Significant Legislative Rule Analysis

WAC 246-650-010, -020
Rules Concerning X-Linked Adrenoleukodystrophy as a Part of Newborn Screening

May 26, 2017
SECTON 1:
Describe the proposed rule, including a brief history of the issue, and explain why the proposed rule is needed.

Proposed Rule and Brief History
RCW 70.83.030 tasks the State Board of Health (Board) with adopting rules related to the reporting of heritable and metabolic disorders to the Department of Health (Department).

In April of 2014 the Zakes Foundation approached the Board and asked it to consider adding X-linked adrenoleukodystrophy (X-ALD) to the list of mandatory conditions for newborn screening (NBS) conducted by the Department per chapter 246-650 WAC. In October of 2015 the Board convened an Advisory Committee to determine if X-ALD met its criteria for including a condition in the panel. The Advisory Committee recommended that the Board add X-ALD to the rule since the condition met each criterion. In January of 2016 the Board approved and adopted the recommendation to add X-ALD to the NBS panel.

The Board is proposing amendments to chapter 246-650 WAC to add a definition of X-ALD (WAC 246-650-010) and add X-ALD to the list of newborn screening tests performed by the Department (WAC 246-650-020).

Overview and Background

X-ALD is a deadly genetic disorder that affects the brain and endocrine system. This disease is an inherited metabolic storage disorder that is characterized by the defective metabolism of very long chain fatty acids (VLCFA). The accumulation of VLCFAs can be harmful to a number of cells and organs including the brain, spinal cord, testis, and adrenal glands (Engelen, 2012). Particularly in the central nervous system, there is a deterioration of the myelin that insulates nerves in the brain and spinal cord, and this deterioration impacts the capability for the nerves to relay information to the brain (Engelen, 2012). Additional damage to the outer layer of the adrenal glands may cause additional symptoms such as weakness, weight loss, and vomiting.

X-ALD is an X-linked disease, which means that it is primarily found in males although females can be carriers as well and can experience symptoms. It is estimated that X-ALD affects 1 in 18,000 boys and it can present with a number of different phenotypes including childhood cerebral ALD (CALD), adrenomyeloneuropathy (AMN), and Addison disease only (manifests as adrenal insufficiency). Approximately 35-40% of all X-ALD cases are the childhood cerebral form, 40-45% are AMN, and 20-30% are Addison disease only. Childhood cerebral ALD has an average age of onset between 4 and 10 years of age; and until the time of diagnosis, development is normal. The presentation of symptoms may be subtle and can include changes in behavior that resemble Attention Deficit Hyperactivity Disorder (ADHD), impaired vision, and impaired hearing (Engelen, 2012). The progression from initial symptoms to either a vegetative state or death can occur rapidly, typically within two years. Early diagnosis and treatment of X-ALD through newborn screening is the key to saving lives since without treatment most males with the severe form of X-ALD will die before the age of ten. AMN is the most common form of X-ALD and typically has a later onset with the first symptoms occurring in a patient’s twenties (“X-linked Adrenoleukodystrophy,” 2013). Symptoms include stiffness and weakness in the legs,
urinary and genital tract disorders, cognitive defects, emotional disturbances, and depression (“X-linked Adrenoleukodystrophy,” 2013; “Adrenoleukodystrophy" accessed 2017). Disease progression is slow although patients will generally need a cane or wheelchair and in some cases, damage to the brain and nervous system may lead to a premature death. Adrenal insufficiency, also called Addison disease, can have an onset anytime between childhood and adulthood and includes symptoms such as fatigue, dehydration, low blood sugar, and hyperpigmentation. Addison disease is the leading cause of adrenal insufficiency in males and an individual’s life expectancy often depends on the severity of symptoms (“X-linked Adrenoleukodystrophy,” 2013).

Treatment for X-ALD depends on the diagnosis and can include adrenal hormone replacement, a bone marrow transplant for patients with early cerebral disease, and the use of Lorenzo’s oil. Lorenzo’s oil is a mixture of two oils that are thought to help normalize fatty acid levels (“Adrenoleukodystrophy,” accessed 2017).

SECTION 2:
Is a Significant Analysis required for this rule?
Yes, the Department and the Board evaluated the rule and determined it is a significant legislative rule under the definition provided in statute and requires a significant analysis that includes a cost/benefit analysis. However, it has been determined that no significant analysis is required for the following portions of the rule.

