH
Policy Analyst, WA State Newborn Screening Program
John D. Thompson, PhD, MPA, MPH
Director, Newborn Screening Program

Does BCKDK Deficiency meet the "Cost-benefit/Cost-effectiveness" criterion for inclusion on the WA State Newborn Screening Panel?

The criterion

5. Cost-benefit/Cost-effectiveness: The outcomes outweigh the costs of screening. All outcomes, both positive and negative, need to be considered in the analysis. Important considerations to be included in economic analyses include:

- The prevalence of the condition among newborns.
- The positive and negative predictive values of the screening and diagnostic tests.
- Variability of clinical presentation by those who have the condition.
- The impact of ambiguous results. For example the emotional and economic impact on the family and medical system.
- Adverse effects or unintended consequences of screening.

The cost- benefit model

- Decision Tree
  - Compares status quo v. screening model
- Data from:
  - Primary literature
  - States currently screening or pilot studies
  - Expert opinion
- Sensitivity analysis – vary assumptions
  - High and low estimates for parameters

The cost- benefit model

- Decision Tree
  - Compares status quo v. screening model
- Data from:
  - Primary literature → extremely limited
  - States currently screening or pilot studies
  - Expert opinion
- Sensitivity analysis – vary assumptions
  - High and low estimates for parameters

The cost- benefit model

- Decision Tree
  - Compares status quo v. screening model
- Data from:
  - Primary literature → extremely limited
  - States currently screening or pilot studies → none
  - Expert opinion
- Sensitivity analysis – vary assumptions
  - High and low estimates for parameters

