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Bill to Restrict Indoor Tanning for Minors in The State of Maine

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Abstract

Background: Melanoma is the deadliest and the most common type of cancer in individuals age 15 to 29. Evidence has shown that ultraviolet radiation overexposure at younger ages significantly increases the risk of developing non-melanoma and melanoma skin cancer in later years. Despite these concerns, approximately 1.6 million minors under the age of 18 participate in the use of indoor tanning devices annually. The high prevalence of skin cancer in the United States continues to be a public health issue that warrants continued preventative and regulatory action. In spite of the health risks associated with indoor tanning, the state of Maine does not restrict the use of tanning devices for minors, as 18 states now do. Therefore, the aim of this DNP project was to implement a health policy change initiative with the goal of restricting access to commercial indoor tanning devices for minors.

Methods: The policy process framework and population health framework were used as models for implementing the health policy initiative. The population health framework was used to develop an argument for the public health implications of excessive ultraviolet (UV) radiation and provides rationale for restricting UV exposure among minors. The policy process framework was used to guide and evaluate the legislative work of this project. The legislative work was accomplished in collaboration with Maine Representative Anne Perry and other stakeholders.

Purpose/Implementation Plan: The purpose of this DNP project was to implement a substantive health policy change, that being the restriction of minors under the age of 18 from the use of commercial indoor tanning devices. The health policy change process included the following steps: 1. Create awareness of long-term health risks of indoor tanning devices among key legislators, constituents, and interest groups, 2. Work with legislators to bring a bill forward to restrict access to indoor tanning devices, 3. Evaluate the process and develop a proposal for

sustainable action, if the legislation fails. The overall objective of this initiative was to decrease the risk of skin cancer among Maine's youth.

Results: A proposal for the policy change was presented to stakeholders and was developed in support of the initiative. LD #1297, An Act to Reduce Youth Cancer Risk was introduced through the efforts of the coalition. The first public hearing for LD #1297 was held on April 3, 2019 with the Health and Human Services Committee (HHS) in Augusta, Maine with support from the stakeholders. A work session was held on April 16, 2019 where the bill was voted "ought to pass" 7 to 3 by members of the HHS committee.

Conclusion: The population health framework and application of the policy process framework to guide legislative efforts, resulted in greater support for LD #1297 by the HHS committee.

Policy engagement to address the upstream causes of disease such as skin cancer is a professional responsibility of doctorally prepared nurse practitioners. This can be achieved by engaging in coalition building and enacting legislative initiatives for public health challenges such as the serious public health threat of indoor tanning by minors.

Key Words: skin neoplasms, skin cancer, ultraviolet radiation, indoor tanning, artificial tanning, basal cell carcinoma, squamous cell carcinoma, melanoma

Bill to Restrict Indoor Tanning for Minors in The State of Maine

Introduction

Skin cancer is the most common form of cancer in the United States, and most cases are preventable (Centers for Medicare and Medicaid Services, 2017). Studies demonstrate that ultraviolet overexposure at younger ages significantly increases the risk of developing non-melanoma and melanoma skin cancer in later years. Although measureable legislative progress has been made in the United States, the state of Maine is not one of the 18 states outlawing the use of tanning devices for vulnerable minors (National Conference of State Legislatures, 2018).

In the state of Maine, the annual age-adjusted rate of newly diagnosed melanoma has increased from 17.4 per 100,000 residents in 2000 (95% CI 15.3-19.7) to 28 per 100,000 residents (95% CI 25.5-30.8) in 2015 (Centers for Disease Control and Prevention, 2019). Maine has a higher incidence rate of melanoma than the national average (National Cancer Institute, 2019). In parallel, research has shown that the use of indoor tanning devices before the age of 35 increases the risk of melanoma by 59% (CDC, 2017). However, the state of Maine allows minors to use indoor tanning devices with parental permission despite clear health consequences. The high prevalence of skin cancer in the United States continues to be a public health issue that warrants continued preventative and corrective legislative action.

