

Health Impact Review of SB 5147
Providing tax relief to females by exempting feminine hygiene products from retail sales
and use tax
(2020 Legislative Session)

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Staff contact:

Lindsay Herendeen

Phone: (360) 628-6823

Email: Lindsay.Herendeen@sboh.wa.gov



Full review

The full Health Impact Review report is available at:

<https://sboh.wa.gov/Portals/7/Doc/HealthImpactReviews/HIR-2020-13-SB5147.pdf>

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Executive Summary
SB 5147, Providing tax relief to females by exempting feminine hygiene products from retail sales and use tax (2020 Legislative Session)

Evidence indicates that SB 5147 would likely increase affordability of, access to, and use of menstrual hygiene products, which would likely improve health outcomes and decrease health inequities by socioeconomic status for individuals who menstruate.

BILL INFORMATION

Sponsors: Wilson, L., Brown, Carlyle, Conway, Darneille, Palumbo, Keiser, Mullet, O'Ban, Short, Wagoner, Warnick

Summary of Bill:

- Exempts feminine* hygiene products from Washington State's retail sales tax ([RCW 82.08.020](#)) and use tax ([RCW 82.12.020](#)).
- Exempts this act from the provisions of [RCW 82.32.805](#) (Tax preferences—Expiration dates).
- States that the tax preferences authorized in this bill will be included in the tax exemption report required under [RCW 43.06.400](#) published by the Department of Revenue.

HEALTH IMPACT REVIEW

Summary of Findings:

This Health Impact Review found the following evidence for relevant provisions in SB 5147:

- **A fair amount of evidence** that exempting menstrual hygiene products from Washington's sales and use taxes would increase the affordability of these products.
- **Informed assumption** that increasing the affordability of menstrual hygiene products would increase access to and use of these products. This assumption is based on evidence that cost is a barrier to accessing menstrual hygiene products.
- **A fair amount of evidence** that increasing access to and use of menstrual hygiene products will improve health outcomes.
- **Strong evidence** that improving health outcomes will decrease health inequities by socioeconomic status for individuals who menstruate.

* This analysis recognizes that "feminine" is not preferred language. However, since SB 5147 uses the word "feminine" in bill provisions, this language is preserved here for accuracy.

Introduction and Methods

A Health Impact Review is an analysis of how a proposed legislative or budgetary change will likely impact health and health disparities in Washington State ([RCW 43.20.285](#)). For the purpose of this review ‘health disparities’ have been defined as the differences in disease, death, and other adverse health conditions that exist between populations ([RCW 43.20.270](#)). This document provides summaries of the evidence analyzed by State Board of Health staff during the Health Impact Review of Senate Bill 5147 ([SB 5147](#)).

Staff analyzed the content of SB 5147 and created a logic model depicting possible pathways leading from the provisions of the bill to health outcomes. We consulted with experts and contacted key informants about the provisions and potential impacts of the bill. We conducted an objective review of published literature for each pathway using databases including PubMed, Google Scholar, and University of Washington Libraries. More information about key informants and detailed methods are available upon request.

The following pages provide a detailed analysis of the bill including the logic model, summaries of evidence, and annotated references. The logic model is presented both in text and through a flowchart (Figure 1). The logic model includes information on the strength-of-evidence for each relationship. The strength-of-evidence has been defined using the following criteria:

- **Very strong evidence:** the review of literature yielded a very large body of robust evidence supporting the association with few if any contradictory findings. The evidence indicates that the scientific community largely accepts the existence of the association.
- **Strong evidence:** the review of literature yielded a large body of evidence on the relationship (a vast majority of which supported the association) but the body of evidence did contain some contradictory findings or studies that did not incorporate the most robust study designs or execution or had a higher than average risk of bias; or there were too few studies to reach the rigor of “very strong evidence;” or some combination of these.
- **A fair amount of evidence:** the review of literature yielded several studies supporting the association, but a large body of evidence was not established; or the review yielded a large body of evidence but findings were inconsistent with only a slightly larger percentage of the studies supporting the association; or the research did not incorporate the most robust study designs or execution or had a higher than average risk of bias.
- **Not well researched:** the review of literature yielded few if any studies or only yielded studies that were poorly designed or executed or had high risk of bias.

This review was subject to time constraints, which influenced the scope of work for this review. The annotated references are only a representation of the evidence and provide examples of current research. In some cases only a few review articles or meta-analyses are referenced. One article may cite or provide analysis of dozens of other articles. Therefore the number of references included in the bibliography does not necessarily reflect the strength-of-evidence. In addition, some articles provide evidence for more than one research question, so are referenced multiple times.