Table 1: Non-Significant Rule Identification

<table>
<thead>
<tr>
<th>#</th>
<th>WAC Section</th>
<th>Section Title</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WAC 246-650-010</td>
<td>Definitions</td>
<td>The section defines X-ALD, which creates clarity for the rule, but does not meet the definition of a legislatively significant rule.</td>
</tr>
</tbody>
</table>

SECTION 3:
Clearly state in detail the general goals and specific objectives of the statute that the rule implements.

The general goal of chapter 70.83 RCW is to detect as early as feasible and to prevent where possible preventable heritable disorders leading to developmental disabilities or physical defects.

The statute’s objectives the rule implements are:
1. Detect X-ALD through a test performed on the blood spot specimen that is collected from every baby within 48 hours of birth and submitted to the department’s newborn screening program.

2. Report significant screening test results to the infant’s attending physician or family if an attending physician cannot be identified.

SECTION 4:

**Explain how the department determined that the rule is needed to achieve these general goals and specific objectives. Analyze alternatives to rulemaking and the consequences of not adopting the rule.**

Population-based newborn screening is the best way to ensure that newborns with X-ALD are identified and receive treatment before the condition advances to the point where it is untreatable. In order for universal X-ALD screening to occur in Washington, chapter 246-650 WAC must be amended in order to include this condition.

The Board and Department have assessed and determined that there are no feasible alternatives to rulemaking because infants born with X-ALD may appear normal and without required screening the opportunity to begin preventive treatments will be lost. If this rule is not adopted, the result would be babies who are born with X-ALD will continue to experience long-term health challenges or death associated with the disorder.

SECTION 5:

**Explain how the department determined that the probable benefits of the rule are greater than the probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented.**

**Overview of Benefit-Cost Analysis**

The following summary explains the benefit-cost analysis performed for adding X-ALD to the mandatory newborn screening panel. The accompanying spreadsheet is the medical model for comparing the status quo, or a “No Screening Model” (upper section) with the X-ALD “Newborn Screening Model” (lower section). The analysis is from the health sector perspective, in which all costs for providing services are estimated, regardless of who pays the costs.

Point estimates and ranges for input variables were derived from published literature, expert opinion, and the Washington NBS program. The model predicts a benefit-cost ratio of 5.83, meaning that for every dollar of costs to screen newborns for X-ALD, there will be more than $5 worth of benefits. The model structure was developed during 2015 by the Washington NBS program and was presented to the NBS Advisory Committee on October 28, 2015 and later to the State Board of Health on January 13, 2016.
X-ALD is a peroxisomal storage disorder; peroxisomes are found in our cells and their role is to break down fatty acids so our bodies can turn them into energy. X-ALD affects boys because the gene is found on the X chromosome. There are three main manifestations for X-ALD:

1. **Adrenal insufficiency (AI, also called Addison’s disease).** About 80% of boys with X-ALD will develop AI, which can be life-threatening if not treated. AI is easily treated with steroids. The majority of boys start having symptoms of AI within the first two years of life.

2. **Severe cerebral ALD (also called CALD).** About 35% of boys with X-ALD will develop CALD. The majority of boys start having symptoms of CALD by age eight. This is the most severe form of X-ALD. CALD causes changes in the brain. One of the first symptoms is having trouble concentrating and it is often misdiagnosed as ADHD. The disease rapidly progresses and boys with CALD lose their ability to control their muscles and then die (most boys with CALD die within a couple of years after the brain damage has occurred). The treatment is a bone-marrow transplant. Treatment is possible to stop the progression of CALD, but must be done before severe brain damage has occurred. The amount of brain damage is determined by brain magnetic resonance imaging (MRI). This measurement is called the Loes score – a point is given for each abnormal finding on the test. Babies with X-ALD have Loes scores of zero (no damage). If the Loes score is ≥ 10, the boy with CALD is not a candidate for transplant.

3. **Adult-onset adrenomyeloneuropathy (also called AMN).** 40-45% of males with X-ALD will be diagnosed with AMN in adulthood. The symptoms are general weakness, AI, loss of mobility (needing a wheel chair) and brain function decline.

There is a good newborn screening test for finding boys with X-ALD. One of the tricky things about X-ALD is that there is no test to predetermine which form of X-ALD a baby will have. The safest way to care for a baby with X-ALD is to test for AI and perform a brain MRI each year. If the AI test becomes abnormal, doctors start treating with steroids. Brain MRIs are compared each year to the previous one. If a patient’s Loes score begins to change because brain damage is noted on a new MRI, the doctors will prepare for a bone marrow transplant as soon as possible.