Review of the Literature

To support the need for legislation to restrict indoor tanning among minors, an integrative review of the literature was conducted in August 2018. A search of the literature was done initially through Medline, PubMed, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) for systematic reviews and meta-analyses between 2012 and 2018 using the following search terms: ("skin neoplasms" OR "neoplasms radiation induced" OR "skin

cancer") AND ("ultraviolet rays" OR "indoor tanning" OR "artificial tanning"). Inclusion criteria: English language, published between 2012 and 2018, systematic reviews or meta-analyses, and full-text articles. Exclusion criteria: non-English text, published before 2012 or after 2018, clinical or observational studies, and non-full text articles. The search items produced 448 articles from Medline, 55 articles from PubMed and 59 articles from CINAHL. One article from 2006 was included after synthesizing eligible reports. A total of 5 meta-analyses were eligible in the final systematic review. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram in Appendix A, Figure 1 illustrates results of screening and selecting articles for final analysis.

The five meta-analyses supported restriction of indoor tanning devices. All five meta-analyses used observational studies. Two reports aimed to synthesize the literature on indoor tanning devices and non-melanoma skin cancer (squamous cell carcinoma and basal cell carcinoma) (Wehner et al., 2012; Boniol, Autier, Boyle, & Gandini, 2012). The International Agency for Research on Cancer (IARC) and Boniol et al. (2012) both included literature on the harm of indoor tanning in regards to malignant melanoma skin cancer (Boniol et al., 2012; IARC, 2007). One report looked directly at the correlation between indoor tanning and melanoma with a focus on frequency of use and use of newer tanning devices (Colantonio, Bracken, & Beecker, 2014). In contrast, one report synthesized the literature pertaining to the international prevalence of indoor tanning (Wehner et al., 2014).

The review of the literature was organized according to four issues. The issues included non-melanoma and melanoma prevalence, health risks associated with indoor tanning, significance of the risk, and current public health initiatives. The timeframe in which the meta-analyses were published correlates with the initial emerging evidence of the risk of indoor

tanning and introduction of legislative motive to restrict the use of indoor tanning devices for minors. Four of the meta-analyses were published before 2014. A limitation to this literature review is that the information lacks differentiation between invasive malignant melanoma versus melanoma in situ. However, all five meta-analyses conclude that indoor tanning devices are associated with a significant increase in non-melanoma and melanoma skin cancers.

Non-Melanoma & Melanoma Prevalence

A review of the literature was carried out by Wehner et al. (2012) to synthesize the literature on indoor tanning and non-melanoma skin cancer. The meta-analysis included data from six different countries. In the United States, the population proportional attributed risk for SCC is 8.2%, and 3.7% for BCC for those who used indoor tanning (Wehner et al., 2012). Therefore, the authors conclude that more than 170,000 cases of non-melanoma skin cancers are associated with indoor tanning annually (Wehner et al., 2012).

Wehner et al. (2014) conducted a review in 2014 to summarize the international prevalence of exposure to indoor tanning. The population proportional attributed risk increased to 19.2(15.2-22.8) for SCC and 9.3(7.2-11.3) for BCC in the United States (Wehner et al., 2014). In the Northern and Western European regions, the population proportional attributed risk for SCC was 21.8(16.2-26.6) and for 10.8(7.8-13.6) BCC for those who used indoor tanning (Wehner et al., 2012). The highest geographic prevalence of ever exposure to indoor tanning was in Northern and Western Europe (41.6%) followed by the United States (35.4%). The lowest incidence rate was in Australia (10.7%)(Wehner et al., 2014). In the United States, exposures to indoor tanning devices were highest for female university students (55%), followed by adolescents (19%)(Wehner et al., 2014).

Females historically have the highest incidence rates of non-melanoma and melanoma skin cancers attributable to indoor tanning devices. Boniol et al. (2012) reports that approximately 6.9% melanoma cases in women are associated with indoor tanning in comparison to 3.7% of men in Western Europe (Boniol et al., 2012). Furthermore, studies demonstrate that indoor tanning devices are used most frequently among young, non-Hispanic white females (Wehner et al., 2014).