Analysis of SB 5147 and the Scientific Evidence

Summary of relevant background information

- States commonly impose a personal income tax, corporate income tax, sales tax, and real property tax to raise revenue to finance public services.¹
- Washington State does not have a personal or corporate income tax.²
- According to the U.S. Department of Treasury, state sales taxes impact individuals differently depending on their income “because the people with smaller incomes pay a larger percentage of their money into the sales tax system than people with higher incomes.”¹ A 2018 report from the Institute of Taxation and Economic Policy found that Washingtonians with incomes in the lowest 20% (less than \$24,000 annually) pay 13.3% of their family income in sales and excise taxes compared to those with incomes in the top 20% (more than \$116,300 annually) that pay less than 4.7% of their family income.³ The Institute also calculates a Tax Inequality Index “which measures the impact of each state’s tax system on income inequality.”³ According to their measures, “Washington has the most unfair state and local tax system in the country. Incomes are more unequal in Washington after state and local taxes are collected than before.”³ One reason for this inequity is due to Washington’s comparatively high combined state and local sales tax rate.³
- Washington State sales taxes are imposed on retail sales of most articles of tangible personal property, including menstrual hygiene products.⁴ A retail sale is a sale to the final consumer or end user of the property.² Washington State's sales and use tax rate is 6.5%.⁴ Most cities and all counties in Washington State levy a sales and use tax, and rates vary from 0.5% to 3.9%.⁴ Therefore, individuals may pay between 7% and 10.4% in retail sales on menstrual hygiene products.
- States commonly make retail tax exemptions for items like food, clothing, medicine, newspaper, and utilities.¹ Washington State currently has retail sales and use tax exemptions ([RCW 82.08](#)) for a number of products, including some farm products, producer goods, interstate sales, public activities, food and food ingredients, health-related purchases, and deferrals and credits.² Examples of health-related purchase exemptions include prescription drugs ([RCW 82.08.0281](#)) and certain medical items ([RCW 82.08.0283](#)), including prosthetic devices and oxygen.
- Washington State Department of Revenue (DOR) is required to report every four years on the amount of reduced state revenue resulting from tax exemptions.⁴
- A total of 17 states do not have sales and use taxes on menstrual hygiene products; 12 states have exempted menstrual hygiene products from sales and use taxes and 5 states do not impose sales tax on any products.⁵
- Benefits from federal assistance programs (e.g. Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); Supplemental Nutrition Assistance Program (SNAP); Health Savings Accounts) cannot be used to purchase menstrual hygiene products.⁶

- In 2016, a class action lawsuit was filed in New York State to eliminate the sales tax on menstrual hygiene products.⁶ The lawsuit was made on the grounds that, since menstrual hygiene products are essential, “the tax is akin to imposing a tax on women” and is in violation of the Equal Protection Clause.⁶
- According to Washington State health insurance regulations, the term “medically necessary” means a “requested service which is reasonably calculated to prevent, diagnose, correct, cure, alleviate or prevent worsening of conditions in the client that endanger life, or cause suffering or pain, or result in an illness or infirmity, or threaten to cause or aggravate a handicap, or cause physical deformity or malfunction. There is no other equally effective, more conservation or substantially less costly course of treatment available or suitable for the client requesting the service” ([WAC 182-500-0070](#)).
- On average, women^b in the U.S. begin menstruating at 12 years of age and experience menopause at 52 years of age.⁷ Therefore, most women menstruate for 40 years of their life.⁷ Women may use menstrual hygiene products throughout this time, including during menopause for spotting and discharge.⁸

Summary of SB 5147

- Exempts feminine^c hygiene products from Washington State’s retail sales tax ([RCW 82.08.020](#)) and use tax ([RCW 82.12.020](#)).
 - Defines “feminine hygiene products” as “sanitary napkins, tampons, menstrual cups, or any other similar product sold at retail designed specifically to catch menstrual flow either internally or externally.”
- Exempts this act from the provisions of [RCW 82.32.805](#) (Tax preferences—Expiration dates).
- States that the tax preferences authorized in this bill will be included in the tax exemption report required under [RCW 43.06.400](#) published by the Department of Revenue.

Health impact of SB 5147

Evidence indicates that SB 5147 would likely increase affordability of, access to, and use of menstrual hygiene products, which would likely improve health outcomes and decrease health inequities by socioeconomic status for individuals who menstruate.

Pathway to health impacts

The potential pathway leading from the provisions of SB 5147 to decreased health inequities are depicted in Figure 1. There is a fair amount of evidence that exempting menstrual hygiene products from Washington’s sales and use taxes would increase the affordability of these products.^{6,9} We have made the informed assumption that increasing the affordability of

^b This review acknowledges that not all individuals who menstruate identify as a woman or female, and that some individuals who menstruate may identify as a man or male. Analysts have chosen to use the phrase “individuals who menstruate” where appropriate. However, in some instances the words “women” or “females” have been preserved for accuracy and consistency with published literature and sources.

^c This analysis recognizes that “feminine” is not preferred language as it may make assumptions about the user of products and may perpetuate stigma related to the female body. However, since SB 5147 uses the word “feminine” in bill provisions, this language is preserved here for accuracy. In other instances, analysts have chosen to use the phrase “menstrual hygiene products” where appropriate.

menstrual hygiene products would increase access to and use of these products. This assumption is based on evidence that cost is a barrier to accessing menstrual hygiene products^{5,8,10} There is a fair amount of evidence that increasing access to and use of menstrual hygiene products will improve health outcomes.^{5,6,10-14} Lastly, there is strong evidence that SB 5147 will likely decrease health inequities by socioeconomic status for individuals who menstruate.^{1,3,5,6,8,9,15,16,17}

Scope

Due to time limitations, we only researched the most direct connections between the provisions of the bill and decreased health inequities and did not explore the evidence for all possible pathways. For example, we did not evaluate potential impacts related to:

- Increasing sales and use tax rates as a result of an additional tax exemption. Recent research has found that for each additional sales tax exemption, the rate of sales taxes typically increase by 0.10 to 0.25 percentage points.^{6,17}
- Cost-savings from the tax exemption and potential impact of additional expendable income for other expenses. Though cost savings as a result of this tax exemption may be small, savings may help with the cost of other necessities. For example, one study found that 46% of women who had difficulty affording menstrual hygiene products also had difficulty affording food.⁸
- Taking time off of school or work. Some researchers have pointed out that lack of access to proper menstrual hygiene products may require some individuals who menstruate to take time off from school or work, which may particularly impact individuals with low-incomes.^{6,10} However, other research has found no quantitative association between menstrual hygiene management and school absenteeism.¹¹ Researchers have also noted that access to menstrual hygiene products is likely only one factor, as pain or discomfort due to menstruation likely also contributes to school or work absenteeism.^{8,11}
- Potential exposure to toxic chemicals as a result of tampon use. Current research has suggested that tampons may be a source of exposure to metals, pesticides, dioxins, and other chemicals.¹⁸

Magnitude of impact

SB 5147 would impact individuals in Washington State who menstruate, including women and transgender men. On average, women in the U.S. begin menstruating at 12 years of age and experience menopause at 52 years of age.⁷ In Washington State, approximately 2,064,921 individuals are females between the ages of 10 and 54.¹⁹ There is limited data about Washington State's population by gender identity.