We constructed an economic model to estimate the costs and benefits of NBS for X-ALD (Newborn Screening Model). The analysis compares these costs to what is happening now (No Screening Model).

The first step is to estimate the number of boys with X-ALD. We used information from New York’s screening program to estimate the number of boys with X-ALD born in Washington State each year. We chose to use one year of babies born for this analysis.

The next step is to find out which boys will be diagnosed early and benefit from treatment. In the No Screening Model a small percentage of boys will be diagnosed early because they have a family member with X-ALD (positive family history). We use the sensitivity of NBS test to estimate the number of boys diagnosed early in the Newborn Screening Model. The sensitivity is the ability of the test to correctly find the babies with X-ALD. Our model predicts that there will
be more than two babies identified early each year through screening, compared to identification through family history only.

Next we compare the medical outcomes for early versus late identification. The morbidity estimates are the percentages of boys we expect will develop the specific form of X-ALD listed. The mortality rates are the percentages of boys we expect will die from X-ALD. There is a larger chance for death in late identified X-ALD compared to early identified cases. There are two different mortality rates each for AI and CALD (early versus late).

We have constructed what is called a decision tree. The next step is to march our way through each branch of the decision tree. To do this, we multiply the rates by the number of boys affected to find out how many boys have each of the medical outcomes. In the end, we will have estimates for the number of boys that fall into each category. Because X-ALD is rare, the estimates are sometimes less than one boy. This may feel strange to some readers. Another way of looking at it would be to make the hypothetical population bigger. If we multiplied our birth population by 100, 0.72 boys with early identified X-ALD would become 72 boys.

Now is the time to compare each of the outcomes. First we add each of the death estimates together. We subtract the numbers of deaths in the Newborn Screening Model from the No Screening Model to find the shift in numbers. This is the difference made by NBS. For this model, each year NBS will save 0.5816 boys from dying (or about one life saved every two years). We also calculate the costs of the annual testing for the boys identified early and treatment costs for bone marrow transplant in both models and find the shift in costs.

Next we assign a value to saving a life. The Federal Government makes estimates for the value of saving a life. We used a range of $7.0 and $11.0 million to estimate the value of a life saved through NBS.

We need to estimate how much the NBS program costs. Based on information from New York’s screening program, we estimated that the test would cost $10 per baby. Screening tests are not perfect. This means that some babies who do not have X-ALD will have positive NBS results. They need diagnostic testing to rule out X-ALD (their diagnostic test results will be normal). Girls who have one X-ALD mutation in their DNA may also test positive on the screening test (these are called carriers). They need diagnostic testing also, because they might have a different medical condition needing treatment (this is rare).

The next step is to add up all of the benefits and the costs (lives saved, treatment costs, newborn screening testing costs, and costs of false positive results and carrier identification). We divide the benefits by the costs to get a benefit/cost ratio. Our final result is 5.83, which means for every dollar spent to screen babies for X-ALD, we receive about $5.83 worth of benefits.
Technical Explanation of Model Parameters

We chose numbers for a base case analysis: if we had several estimates from the published data, we either used an average or the middle value. Following the base case is a sensitivity analysis that varies the parameters to give what we judge to be very conservative and moderately liberal estimates to see their impact on the benefit-cost ratio. Note: the spreadsheet calculates the percentages and estimates, which have in some instances been rounded for simplicity. Subsequent calculations are unaffected by this rounding, so sometimes the number appear to not match perfectly.