Health Risk Associated with Indoor Tanning

The International Agency for Research on Cancer (IARC) was the first agency to classify indoor tanning devices as a Group 1 carcinogen to humans in 2009 (IARC, 2007). The systematic review of epidemiological research published by IARC revealed a 75% increase (RR 1.75, 95% CI 1.35-2.26) in the risk of melanoma when indoor tanning began during young adulthood or adolescence; evidence of ultraviolet A in skin carcinogenesis; less effective repair of damaged DNA due to ultraviolet A; and weakened immune system responses related to exposure to ultraviolet A and B (IARC, 2007). Unfortunately, this review was unable to examine dose responses to indoor tanning devices. Therefore, Boniol et al. (2012) updated the evidence with the most relevant studies that included dose response, health burden, and death associated with indoor tanning. In comparison to the relative risk in the IARC review (RR 1.75, 95% CI 1.35-2.26), the meta-analysis by Boniol et al. (2012) revealed higher relative risks of melanoma with first exposure before the age of 35 (RR 1.87, 95% CI 1.41-2.48). Furthermore, new evidence on dose-responses demonstrated a 1.8% increase in the risk of melanoma for each additional session of indoor tanning use per year (Boniol et al., 2012).

Similarly, recent meta-analyses have synthesized the literature on indoor tanning and non-melanoma skin cancers such as basal cell carcinoma (BCC) and squamous cell carcinoma

(SCC). In 2012, a meta-analysis revealed a significant correlation between SCC (RR 2.02, 95% CI 0.7-5.86) and BCC (RR 1.40, 95% CI 1.29-1.52); and exposure to indoor tanning devices with higher relative risks associated with use before the age of 25 (Wehner et al., 2012). A 2014 meta-analysis published by Colantonio, Bracken, and Beecker (2014) also reported similar findings that indoor tanning first use younger than 25 years (OR 1.35, 95% CI 0.99-1.84, n = 6) resulted in a higher risk for melanoma than first use at age 25 years or older (OR 1.11, 95% CI 0.86-1.42) (Colantonio, Bracken, & Beecker, 2014).

Significance of the Risk

In 2009, The United States Department of Health and Human Services (HHS) and the World Health Organization's International Agency of Research on Cancer (WHO) publicly declared ultraviolet radiation to be a Group 1 carcinogen for humans. In May 2014, the U.S. Food and Drug Administration (FDA) also issued stronger warnings for the use of indoor tanning devices by reclassifying sunlamp products from a class I to class II carcinogen. The FDA recommended restricting the use of indoor tanning beds for minors under the age of 18, and required that facilities, if minors are allowed, obtain parental consent prior to their first indoor tanning session and then every six months thereafter (AAD, 2018).

In July 2014 the Office of the Surgeon General released *The Surgeon General's Call to Action to Prevent Skin Cancer* (HHS, 2018). The *Call to Action* addressed the issue by establishing goals for improvement and recommended skin cancer prevention strategies that are to be implemented nationwide. The Surgeon General's five strategic goals for skin cancer prevention are: increase sun protection in outdoor settings; educate individuals on making healthier choices about UV radiation exposure; reduce health consequences related to indoor tanning; strengthen research, surveillance, monitoring, and evaluation related to skin cancer

prevention; and promote policies that advance the national goal of preventing skin cancer (HHS, 2018). This project focused on achieving this last strategic goal. To do this, the population health framework (Kindig, Asada, & Booske, 2008) served as the organizing framework for the legislative rationale.

Public Health Initiatives

The growing body of evidence on the risk of indoor tanning has triggered the need for public health initiatives worldwide. In 2006, evidence drawn from the IARC review allowed the agency to make strong suggestions for policy makers to enact measures to restrict indoor tanning for minors; and educate and discourage the use in adults (IARC, 2007). Since then, the World Health Organization (WHO), the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and the European Society of Skin Cancer Prevention (EUROSKIN) all agree that indoor tanning should be outlawed for minors under the age of 18 (Boniol et al., 2012).

In addition, a movement towards restricting tanning devices has been made internationally, nationally, and statewide. Australia, Belgium, France, Germany, Portugal, Scotland, Spain, and Brazil have outlawed the use of tanning devices for minors (Boniol et al., 2012). In the United States, California became the first state to restrict indoor tanning for those under the age of 18; Vermont followed shortly after in 2012 (Boniol et al., 2012).