The Washington State Department of Revenue (DOR) estimated that, in the first full year after implementation, this bill would decrease state revenue by \$4.5 million dollars and local (including city, county, and special district) revenue by \$1.9 million dollars.²⁰

Research has found that individuals who menstruates spend an average of \$7.00 per month (\$84.00 per year) on menstrual hygiene products and pay an average of \$5.25 in sales tax per year.⁶ Individuals who menstruate may spend approximately \$1,000 over the course of their lifetime on menstrual products.⁵ Based on Washington State population estimates and cost

estimates from DOR, the average individual who menstruates may save approximately \$3.10 per year or \$124.00 over their lifetime as a result of this tax exemption.

Logic Model

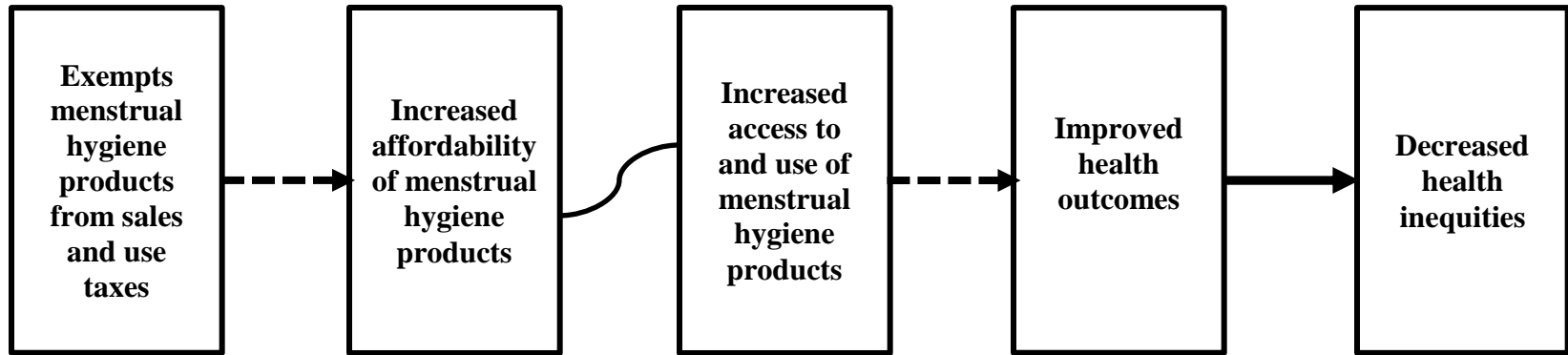
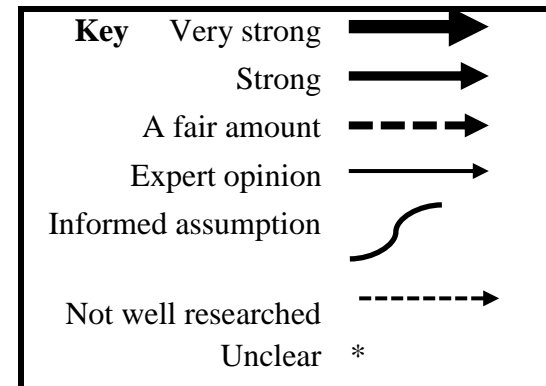


Figure 1:
Providing tax relief to females by exempting feminine hygiene products from retail sales and use tax
SB 5147



Summaries of Findings

Will exempting menstrual hygiene products from Washington’s sales and use taxes increase the affordability of these products?

There is a fair amount of evidence that exempting menstrual hygiene products from Washington’s sales and use taxes would increase the affordability of these products.

Following New Jersey’s 2005 repeal of a 6.9% sales tax on menstrual hygiene products, the tax-inclusive consumer prices of products decreased by 7.3%.⁶ This suggests that the full tax exemption was obtained by consumers.⁶ The authors also found that the tax pass through rate varied by income level, and that the amount prices changed for brands purchased by consumers with high- versus low-incomes varied.⁶ While the consumer price of menstrual hygiene products decreased by 3.9% for high-income consumers, the consumer price decreased by 12.4% for low-income consumers, suggesting that "repealing tampon taxes will promote affordability of menstrual hygiene products to low-income consumers."⁶

In January 2020, California implemented a law ([Senate Bill 92](#)) to exempt tampons, sanitary napkins, menstrual cups, and menstrual sponges from the state’s sales and use taxes.²¹ The California Legislative Analyst’s Office conducted an analysis of the proposal in 2019 and found that “the proposed sales exemption for menstrual products would result in modest cost reductions for all purchases of those products.”⁹

Exempting menstrual hygiene products from sales and use tax in Washington State will remove approximately 7% to 10.4% of the overall cost of these products, depending on local jurisdiction sales and use taxes. Based on this reduction and evidence from other states, there is a fair amount of evidence that this tax exemption will increase the affordability of these products, especially for individuals with low-incomes.

Will increasing affordability of menstrual hygiene products increase access to and use of these products?

We have made the informed assumption that increasing the affordability of menstrual hygiene products would increase access to and use of these products. This assumption is based on evidence that cost is a barrier to accessing menstrual hygiene products.