- **Birthrate.** This analysis is for a hypothetical birth cohort of 88,000 babies (cells B11 and B47) which was the birthrate at the time the study was conducted.
- **Prevalence.** The prevalence used was 1 X-ALD case per 14,000 male births (cells D11 and D41) which is the prevalence found among 385,180 babies tested for X-ALD through New York’s newborn screening program (personal communication with Joe Orsini, August 20, 2015). We assume 50% of births are males. This predicts 3.14 babies born with X-ALD in Washington each year (cell E11 and E41). We estimated that 80 percent of boys with X-ALD (cells K5, K15, K30 and K40) will develop adrenal insufficiency (Dubey 2005) and 35 percent of boys will X-ALD (cells K6, K16, K31 and K41) would develop the severe cerebral form (Moser 2001, Raymond 2007).
- **Percent of babies with X-ALD with a positive family history of X-ALD.** We assume that these babies will be treated early in the “No Screening Model” because of a positive family history of X-ALD (mostly an older affected male in the family). The estimate for this parameter (23% – cell G5) was reported in the literature (Polgreen 2001).
- **Sensitivity.** The sensitivity, or the ability of the screen to correctly identify babies with X-ALD, is estimated at 99.5% (cell G30). Although there have been no known missed cases in X-ALD NBS programs, false negatives are inevitable in screening programs (estimate recommended by economist Scott Grosse). This sensitivity of the NBS test predicts 3.13 true positives identified early and 0.02 false negatives (missed cases of X-ALD) per year.
- **Specificity.** The specificity, or the ability of the screen to correctly identify babies who do not have X-ALD, is estimated at 99.99844 (cell G55), based on the screening experience in New York (personal communication with Joe Orsini, August 20, 2015). This specificity value predicts 1.37 false positives per year (cell H48): these are babies who need diagnostic testing and sometimes clinical follow-up for other peroxisomal storage conditions (they do not have X-ALD).
- **Mortality of cases identified early.** The numbers used for mortality for the early identified cerebral form of X-ALD (CALD) (11% - cells R6, R18, R31 and R43) is data from a study of the death rates after hematopoetic stem cell transplant in babies with Loes scores <10, indicating transplant performed prior to major brain damage from X-ALD (Miller, 2011). The numbers for mortality for early identified adrenal insufficiency (0.1% - cells R5 and R30) are expert opinion from neurologist Gerald Raymond (personal communication, September 16, 2015).
- **Mortality of cases identified late.** The numbers for mortality for late identified adrenal insufficiency (1% - cells R15 and R40) are expert opinion from neurologist Gerald Raymond (personal communication, September 16, 2015). Approximately 25% of
babies with CALD (cells O18 and O43) benefit from early MRIs because they present with adrenal insufficiency first (Polgreen 2011). This subgroup has the same mortality rate (11%, cells R18 and R43) as the early identified cohort because they can receive transplants prior to major brain damage. The remaining 75% of boys with CALD (cells O19 and O44) that are late identified only have MRIs after significant brain damage has already occurred and are not candidates for transplant. These boys’ symptoms rapidly progress to require nursing and hospice care and die within approximately five years (personal communications with neurologists Jennifer Kwon and Gerald Raymond on May 25, 2017 and May 26, 2017 respectively).

- **Monetary value of a life.** The value of one life saved is estimated at $9 million (cell Y41). This is the middle value of a range given by CDC economist Scott Grosse (personal communication regarding his lecture at Emory University, October 13, 2015).

- **Treatment costs for adrenal insufficiency.** The cost for one year of treatment of adrenal insufficiency is estimated at $2,000 per baby (cells I7, I17, I32 and I42), regardless of early v. late identification (personal communication with endocrinologist Patricia Fechner).

- **Treatment costs for severe cerebral X-ALD: early treatment.** The cost for early treatment of the cerebral form of X-ALD is for bone marrow transplant costs ($750,000, cells I8 and I33).

- **Treatment costs for severe cerebral X-ALD: late treatment.** The cost for late treatment of the cerebral form of X-ALD depends on the level of brain damage. If the Loes score <10, the boy is a good candidate for bone marrow transplant ($754,371, cells I18 and I43). This is the cost for bone marrow transplant and the cost for clinical testing for ADHD (common misdiagnosis in boys with CALD). For boys with Loes scores ≥10, the costs are for six years of treating a child with severe disabilities ($816,947.65, cells I19 and I44) because bone marrow transplant is not an option (this estimate is the sum of discounted costs of $150,000 per year to treat a child with severe disabilities for six years (discount rate = 3%), recommended by economist Scott Grosse).

- **Serial screening costs for early identified X-ALD.** The cost for serial adrenal insufficiency testing is estimated at $1,213.05 per child with X-ALD (cells I9 and I34). The cost for annual brain MRI is estimated as $45,908.66 per child with X-ALD (cells I10 and I35).

The next step is to evaluate the differences between the models to quantify the benefits of screening. This is done by combining the mortality estimates and assigning a dollar value to deaths avoided and the difference in treatment costs.

- **Deaths averted.** The total number of deaths for each model are compared; there are 0.7089 deaths (cell Y2) predicted in the “No Screening Model” and 0.1273 deaths (cell Y27) in the “Newborn Screening Model.” The “No Screening Model” has three times the mortality rate of the “Newborn Screening Model.” The difference between the two models is 0.5816 deaths averted (cell Y40). This means that over the course of three years, one boy with X-ALD will not die because of early treatment afforded by newborn screening.
• **Value of lives saved.** The value of lives saved by newborn screening is the number of deaths averted multiplied by the monetary value of a life. The model estimates yearly benefits of **$5.23 million** (cell Y42) for saving lives of babies with X-ALD.