After evaluating the findings from the literature review, the evidence clearly shows that the use of indoor tanning devices increases the risk of non-melanoma and melanoma skin cancer. Importantly, indoor tanning early in life and the cumulative number of tanning sessions increases the overall risk. Based on these findings, legislative efforts should be brought forth in Maine to restrict the use of indoor tanning devices for minors. While neighboring states have succeeded in

passing legislation to restrict the use of indoor tanning use in minors, Maine and other states have failed to achieve this milestone in the prevention of skin cancer.

Theoretical Framework/Evidence Based Practice Model

The policy process framework explicated by Ellenbecker and Edward (2016) was used as the model for this health policy change initiative. The policy process framework proposes that policy advancements are made in six stages: 1. Problem Identification, 2. Agenda Setting, 3. Policy Formulation, 4. Policy Legitimation, 5. Implementation, and 6. Evaluation (Ellenbecker & Edward, 2016). Each stage within the policy process framework is meant to be a building block from the preceding stage, progressing in a linear pattern. See Appendix B, Figure 1 for an illustration of the policy process framework.

The population health framework served as a secondary framework as it also offered guidance for improving overall population health (Kindig, Asada, & Booske, 2008). The underlying purpose of the population health framework was to serve as a guide in establishing outcomes for national and state public health planning processes and improve the health of populations through interventions that influence underlying determinants (i.e. medical care, individual and social behavior, physical environment and genetics) The population health framework is applicable to health policy initiatives with the fundamental purpose of improving the health of individuals by promoting legislative health policy change. Restriction of indoor tanning for minors in the state of Maine will result in a lower incidence of skin cancers and improved health-related quality of life. See Appendix B, Figure 2 for an illustration of the population health framework.

Population Health Framework

According to Kindig, Asada, and Booske (2008), population health outcomes are

determined by individual behavior, genetics, the physical/social/regulatory environment, and medical care. Specific policies enacted through legislative initiatives can moderate these determinants in order to improve mortality or morbidity across the population and reduce disparities related to socioeconomic status and geographic location. Importantly, individual behavior as well as the physical and social environment surrounding indoor tanning may be modified by legislative action. Therefore, it is necessary to examine what is known about adolescent indoor tanning behavior, the modifiable aspects of individual behavior, and the social/physical environment in which the risky behavior takes place.

Individual behavior.

Approximately 1.6 million minors under the age of 18 participate in the use of indoor tanning annually. The American Academy of Dermatology (AAD) revealed that approximately 59% of college students and 17% of teens use indoor tanning devices at least once annually (AAD, 2018). The highest prevalence of indoor tanning is found among non-Hispanic white women between 15 and 30 years old (AAD, 2018). Economic analysis of the detrimental effects of indoor tanning illustrates that “restriction among minors younger than 18 years was estimated to prevent 61,839 melanoma cases, 6,735 melanoma deaths, and save \$342.9 million in treatment over the lifetime of the 61.2 million youth age 14 years or younger in the United States” (Guy, Zhang, Ekwueme, Rim, & Watson, 2017).

In 2010, *Healthy People 2020* was launched and included a specific objective to reduce the proportion of adolescents grade 9 through 12 who report using artificial sources of ultraviolet light for tanning from 15.6% in 2009 to 14% by 2020 (HHS, 2018). As of 2015, the goal exceeded with only 7.5% of adolescents grade 9 through 12 reporting the use of indoor tanning (CDC & HHS, 2017). A cross-sectional study published in 2017 demonstrated the downward

trend in the incidence of indoor tanning among United States high school students from 2009 to 2015 (Guy, Berkowitz, Everett, Watson, & Richardson, 2017). Female high school student indoor tanning incidence decreased from 24.1% in 2009 to 9.5% in 2015 (Guy et al., 2017). Nationally, melanoma incidence rates have decreased among non-Hispanic individuals between 15 and 24 years of age. This statistic may be correlated with decreased use of indoor tanning nationwide (Holman, Freeman, & Shoemaker, 2018).

Physical/social/regulatory environment.