Menstrual hygiene products are viewed as a necessity^{17,22} and, “the only major response for menstruating women to avoid the tampon tax burden is to not use menstrual hygiene products, which is unlikely to be a realistic option in today’s society.”⁶ Since menstrual hygiene products are viewed as a necessity and individuals who menstruate typically buy the amount needed, menstrual hygiene products are regarded as an economically inelastic product and sales tax exemptions are not likely to cause people to drastically change or increase buying behavior.^{6,9}

However, it has been documented that cost is a barrier to accessing menstrual hygiene products.⁸ For example, surveys and focus groups with women with low-incomes in St. Louis, Missouri found that 64% of women reported being unable to afford needed menstrual hygiene products in the previous year, with 21% experiencing difficulty accessing products each month.⁸ Women reported using cloths, rags, tissues, toilet paper, diapers, or paper towels in lieu of menstrual

hygiene products.^{5,8} Of women surveyed, approximately 2/3 relied on donations from community service organizations to get adequate supplies of products.⁸ However, the pads they received through community service organizations had low absorbency and did not adequately meet their needs.⁸ In these cases, women either went through pads more quickly or were forced to 'double up' and wear two pads at one time, thus using up the donated pads they received twice as quickly.⁸ A survey with staff at community service organizations in St. Louis also found that clients at 12 out of 18 organizations had expressed concern about the affordability and accessibility of menstrual hygiene products.⁸ Similarly, in Washington State, The Other Bank, which provides personal hygiene products to individuals stated that menstrual hygiene products are one of the most frequently requested items (personal communication, February 2020).

In addition, an online survey conducted by the Alliance for Period Supplies (funded by U by Kotex) found that 39% of individuals who menstruate struggled to purchase menstrual hygiene products due to cost at some point in their life, with 25% having difficulty in the past year.¹⁰ The survey also found that 41% of respondents had stretched product use, used a substitute (e.g. toilet paper, sock), or borrowed products from a friend.¹⁰

Other research has shown that students and individuals experiencing homelessness may have difficulty affording menstrual hygiene products.⁵ For example, one study found that, of “British students who have missed school during or on account of their periods: 40 percent report having had to improvise menstrual products because they could not afford them.”⁵ Lastly, while there has been little research about access to menstrual products for individuals experiencing homelessness, “those experiencing homelessness report infection caused by using tampons and pads for longer than recommended or by improvising with items such as paper towels or newspapers.”⁵

If the overall cost of menstrual hygiene products decreases as a result of the tax exemption and the products become more affordable, individuals who menstruate may have greater access to these products. Therefore, since cost is a barrier to accessing menstrual hygiene products and SB 5147 will likely reduce the overall cost of products by 7% to 10.4%, we have made the informed assumption that access to and use of products will likely increase as a result of this bill.

Will increasing access to and use of menstrual hygiene products improve health outcomes?

There is a fair amount of evidence that increasing access to and use of menstrual hygiene products will improve health outcomes. In 2016, the American Medical Association stated that, “feminine hygiene products are essential for women's health.”²²

Lack of access to menstrual hygiene products has been linked to higher health risks.^{5,6} Lack of access may result in reproductive tract infections, which may lead to an increased risk of sexually transmitted infections or negative pregnancy outcomes.⁵ The most common reproductive tract infections thought to be associated with menstrual hygiene are bacterial vaginosis and vulvovaginal candidiasis, which may lead to increased risk of HIV infection, human papillomavirus infection, and adverse pregnancy outcomes.¹¹ However, a 2013 systematic review of literature and meta-analysis found no association between menstrual hygiene management (specifically, type of absorbent) and bacterial vaginosis.¹¹ The review also found weak or contradictory associations between type of absorbent and other health outcomes,

including urinary tract infections, secondary infertility, and anemia.¹¹ The authors concluded that "it is plausible that [menstrual hygiene management] can affect the reproductive tract but the specific infections, the strength of the effect, and the route of transmission, remain unclear."¹¹

In addition, in 1980, the Centers for Disease Control and Prevention (CDC) stated that Rely tampons were responsible for toxic shock syndrome.¹² Toxic shock syndrome is rare, and may cause fever, hypotension, rash, or organ dysfunction¹³ and in severe cases may lead to hysterectomy or death.⁵ While toxic shock syndrome is often assumed to be associated with tampon use, "tampons do not cause toxic shock syndrome...tampons are indeed a co-factor in many cases. Men, children, and non-menstruating women can still contract toxic shock syndrome, but tampons are the catalyst for many menstruating women. Toxic shock syndrome requires the presence of *Staphylococcus aureus* in vaginal flora and lack of requisite antibodies to neutralize toxic shock syndrome toxin-1 (TSST-1) produced by the bacteria."¹² Tampons may introduce some conditions that create an environment for these conditions (e.g. introducing oxygen into the vaginal canal).¹² However, a recent study found that materials used in tampons today are not effective growth mediums for *Staphylococcus aureus*.¹³ Researchers evaluated 11 types of tampons and 4 types of menstrual cups currently on the market in the U.S. to determine their impact on *Staphylococcus aureus* growth and TSST-1 production.¹³ All 11 types of tampons tested actually inhibited growth of *Staphylococcus aureus* and most reduced TSST-1 production.¹³ However, they also found that tampon structure influenced growth and, therefore, tampons should be changed frequently.¹³ The study also found that levels of both *Staphylococcus aureus* and TSST-1 were higher in menstrual cups, and concluded that menstrual cup use is a risk factor for toxic shock syndrome.¹³

Lastly, individuals may also experience shame or stigma from not having access to adequate products.⁵ An online survey conducted by the Alliance for Period Supplies (funded by U by Kotex) found that 59% of respondents who had difficulty affording products reported feelings of embarrassment.¹⁰ A study with women aged 18 to 41 years of age in Iceland found that young women continue to experience shame related to menstruation, including bleeding through menstrual hygiene products, and that body shame during menstruation predicted worse mental and physical health-related quality of life.¹⁴

Overall, researchers have noted that the impact of menstrual hygiene product use on health is poorly researched and that, "the effect of poor [menstrual hygiene management]...remains unclear."¹¹ However, since the majority of articles reviewed supported associations with adverse health outcomes, we have concluded there is a fair amount of evidence that increasing access to and use of menstrual hygiene products would improve health outcomes.