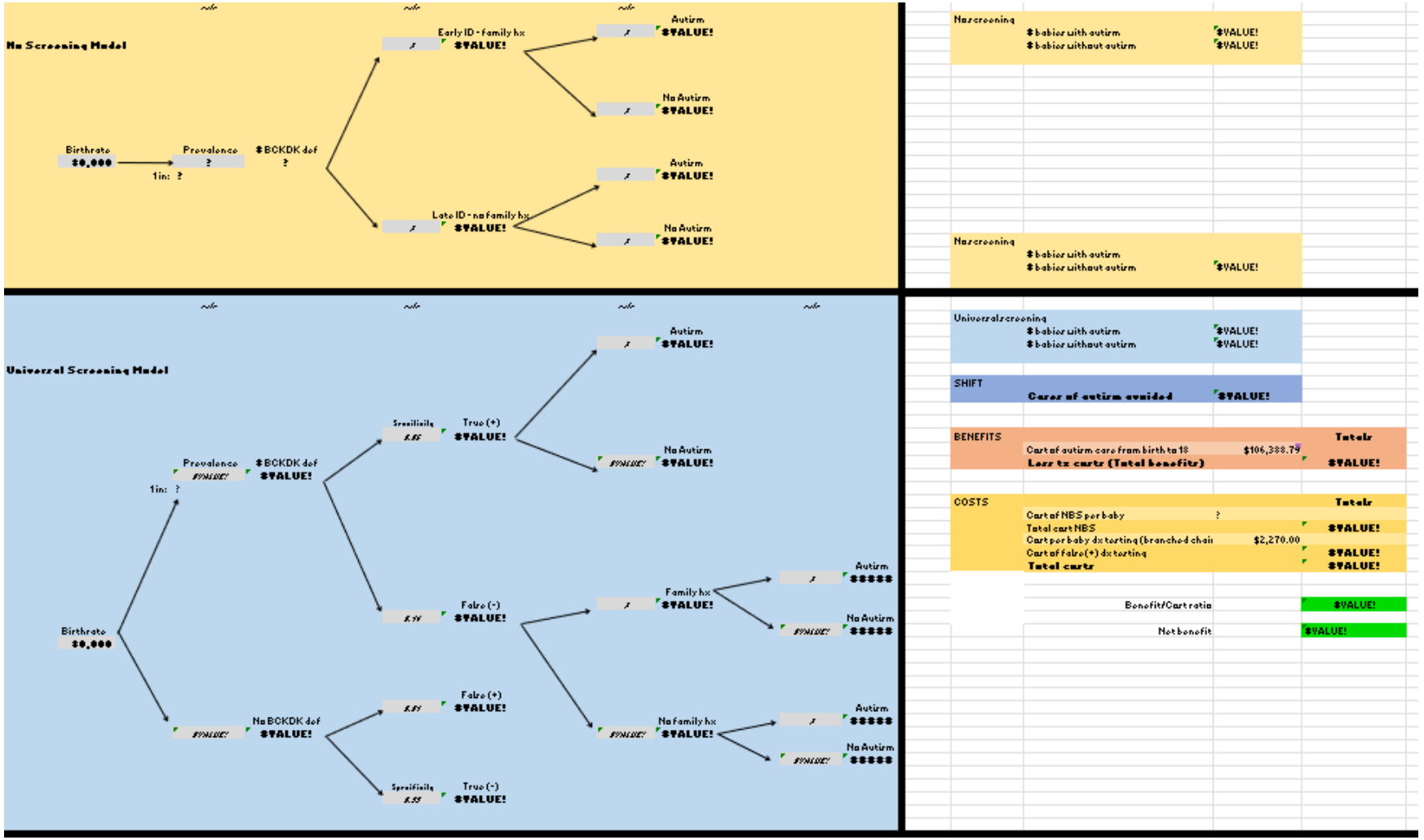
The cost- benefit model

- Decision Tree
  - Compares status quo v. screening model
- Data from:
  - Primary literature → extremely limited
  - States currently screening or pilot studies → none
  - Expert opinion → mostly not accessible
- Sensitivity analysis – vary assumptions
  - High and low estimates for parameters

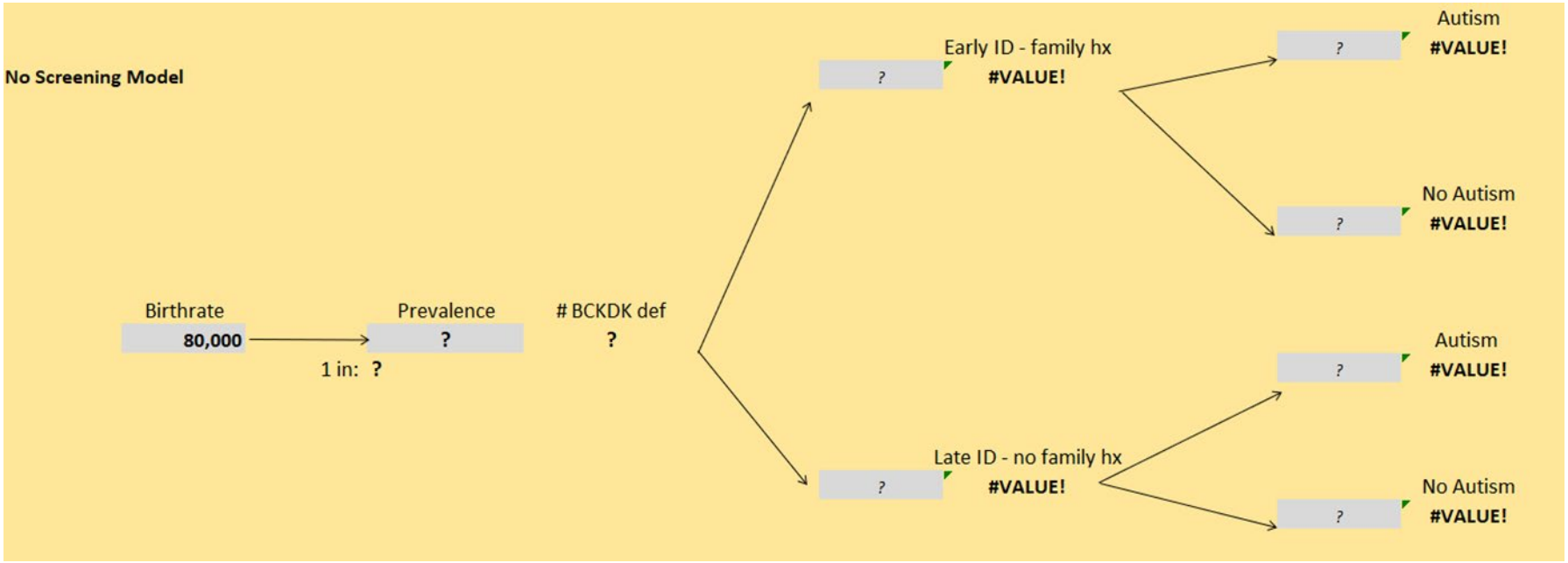
The cost- benefit model

- Phone-a-friend:
  - Insight from Anna Hidle, Public Health Economist, Washington Department of Health