Individual behavior changes run parallel to regulatory changes at the state level in the United States. Regulatory changes influence the physical environment (i.e. the accessibility of indoor tanning) and the social environment (i.e. the social acceptability of indoor tanning). The reduction in the use of indoor tanning devices can be attributed to a number of interventions. In 2010, an excise tax was placed on indoor tanning devices as a provision of the Affordable Care Act (ACA). In addition, there has been greater state regulatory action to restrict, but not necessarily prohibit, minors from using indoor tanning devices. Interestingly, a study done in Minnesota and Massachusetts revealed that parental consent laws for indoor tanning use had poor compliance among tanning facilities and had a small impact on tanning rates for minors (Forster, Lazovich, Hickle, Sorensen, & Demierre, 2006). This study found that only 19% of salons complied with parental permission laws. The authors conclude that age restriction laws are a more direct and forceful way to limit minors from accessing indoor tanning devices in comparison to parental consent laws (Forster et al., 2006). Currently, both states (Minnesota and Massachusetts) have since outlawed the use of indoor tanning for minors under the age of 18.

International, national, and state efforts to restrict indoor tanning for minors have been made with the support from many organizations including but not limited to WHO, the FDA, the

National Cancer Institute, American Academy of Pediatrics, and the AAD. Brazil was the first country to outlaw the use of indoor tanning devices in all age groups in 2009 (Mulcahy, 2015). Australia and New Zealand have been recognized for having the highest incidence of melanoma in the world. Subsequently, Australia banned the use of all indoor tanning devices in 2015 to make strides in reducing the overall incidence of melanoma (Mulcahy, 2015). New Zealand regulates indoor tanning by a voluntary code of practice with restrictions under the age of 18.

According to a new report by the American Cancer Society Cancer Action Network (ACS CAN), Massachusetts and California are leaders in meeting the needs of cancer patients, establishing policies that address cancer prevention, and expanding access to healthcare (Medscape, 2018). Importantly, both states have worked towards reducing skin cancer by restricting the use of indoor tanning for minors. In 2013, California and Vermont were the only states that prohibited the use of indoor tanning devices for minors. As of 2018, 18 states and Washington, D.C have outlawed the use of indoor tanning devices for minors under the age of 18, regardless of parental consent (Medscape, 2018).

In Maine, multiple legislative attempts have been made to restrict indoor tanning for minors under the age of 18. Legislative action failed in 2013, 2015, and 2017. Currently, Maine law allows minors to use commercial tanning devices with parental consent although substantial support exists for restricting the use among minors.

Problem Statement

Despite the individual health risks and economic burden associated with indoor tanning, Maine has not yet passed legislation to regulate the use of indoor tanning devices for minors. Public awareness of the harms associated with indoor tanning has increased through state regulatory efforts and public policy initiatives (Forster et al., 2006). Enacting legislation to

prohibit Maine minors from indoor tanning has the potential to improve the health and well-being of the young generation of Mainers by decreasing the rate of non-melanoma and melanoma skin cancers, and the related healthcare costs associated with skin cancer treatment. Therefore, this project focused on using the policy process framework and the population health framework (Ellenbecker & Edward, 2016) to assist in the introduction and passage of legislation to restrict minors under the age of 18 from using indoor tanning devices.

The approach to this health policy change initiative was to draft a bill to change Maine law, restricting minors under the age of 18 from using indoor tanning devices through the following steps: 1. Create awareness of long-term health risks of indoor tanning devices among key legislators, constituents, and interest groups 2. Work with legislators to bring a bill forward to restrict access to indoor tanning devices 3. Evaluate the process and develop a proposal for sustainable action, if the legislation fails. The overall objective of this initiative is to achieve the long-range population health outcome of fewer skin cancers attributable to UV radiation. This project required collaboration and coordination with supporting persons from the Maine legislature, American Cancer Society Cancer Action Network, American Academy of Nurse Practitioners, Maine Nurse Practitioner Association, and University of New Hampshire faculty.

Methods

Integration of health policy curricula into Doctor of Nursing Practice (DNP) programs enable advanced practice nurses to contribute to the enhancement of overall global health and health reform through engagement with health policy. Nurse practitioners can contribute years of clinical experience and knowledge related to health policy issues that make him/her influential in implementing health policy initiatives. In this health policy change initiative, the policy process framework was used to outline the implementation of health policy change. The framework

organized policy advancements into six stages: 1. Problem Identification, 2. Agenda Setting, 3. Policy Formulation, 4. Policy Legitimation, 5. Implementation, and 6. Evaluation (Ellenbecker & Edward, 2016).