Will improving health outcomes decrease health inequities?

There is strong evidence that improving health outcomes will decrease health inequities by socioeconomic status for individuals who menstruate.

It is well-documented that individuals with low socioeconomic status experience worse health outcomes. Significant correlations exist between lower income and a number of health indicators, including worse women's health indicators.¹⁵ Furthermore, household income was the strongest predictor of self-reported health status in Washington in 2016, even after accounting for age, education, and race/ethnicity.¹⁶ Overall, there is strong consensus in the scientific

literature that improving health outcomes for low-income populations would help decrease health disparities by income.

Individuals with low socioeconomic status also have less access to menstrual hygiene products. A report by the ACLU found that individuals with low-incomes, including adolescents and young adults, individuals experiencing homelessness, and individuals who are incarcerated are most likely to lack basic supplies, facilities, information, and support for managing menstruation.⁵ A study in St. Louis found that 64% of women with low-incomes reported being unable to afford needed menstrual hygiene products in the previous year, with 21% experiencing difficulty accessing products each month.⁸

Lastly, sales and use tax exemptions are more likely to benefit individuals with low-incomes.^{1,3,6,17} California's Legislative Analyst's Office concluded that sales tax exemptions for menstrual hygiene products may partially address gender equity concerns as "the cost of these products put many women and some transgender men at a financial disadvantage relative to others."⁹ A 2018 study from New Jersey found that exempting menstrual hygiene products from sales and use taxes benefits low-income women the most.⁶ The authors found that, while the tax-inclusive consumer price of menstrual hygiene products decreased by 3.9% for high-income consumers, the consumer price decreased by 12.4% for low-income consumers, suggesting that "repealing tampon taxes will promote affordability of menstrual hygiene products to low-income consumers."⁶

Therefore, since individuals with low-incomes experience worse health outcomes, are less likely to have access to menstrual hygiene products, and are more likely to benefit from a tax exemption on menstrual hygiene products, there is strong evidence that SB 5147 will likely decrease health inequities by socioeconomic status for individuals who menstruate.

Annotated References

1. **State and Local Taxes. 2020; Available at: <https://www.treasury.gov/resource-center/faqs/Taxes/Pages/state-local.aspx>. Accessed February 2020.**

The U.S. Department of Treasury outlines and defines state and local taxes.

2. **Find taxes and rates. 2020; Available at: <https://dor.wa.gov/find-taxes-rates>. Accessed February 2020.**

The Washington State Department of Revenue provides information about taxes and rates for sales and use tax rates. They also provide details about retail sales tax, use tax, and income tax in the state.

3. **Policy Institute of Taxation and Economic. Who Pays? A distributional analysis of the tax systems in all 50 states. 2018.**

This 2018 report from the Institute of Taxation and Economic Policy analyzes each states tax system and its impact on equity. They found that Washingtonians with incomes in the lowest 20% (less than \$24,000 annually) pay 13.3% of their family income in sales and excise taxes compared to those with incomes in the top 20% (more than \$116,300 annually) that pay less than 4.7% of their family income. The Institute also calculates a Tax Inequality Index “which measures the impact of each state’s tax system on income inequality.” According to their measures, “Washington has the most unfair state and local tax system in the country. Incomes are more unequal in Washington after state and local taxes are collected than before.” One reason for this inequity is due to Washington’s comparatively high combined state and local sales tax rate.

4. **Services Senate Committee. Senate Bill Report: SB 5147. 2020.**

The Senate Bill Report for SB 5147 states that, "sales taxes are imposed on retail sales of most articles of tangible personal property, including feminine hygiene products. A retail sale is a sale to the final consumer or end user of the property." Washington State's sale and use tax rate is 6.5%. Most cities and all counties in Washington State also levy a sales and use tax, and rates vary from 0.5% to 3.9%.

5. **ACLU. The Unequal Price of Periods: Menstrual Equity in the United States. No date.**

The ACLU published a report detailing menstrual equity in the U.S. At the time of this report, 12 states had exempted menstrual hygiene products from sales and use taxes and an additional 5 states do not impose sales tax on any products. Therefore, 17 states total do not have sales and use taxes on menstrual hygiene products. ACLU found that adolescents and young adults, individuals experiencing homelessness, and individuals who are incarcerated are most likely to lack basic supplies, facilities, information, and support for managing menstruation. Lack of access to menstrual hygiene products may result in reproductive tract infections (leading to negative pregnancy outcomes and increasing risk of sexually transmitted infections). Using tampons or other inserted materials longer than recommended may also result in Toxic Shock Syndrome, which can result in the need for hysterectomy or cause death. Individuals may also experience shame or stigma from not having access to adequate products. ACLU stated that, "for the nearly one in five American teenagers who live in poverty, lack of menstrual product and

support can lead to lost educational opportunity." Students who cannot afford menstrual hygiene products may be more likely to miss school or be less engaged in the classroom. For example, of "British students who have missed school during or on account of their periods: 40 percent report having had to improvise menstrual products because they could not afford them." While there has been little research about access to menstrual products for individuals experiencing homelessness, "those experiencing homelessness report infection caused by using tampons and pads for longer than recommended or by improvising with items such as paper towels or newspapers." In addition, "people who menstruate can expect to spend upwards of \$1,000 over the course of their lifetime on menstrual products." Individuals with low-incomes or living in poverty may resort to "degrading and unhygienic options. For example, a recent study demonstrated that two-thirds of low-income women in St. Louis could not afford menstrual products during the previous year, instead using cloth, rags, diapers, or paper as a substitute." ACLU also noted that most public assistance programs (e.g. WIC) cannot be used to purchase menstrual hygiene products.