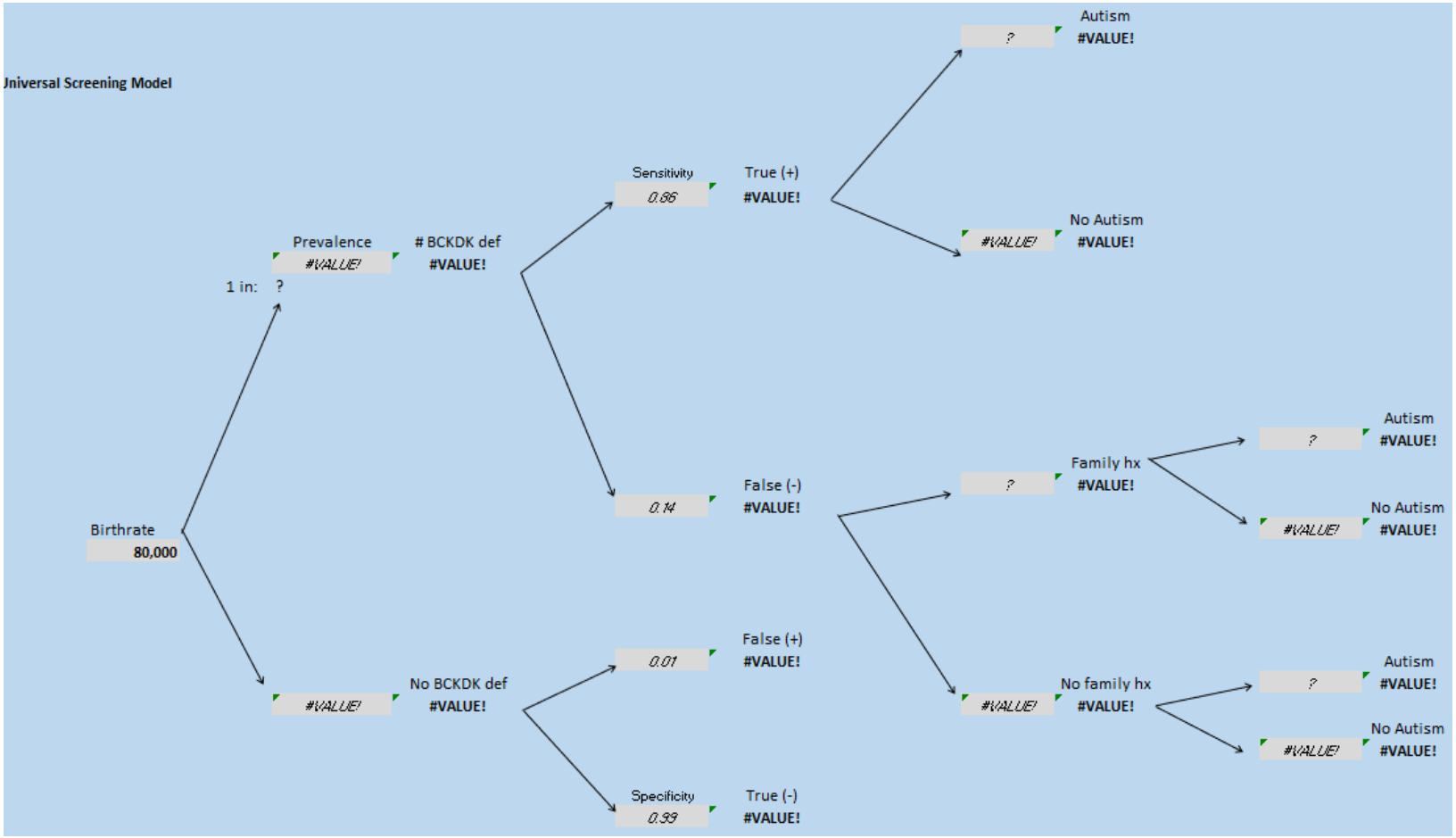
The cost- benefit model



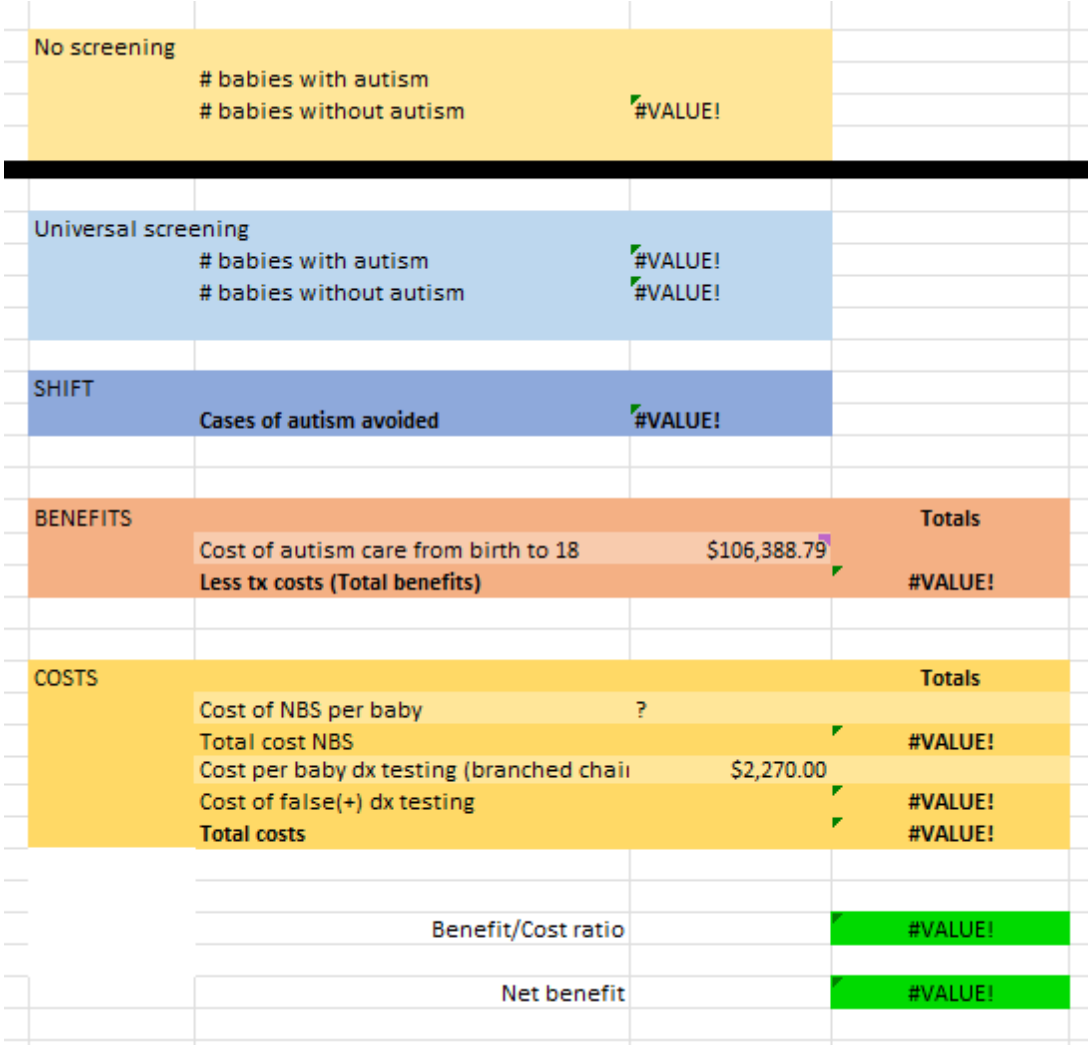
Status quo: No screening model



Newborn screening model



Benefits and Costs



No screening			
	# babies with autism		
	# babies without autism	#VALUE!	
Universal screening			
	# babies with autism	#VALUE!	
	# babies without autism	#VALUE!	
SHIFT			
	Cases of autism avoided	**#VALUE!**	
BENEFITS			**Totals**
	Cost of autism care from birth to 18	$106,388.79	
	Less tx costs (Total benefits)		**#VALUE!**
COSTS			**Totals**
	Cost of NBS per baby	?	
	Total cost NBS		**#VALUE!**
	Cost per baby dx testing (branched chai	$2,270.00	
	Cost of false(+) dx testing		**#VALUE!**
	Total costs		**#VALUE!**
	Benefit/Cost ratio		#VALUE!
	Net benefit		#VALUE!