• **Shift in treatment costs.** The early and late treatment costs for each model are calculated and combined to determine the costs of treatment in each model (No Screening = $917,291.55, cell Y7; NBS = $977,704.87, cell Y32). The annual treatment costs saved by screening ($-60,413.32, cell Y43) meaning that early identification actually costs more (because of serial adrenal function testing and brain MRIs).

• **Total benefits.** The total benefits ($5.17 million, cell Y44) are the sum of the value of lives saved and the treatment cost saved by screening.

Costs are estimated next.

• **Cost of screening.** The estimated costs of X-ALD testing are **$10.00 per baby** (cell I52).

• **Costs of clinical care and diagnostic testing for false positives.** Only the false positive babies are counted for diagnostic testing costs because the babies with X-ALD will have clinical evaluation and diagnostic testing regardless. The cost of false positive screening results is **$2,774.20** (cell I50) and includes blood testing for very-long chain fatty acids, plasmalogen, genetic testing and fibroblast analysis.

Please note: Ideally, we would also include the benefits of early identification of babies with other peroxisomal conditions, thus avoiding resource-intensive diagnostic odysseys. However, we lack sufficient data to adequately estimate this value.

• **Costs of carrier identification.** The number of carriers identified was estimated to be twice the number of boys diagnosed with X-ALD. The costs of identifying these girls who are carriers of an X-ALD mutation are estimated at **$2,972.31** (cell Y48).

• **Total costs for X-ALD newborn screening.** The birthrate multiplied by cost per baby is **$880,000** (cell Y46).

• **Total costs for clinical care and diagnostic testing of false positives.** The total annual cost of false positive screening results outlined above is **$3,802.70** (cell Y47).

• **Total costs of Newborn Screening Model.** The annual costs of NBS for X-ALD are estimated to be **$886,775.01** (cell Y49).

Finally, the ratio of benefits to cost is calculated. Any ratio greater than 1 signifies that the benefits outweigh the costs.

• **Benefit/Cost Ratio.** $5.17 million of benefits divided by $886,775 of costs yields a benefit/cost ratio of **5.83** (cell Y51).

After completing the base case benefit-cost ratio, we performed a sensitivity analysis to evaluate how the benefit-cost ratio changes when estimates for the parameters are varied.

• **Sensitivity Analysis.** Table 2 contains three estimates for each parameter, the best guess estimate used in the base case followed by conservative and liberal estimates. Only one parameter was changed at a time to generate unique benefit/cost ratios for each of the scenarios. The only exception is that the parameters for costs of CALD transplant and cost of treating disability for six years were varied together to achieve a larger difference between the conservative and liberal estimates. The model proved to be very robust. The lowest the benefit-cost ratio dipped to was 4.5 for the model in which the cost for the NBS test was a high estimate of $13.
**Table 2: Sensitivity Analysis**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conservative Estimate</th>
<th>Base Case</th>
<th>Liberal Estimate</th>
<th>B/C Ratio Swing</th>
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</thead>
<tbody>
<tr>
<td>Prevalence</td>
<td>~1:17,000</td>
<td>~1:14,000</td>
<td>~1:11,000</td>
<td>4.81 to 7.43</td>
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<tr>
<td>Sensitivity</td>
<td>95%</td>
<td>99.5%</td>
<td>100%</td>
<td>5.49 to 5.87</td>
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<td>Specificity</td>
<td>99.9%</td>
<td>99.98%</td>
<td>100%</td>
<td>5.60 to 5.88</td>
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<td>% early ID – family hx X-ALD</td>
<td>16%</td>
<td>23%</td>
<td>30%</td>
<td>5.30 to 6.37</td>
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<td>% cases with AI</td>
<td>70%</td>
<td>79.6%</td>
<td>90%</td>
<td>5.81 to 5.86</td>
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<tr>
<td>% cases with CALD</td>
<td>30%</td>
<td>35%</td>
<td>40%</td>
<td>4.77 to 6.90</td>
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<td>Median age at AI dx</td>
<td>1</td>
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<td>3</td>
<td>no change</td>
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<tr>
<td>Median age at CALD dx</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td></td>
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<tr>
<td>Mortality rate early ID – AI</td>
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<td>0.5%</td>
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<td>Mortality rate late ID – AI</td>
<td>0%</td>
<td>1%</td>
<td>5%</td>
<td>5.64 to 6.61</td>
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<tr>
<td>Mortality rate early ID – CALD</td>
<td>5%</td>
<td>11%</td>
<td>17%</td>
<td>5.45 to 6.22</td>
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<td>Mortality rate late ID - CALD</td>
<td>80%</td>
<td>100%</td>
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<td>Cost of CALD transplant</td>
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<td>$750,000</td>
<td>$1,500,000</td>
<td>4.83 to 6.77</td>
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<td>Cost of treating disability (6y)</td>
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<td>Cost of serial AI testing</td>
<td>$606.53</td>
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<td>Cost of serial MRI testing</td>
<td>$22,954.33</td>
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<td>$91,817.32</td>
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<tr>
<td>Cost of NBS test</td>
<td>$7.00</td>
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<td>$13.00</td>
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<td>Cost of false (+)</td>
<td>$1,387.10</td>
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<td>$27,742.00</td>
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<tr>
<td>Monetary value of a life</td>
<td>$ 7 million</td>
<td>$ 9 million</td>
<td>$ 11 million</td>
<td>4.52 to 7.15</td>
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</table>