6. Cotropia C.A., Rozema K. Who Benefits from Repealing Tampon Taxes? Empirical Evidence from New Jersey. *Journal of Empirical Legal Studies*. 2018;15(3):620-647.

Cotropia and Rozema examined the impact of New Jersey's 2005 sales tax exemption for menstrual hygiene products. They cite prior research that the individuals who menstruates spend an average of \$7.00 per month (\$84.00 per year) on menstrual hygiene products and pay an average of \$5.25 in sales tax per year. Following the repeal of a 6.9% sales tax on menstrual hygiene products, prices of products decreased by 7.3%. The authors found that, "the tax break is fully shifted to consumers, but that the tax break is not distributed equally. Low-income consumers enjoy a benefit from the repeal of the tax by more than the size of the repealed tax...The results suggest that repealing tampon taxes removes an unequal tax burden and could make menstrual hygiene products more accessible for low-income consumers." They found that, while the cost of menstrual hygiene products decreased by 3.9% for high-income consumers, the cost decreased by 12.4% for low-income consumers, suggesting that "repealing tampon taxes will promote affordability of menstrual hygiene products to low-income consumers." They discuss the movement to repeal the "tampon tax," and explain that, "the movement to repeal tampon taxes often articulates a second motivation for eliminating tampon taxes: to make menstrual hygiene products more affordable, particularly for low-income women. There are reports that some women have difficulty affording menstrual hygiene products, with some using alternative, less expensive products that pose higher health risks." Lack of access to proper menstrual hygiene products has been linked with multiple types of infections. The American Medical Association has stated that, "menstrual hygiene products are essential for women's health." The authors explain that, if menstrual hygiene products are viewed as necessities, exempting necessities (e.g. food, medication) from sales and use taxes has received support in multiple jurisdictions. This article outlines their methodology and various economic analyses.

7. Menstrual Cycle. 2020; Available at: <https://www.womenshealth.gov/menstrual-cycle/your-menstrual-cycle#3>. Accessed January 2020.

The U.S. Department of Health and Human Services, Office on Women's Health provides basic facts about menstruation. On average, a woman's menstrual cycle lasts 28 days and a woman will bleed for an average of 5 days. On average, women in the U.S. get their first period at age 12 and experience menopause at age 52. They advise that tampons should not be worn for more than 8

hours due to risk of Toxic Shock Syndrome (TSS). While TSS is uncommon, "you could be at risk for TSS if you use more absorbent tampons than you need for your bleeding or if you do not change your tampon often enough (at least every four to eight hours). Menstrual cups, cervical cups, sponges, or diaphragms (anything inserted into your vagina) may also increase your risk for TSS if they are left in place for too long (usually 24 hours)."

8. Sebert Kuhlmann A., Peters Bergquist E., Danjoint D., et al. Unmet Menstrual Hygiene Needs Among Low-Income Women. *Obstetrics & Gynecology*. 2019;133(2):238-244.

Kuhlmann et al. conducted surveys and focus groups with women with low-incomes in St. Louis, Missouri to assess their menstrual hygiene needs. They used a cross-sectional design to conduct 183 in-person interviews and 3 focus groups with 17 women at 10 non-profit community organizations providing housing, food, or job training assistance to women with low-incomes in the St. Louis area between July 2017 and March 2018. They also conducted an electronic survey with 18 organization staff. The authors noted that "little information exists about the extent to which menstrual hygiene is an issue for low-income women in the United States." Two-thirds (64%) of women reported being unable to afford needed menstrual hygiene supplies in the previous year, with 21% having difficulty access supplies each month. Forty-six percent of women reported not being able to afford both food and menstrual hygiene products in the past year. Women reported using cloths, rags, tissues, toilet paper, diapers, or paper towels in lieu of menstrual hygiene products. Of women surveyed, 59% used pads most frequently (56% preferred pads) and changed their menstrual hygiene product 5 or more times per day. Women typically used between 10 and 35 pads or tampons per menstrual cycle. Nearly 2/3 of women relied on donations from community service organizations to get adequate supplies of products. Women reported that, "the pads they received through community service organizations had low absorbency and did not adequately meet their needs. In these cases, women either went through pads more quickly or were forced to 'double up' and wear two pads at one time, thus using up the donated pads they received twice as quickly." Of women that were working, 36% stated they missed one or more days of work per month due to menstration, typically due to cramps or heavy flow. The authors concluded from focus groups that, "the overarching theme was their concern about the high-cost of menstrual hygiene products." Women also expressed frustration at "about menstrual hygiene supplies being taxed at the full sales tax rate, instead of at the lower rate for food." Twelve of the 18 organizations that completed the electronic survey stated that clients had expressed concern about the affordability and accessibility of menstrual hygiene products. The authors stated, "despite living in a wealthy country such as the United States, the low-income women in St. Louis we surveyed face many of the same menstrual hygiene challenges as women living in low-resource countries."