Summary

- The quality of the results are only as good as the data in the model
- We don't have a benefit/cost ratio to share today
- The model is built
  - Parameters for missing assumptions could be entered in the future when data is available

Questions?

5. Cost-benefit/Cost-effectiveness: The outcomes outweigh the costs of screening. All outcomes, both positive and negative, need to be considered in the analysis. Important considerations to be included in economic analyses include:

- The prevalence of the condition among newborns.
- The positive and negative predictive values of the screening and diagnostic tests.
- Variability of clinical presentation by those who have the condition.
- The impact of ambiguous results. For example the emotional and economic impact on the family and medical system.
- Adverse effects or unintended consequences of screening.

CRITERIA FOR ADDING DISORDERS TO THE NEWBORN SCREENING PANEL

Megan McCrillis, MPH

Policy Analyst, WA State Newborn Screening Program

Washington State Department of HEALTH

Let's provide additional information from WA and other states to aid in the criteria review discussion

Criteria Review Form

Condition Under Review:

Date:

Nominator:

Presenters:

Criterion		Opinion			Comment(s)
		Meets	Does not meet	More info needed	
1	Mandated testing should be limited to conditions that cause serious health risks in childhood that are unlikely to be detected and prevented in the absence of newborn screening.				
2	For each condition, there should be information about the incidence, morbidity and mortality, and the natural history of the disorder.				
3	Conditions identified by newborn screening should be linked with interventions that have been shown in well-designed studies to be safe and effective in preventing serious health consequences.				
4	The interventions should be reasonably available to affected newborns.				
5	Appropriate follow-up should be available for newborns who have a false positive newborn screen.				
6	The characteristics of mandated tests in the newborn population should be known, including specificity, sensitivity, and predictive value or other convincing medical evidence (experience, natural history, or literature).				
7	If a new sample collection system is needed to add a disorder, reliability and timeliness of sample collection must be demonstrated.				
8	Before a test is added to the panel, the details of reporting, follow-up, and management must be completely delineated, including development of standard instructions, identification of consultants, and identification of appropriate referral centers throughout the state/region.				

9	Recommendations and decisions should include consideration of the costs of the screening test, confirmatory testing, accompanying treatment, counseling, and the consequences of false positives. The mechanism of funding those costs should be identified. Expertise in economic factors should be available to those responsible for recommendations and decisions.				

Overall impression:

Recommendation:

Figure 1. The Wilson-Jungner[1] criteria for appraising the validity of a screening programme

The condition being screened for should be an important health problem

The natural history of the condition should be well-understood

There should be a detectable early stage

Treatment at an early stage should be of more benefit than at a later stage

A suitable test should be devised for the early stage

The test should be acceptable

Intervals for repeating the test should be determined

Adequate health service provision should be made for the extra clinical workload resulting from screening

The risks, both physical and psychological, should be fewer than the benefits

The costs should be balanced against the benefits

Background

- For states that are not RUSP-aligned, most use some variation of Wilson and Jungner screening criteria when considering additional newborn screening tests
  - 1960s criteria developed for all types of screening programs, not just newborn screening
  - Basis for WA NBS criteria as well

- Current criteria allow for greater interpretation and flexibility across conditions being considered
- Making the criteria more specific or adding “benchmarks” could aid in the decision-making process or increase congruence across years and advisory committees

WA "Available Screening Technology" Criterion

Current language

Sensitive, specific and timely tests are available that can be adapted to mass screening.