ID=identification, hx=history, AI=adrenal insufficiency, CALD=cerebral X-ALD, dx=diagnosis, MRI=magnetic resonance imaging

**Conclusion**

Early identification of babies with X-ALD is critical to their health. The mortality rate is greatly reduced with early treatment and medical costs are dramatically lower compared to babies treated after becoming symptomatic. This analysis used data from more than 380,000 babies screened in New York, the first newborn screening program testing for X-ALD, to predict the medical outcomes for a hypothetical birth cohort of Washington babies. We used data from the primary literature and expert opinion to quantify the costs and benefits of treatment for babies with early and late treatment. The benefit-cost ratio was 5.83, meaning that for every dollar of costs to provide X-ALD screening, there will be more than $5 worth of benefits. The sensitivity analysis showed that the model is very robust because the benefit-cost ratio did not change much when more conservative or liberal estimates for parameters were made in the model.

**SECTION 6:**

Identify alternative versions of the rule that were considered, and explain how the department determined that the rule being adopted is the least burdensome.
alternative for those required to comply with it that will achieve the general goals and specific objectives state previously.

**Alternative 1:**

The Board considered not adding X-ALD to the required screening panel but because population-based newborn screening is the best way to ensure that newborns with X-ALD are identified and can receive treatment before the condition advances to the point where it is untreatable, and because the benefits of screening exceeds the costs, screening is the least burdensome alternative.

**Alternative 2:**

The Board considered only requiring screening for X-ALD for male newborns as X-linked conditions are less likely to impact females, and when they do, often have less severe symptoms. However, the Board determined that the potential risks of only screening male newborns outweighed the potential benefits. This approach would not reduce the burden on healthcare providers or healthcare facilities as they would still collect blood spots and submit the specimens using the same protocol for male and female newborns. While only testing the blood spots of male newborns for X-ALD could potentially reduce the cost of testing, it introduces several inefficiencies in the testing process that could introduce an unnecessary risk of missing a newborn with X-ALD. This would require the state public health lab to sort and process male and female specimens separately, increasing the administrative burden on the Department of Health and the costs of running the NBS Program, and introducing a risk that a male newborn specimen could be mislabeled or improperly sorted resulting in a baby with X-ALD being missed.

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**SECTION 7:**

Determine that the rule does not require those to whom it applies to take an action that violates requirements of another federal or state law.

The rule does not require those to whom it applies to take an action that violates requirements of federal or state law.

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**SECTION 8:**

Determine that the rule does not impose more stringent performance requirements on private entities than on public entities unless required to do so by federal or state law.
The rule does not impose more stringent performance requirements on private entities than on public entities.

SECTION 9:

Determine if the rule differs from any federal regulation or statute applicable to the same activity or subject matter and, if so, determine that the difference is justified by an explicit state statute or by substantial evidence that the difference is necessary.

The rule does not differ from any federal regulations or statute applicable to the same activity.

SECTION 10:

Demonstrate that the rule has been coordinated, to the maximum extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter.

There are no other applicable laws.

References


Fechner, P. (2015). Personal communication with endocrinologist Patricia Fechner (Seattle Children’s Hospital).


Kwon. J. (2015 and 2017). Personal communication with neurologist Jennifer Kwon (University of Rochester Medical Center) – most recent was a telephone call on 5/25/2017.


Raymond, G. (2015 and 2017). Personal communication with neurologist Gerald Raymond (University of Minnesota) – most recent was a telephone call on 5/26/2017.