9. The California Legislature's Nonpartisan Fiscal and Policy Advisor. The 2019-20 May Revision | Sales Tax Exemptions for Diapers and Menstrual Products. Budget and Policy Post 2019; Available at: <https://lao.ca.gov/Publications/Report/4040>. Accessed January 2020, 2020.

This analysis from the California Legislative Analyst's Office, the California Legislature's Nonpartisan Fiscal and Policy Advisor, addresses the Governor's proposal for two new sales tax exemptions: 1) an exemption for children's diapers and 2) an exemption for menstrual products.

The analysis provides background on California's sales tax, the Governor's proposal, sales taxation of necessities, and discussion of equity considerations for each proposed exemption.

10. Supplies Alliance for Period. U by Kotex Period Bank Survey-- Posted Data. 2018.

The Alliance for Period Supplies, which is funded by U by Kotex, conducted an online survey with individuals who menstruate to understand access to products. They found that 39% of individuals who menstruate struggled to purchase menstrual hygiene products due to cost at some point in their life, with 25% having difficulty in the past year. The survey also found that 41% of respondents had stretched product use, used a substitute (e.g. toilet paper, sock), or borrowed products from a friend. In addition, 59% of respondents who had difficulty affording products reported feelings of embarrassment. Survey methodology is not provided, and information about sample size, response rate, demographics, or survey instrument are not available.

11. Sumpter C., Torondel B. A systematic review of the health and social effects of menstrual hygiene management. *PLoS One*. 2013;8(4):e62004.

Sumpter and Torondel conducted a systematic review to identify the impacts of menstrual hygiene management on health and psychosocial outcomes. They conducted meta-analyses when possible. Overall, they identified 14 articles (published prior to 2013) examining the impact of menstrual hygiene management on health outcomes and 11 articles examining the impact on social restrictions and school attendance. The most common reproductive tract infections thought to be associated with menstrual hygiene are bacterial vaginosis and vulvovaginal candidiasis, which may lead to increased risk of HIV infection, human papillomavirus infection, and adverse pregnancy outcomes. Menstrual hygiene was associated with reproductive tract infections in 7 out of 14 articles (50%), 3 articles found no association, and one article found the opposite. The authors noted that, "by taking only higher quality studies, those which used clinically confirmed [bacterial vaginosis] as an outcome measure and menstrual absorbents as an exposure, we found that of five studies, only two found an increased prevalence of [bacterial vaginosis] and some specific element of 'poor' [menstrual hygiene management]. One reported an inverse relationship and two, including the only randomised study, found no association." The authors conducted a meta-analysis of these five articles and calculated a pooled Odds Ratio of 1.07 (CI 0.52-2.24, $p=0.85$) indicating no association between menstrual absorbent and bacterial vaginosis. The authors found that menstrual hygiene management and other health outcomes (e.g. urinary tract infections, secondary infertility, anemia) was "weak and contractory." In addition, there was no quantitative evidence that menstrual hygiene is associated with school absenteeism. Qualitative data suggests that students may miss school due to lack of pads, lack of privacy, and cultural limitations. They also note that, even with improved menstrual hygiene, pain or discomfort associated with menstruation would not be impacted and this may also contribute to school absenteeism. They concluded, "we cannot...report that current evidence indicates that improved [menstrual hygiene management] improves attendance at school." The authors acknowledged that menstrual hygiene management is a poorly-researched topic. They stated, "although each study deals in detail with a specific setting where factors vary, one thing is clear: menstruation is poorly understood and poorly researched. The papers identified and reviewed do not currently allow us to understand the ways in which existing methods of [menstrual hygiene management] impact on women and girl's health or freedoms or the extent to which improving menstrual management would improve

lives." They concluded that "the effect of poor [menstrual hygiene management]...remains unclear. It is plausible that [menstrual hygiene management can affect the reproductive tract but the specific infections, the strength of the effect, and the route of transmission, remain unclear." While this study focused primarily on hygiene practices in low to middle-income countries, the results show the potential impact of using less or non-hygienic menstrual management products (e.g. reusing pads, using cloths or rags or other absorbents). The authors noted that many studies relied on self-reported menstrual hygiene management practices, which some individuals may feel uncomfortable reporting.

12. Vostral S. Toxic shock syndrome, tampons and laboratory standard-setting. *CMAJ*. 2017;189(20):E726-E728.

Vostral provides a historic overview and summary of information about toxic shock syndrome. In 1980, the Centers for Disease Control and Prevention stated that Rely tampons were responsible for toxic shock syndrome. Between 1970 and 1980, there were 941 confirmed cases of toxic shock syndrome and 73 women died. Vostral explains that, "to be clear, tampons do not cause toxic shock syndrome...tampons are indeed a co-factor in many cases. Men, children, and non-menstruating women can still contract toxic shock syndrome, but tampons are the catalyst for many menstruating women. Toxic shock syndrome requires the presence of *Staphylococcus aureus* in vaginal flora and lack of requisite antibodies to neutralize toxic shock syndrome toxin-1 (TSST-1) produced by the bacteria." Researchers believe that tampons may introduce some conditions that create an environment for these conditions, including the introduction of oxygen into the vaginal canal and a less acidic environment during menstruation.

13. Nonfoux L., Chiaruzzi M., Badiou C., et al. Impact of Currently Marketed Tampons and Menstrual Cups on *Staphylococcus aureus* Growth and Toxic Shock Syndrome Toxin 1 Production In Vitro. *Applied and Environmental Microbiology*. 2018;84(12).