Examples to consider

- Sensitivity of screening test is estimated to be ≥95%
- Specificity is comparable to other newborn screening conditions on the panel. Or, if it isn't, second tier testing is available

2023			
	True Positive	False Positive	False Negative
SMA	3	0	0
Pompe	1	107	0
X-ALD	12	21	0
SCID	3	25	0
CF	16	122	0
Total screened: 80,633			

- Snapshot of screening performance for one year of the five most recently added conditions in WA

2023						
	True Positive	False Positive	False Negative	Sensitivity	Specificity	Positive Predictive Value
SMA	3	0	0	100.00%	100.00%	100.00%
Pompe	1	107	0	100.00%	99.87%	0.93%
X-ALD	12	21	0	100.00%	99.97%	36.36%
SCID	3	25	0	100.00%	99.97%	10.71%
CF	16	122	0	unknown	99.85%	11.59%
Total screened: 80,633						

- Snapshot of screening performance for one year of the five most recently added conditions in WA

2023						
	True Positive	False Positive	False Negative	Sensitivity	Specificity	Positive Predictive Value
CF	16	122	0	unknown	99.85%	11.59%
Total screened: 80,633						

- Cystic fibrosis also tells a story from WA regarding screening test performance
- Over 18 years, five algorithm updates, methodology changes, sensitivity increased from 94-96% to about 98%

WA "Diagnostic Testing and Treatment Available" Criterion

Current language

Accurate diagnostic tests, medical expertise, and effective treatment are available for the evaluation and care of all infants identified with the condition.

Examples to consider

- Diagnostic process is minimally invasive (e.g., can be completed with blood or urine samples)
- Intervention/treatment is available clinically (i.e., not a research trial)
- Treatment facilities and specialists are available locally vs. regionally
- Proximity to therapy is reasonable based on the frequency necessary to treat

WA "Prevention Potential and Medical Rationale" Criterion

Current language

The newborn identification of the condition allows early diagnosis and intervention. Important considerations:

- There is sufficient time between birth and onset of irreversible harm to allow for diagnosis and intervention.
- The benefits of detecting and treating early onset forms of the condition (within one year of life) balance the impact of detecting late onset forms of the condition.
- Newborn screening is not appropriate for conditions that only present in adulthood.

Examples to consider

- There is an infantile onset form of this condition
- The nominated condition can be found between 24 and 48 hours of life through screening but cannot be identified clinically in that time frame.

WA "Public Health Rationale" Criterion

Current language

- Nature of the condition justifies population-based screening rather than risk-based screening or other approaches

Examples to consider

- Incidence is anticipated to be greater than or equal to 1 confirmed case per 100,000 screened
  - Exception may be made for super rare conditions that are multiplexed with other more common conditions

WA “Cost-benefit/Cost-effectiveness” Criterion

Current language

The outcomes outweigh the costs of screening. All outcomes, both positive and negative, need to be considered in the analysis. Important considerations to be included in economic analyses include:

• The prevalence of the condition among newborns. • The positive and negative predictive values of the screening and diagnostic tests. • Variability of clinical presentation by those who have the condition. • The impact of ambiguous results. For example, the emotional and economic impact on the family and medical system. • Adverse effects or unintended consequences of screening.

Examples to consider

- Cost to screen is comparable to other newborn screening tests currently performed
  - Cost to screen in WA for most recently added conditions:
    - SCID - $8.10
    - X-ALD - $10
    - Pompe/MPS-I - $10.50
    - SMA - $4.30
    - OTCD/ARG/GAMT - $1.77

Questions?

Washington State Department of HEALTH

WASHINGTON STATE BOARD OF HEALTH

Newborn Screening Technical Advisory Committee (TAC)

Newborn Screening (NBS) Technical Advisory Committee (TAC) Voting Instructions

Please use the Microsoft Forms ballots provided by staff during the meeting to vote on the following items:

- Ballot 1:
  - Vote on whether branched-chain ketoacid dehydrogenase kinase (BCKDK) deficiency meets the Washington State Board of Health's (Board's) five criteria for possible inclusion in the state newborn screening panel.

- Ballot 2:
  - Provide a final recommendation to the Board on adding BCKDK deficiency to the state newborn screening panel.

All votes are anonymous. The TAC facilitator and Co-Chairs will collect and present your votes for further discussion by the group.

Instructions:
- Only TAC members may vote.
- Do not forward or share the form/ballot.
- If you are unsure of not comfortable voting on these options, please indicate so in the form.

If you encounter any technical issues or difficulties accessing the form, please let staff know as soon as possible.