Nonfoux et al. evaluated 11 types of tampons and 4 types of menstrual cups currently on the market in the U.S. to determine their impact on *Staphylococcus aureus* growth and toxic shock syndrome toxin 1 (TSST-1) production, which may create conditions that lead to toxic shock syndrome. Toxic shock syndrome is rare and may cause fever, hypotension, rash, and organ dysfunction. The authors state that, for toxic shock syndrome to occur, *Staphylococcus aureus* must be present. Then, the tampon or menstrual cup may serve as a growth medium and "*S. aureus* produces TSST-1 when it reaches a threshold concentration and then gains access to the blood stream and induces systematic illness." Materials used in the production of tampons in the 1980s are no longer used in tampons now (e.g. carboxymethylcellulose, polyester), and materials used today (e.g. cotton, rayon) have been found not to increase *S. aureus* growth or TSST-1 production. The authors sought to update that research using more accurate experimental methods. Overall, they found that "all tampons tested inhibited *S. aureus* growth, and most of them reduced TSST-1 production." They found that tampons using viscose, mixed cotton-rayon blends, or mixed cotton-viscose blends inhibited growth and production most effectively. The authors found that tampon structure may influence growth, "advocating for shorter time of use and frequent changing." In addition, they found the presence of both *S. aureus* and TSST-1 were higher in menstrual cups and concluded that "menstrual cup is a risk factor for menstrual toxic shock syndrome." They recommended the use of a small menstrual cup, frequent emptying, and sufficient sterilization.

14. **Sveinsdottir H. Menstruation, objectification and health-related quality of life: A questionnaire study. *Journal of Clinical Nursing*. 2018;27:e503-e513.**
Sveinsdottir conducted a number of surveys, including a Body Surveillance and Body Shame subscale, with 319 Icelandic women aged 18 to 41 years of age to determine the impact of menstruation on health-related quality of life. The author found that young women continue to experience shame associated with menstruation, including being seen with menstrual products and bleeding through menstrual hygiene products. Sveinsdottir concluded that experiencing body shame during menstruation predicted worse mental and physical health-related quality of life.
15. **Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System Prevalence And Trends Data: Washington-2014. 2014; Available at: <http://apps.nccd.cdc.gov/brfss/page.asp?cat=XX&yr=2014&state=WA#XX>. Accessed August 16, 2016.**
Behavioral Risk Factor Surveillance System (BRFSS) 2014 data from Washington state show significant correlations between lower income and a number of health indicators including: worse overall self-reported health, depression, asthma, arthritis, stroke, oral health, tobacco use, women's health indicators, health screening rates, physical activity, and diabetes.
16. **Serafin M. Health of Washington State Report: Self-reported Health Status. Data Update 2016. Washington State Department of Health; 2016.**
Serafin presents data from Washington state on self-reported health status. The data show that after accounting for age, education, race and ethnicity, household income was a strong predictor of self-reported health status.
17. **Ooi J. Bleeding Women Dry: Tampon Taxes and Menstrual Inequity. *Northwestern University Law Review*. 2018;113(1):111-155.**
In this law review, Ooi evaluates the pros and cons of a tax exemption for menstrual hygiene products. The author states that, "although repeal is usually undesirable as a matter of tax design, the tax should nevertheless be repealed both because menstrual hygiene products are necessities and because the tax is discriminatory."
18. **Singh J., Mumford S.L., Pollack A.Z., et al. Tampon use, environmental chemicals and oxidative stress in the BioCycle study. *Journal of Environmental Health*. 2019;18(11).**
Singh et al. examined the possible connections between tampon use and exposure to pesticides and heavy metals. Using a prospective cohort design, they followed 259 women aged 18 to 44 years of age to assess tampon use, metal concentration in blood, and biomarkers for inflammation. Overall, they found no association between tampon use and inflammation biomarkers. Mercury levels were higher in tampon users, but the difference was not significant. The authors concluded, "while our results are not statistically significant, we observed suggestive associations between tampon use and elevated levels of mercury and oxidative stress biomarkers...tampons may be a source of exposure to metals and chemicals that have been largely ignored."
19. **Bureau U.S. Census. Profile of the General Population and Housing Characteristics: 2010 Demographic Profile Data. 2010.**

According to the 2010 U.S. Census, the Washington State population was 6,724,540. Of these individuals, approximately 2,064,921 were females ages 10 to 54 years of age.

20. Revenue Department of. Multiple Agency Fiscal Note Summary: SB 5147-Feminine hygiene products tax. 2019.

Department of Revenue (DOR) submitted a fiscal note detailing estimated costs and loss of revenue resulting from SB 5147. DOR assumed that a sales tax exemption would not cause individuals to increase their buying behavior for menstrual hygiene products. They estimated that, in the first full year after implementation of provisions in the bill, state revenues would decrease by \$4.5 million dollars and local (including cities, counties, and special districts) revenues would decrease by \$1.9 million dollars.

21. Senate Bill 92, Taxation, Section 6363.9 Revenue and Taxation Code(2019).

This California law adds Section 6363.9 to the state's Revenue and Tax Code. Effective January 1, 2020, "there are exempted from the taxes imposed by this part the gross receipts from the sale in this state of, and the storage, use, or other consumption in this state of, diapers designed, manufactured, processed, fabricated, or packaged for use by infants, toddlers, and children." This section shall become inoperative on January 1, 2022.

22. AMA adopts new policies on final day of Annual Meeting [press release]. June 15, 2016 2016.

In this press release, the American Medical Association (AMA) announces the adoption of several new policies. One policy is eliminating sales tax on menstrual hygiene products. They stated, "the American Medical Association supports legislation to remove all sales tax on feminine hygiene products." The AMA Preseident-Elect David O. Barbe, M.D. went on to state that, "feminine hygiene products are essential for women's health, and taxes on them are a regressive policy."