Stage 1: Problem Identification

The first step in policy change is to identify the problem that requires attention. In this step, the integrative literature review on the impact of indoor tanning for minors internationally, nationally, and statewide was conducted to gain understanding of the scope of the problem, limitations, and possible solutions. Systematic reviews and meta-analyses were used to help identify the policy problem. The integrative literature review demonstrated a link between indoor tanning devices and non-melanoma skin cancer (squamous cell carcinoma and basal cell carcinoma) (Wehner et al., 2012; Boniol, Autier, Boyle, & Gandini, 2012). In addition, the literature showed a strong link between indoor tanning and melanoma skin cancer (Boniol et al., 2012; IARC, 2007), correlation between indoor tanning and melanoma with a focus on frequency of use and use of newer tanning devices (Colantonio, Bracken, & Beecker, 2014); and information on the international prevalence of indoor tanning. In addition, the information from the Maine State Legislature website was used to track similar bills that have been attempted in previous years. The process of problem identification provided strong evidence to support the restriction of minor's access to indoor tanning devices that will decrease the health-related burdens associated with the development of skin cancers.

Stage 2: Agenda Setting

The second stage of the policy process was directed towards agenda setting. In this stage, the evidence and previous regulatory action in Maine determined that the problem of indoor tanning for minors was significant enough to attract state government attention. In the agenda

setting stage, the following goals for the health policy initiative were achieved: 1. Create awareness of long-term health risks of indoor tanning devices among key legislators, constituents, and interest groups 2. Work with legislators to bring a bill forward to restrict access to indoor tanning devices 3. Evaluate the process and develop a proposal for sustainable action, if the legislation fails.

These goals required outreach to several legislators who were identified as having an interest in sponsoring the bill. The first outreach was to Maine Representative Anne Perry due to her previous contribution to this bill, and extensive nursing background. After mutual agreement, Representative Perry, American Cancer Society Cancer Action Network (ACS CAN) Maine Government Relations Director, Hilary Schneider, and this author collaborated to create a drafted bill for the spring 2019 Maine legislative session. This author worked with Representative Perry by telephone conference to discuss important steps in drafting the bill and develop a plan. Meetings between this author and Representative Perry occurred weekly. The author was responsible for collecting research data on the issue. Representative Perry primarily worked at the Maine State House with the revisors office to draft a bill for spring 2019 legislative session. Representative Perry also provided information on the legislative process and the sequence of events that take place in order for a bill to become a law.

In addition, a meeting between this author and Hilary Schneider took place to discuss previous attempts to pass the bill, motivation to re-introduce the bill into legislation in 2019, and strategies to move the bill forward. In 2013, Senator Geoff Gratwick introduced LD #272 An Act to Reduce Youth Cancer Risk. LD #272 passed 91 to 56 in the House, and 19 to 16 in the Senate, but was ultimately vetoed by Governor LePage. An identical bill, LD #123 was re-introduced in 2015 by Senator Gratwick with similar outcomes. LD #123 failed to pass in the Senate 19 to 15,

and did not make it to Governor LePage. In 2017, Senator Amy Volk re-introduced LD #889 for the third time. LD #889 passed in the House, and in the Senate 22 to 13, but the Governor's veto was sustained.

Governor LePage's veto was explained by, "it tells Maine parents that Augusta knows better than they do when it comes to their children" (Farwell, 2017). Motivation to re-introduce the bill into legislation in 2019 stemmed from this author's interest in health policy change as it relates to dermatology, and the 2018 election results in the state of Maine. Hilary Schneider shared confidence in passage of the bill once Janet Mills was elected as Governor in the state of Maine.

Strategies for moving the 2019 bill forward included: invite Representative Perry, nurse practitioner, to sponsor the bill; make amendments to improve the wording and details of the bill, recruit influential individuals to deliver strong testimony, and remove criminal penalties according to radiation control. Currently, indoor tanning falls under the radiation protection act section of statute, which regulates all sources of radiation, including nuclear facilities. As such, the penalties associated with this section of statute are rigorous and criminal. The ACS CAN does not believe that the regulation of indoor tanning devices needs to be upheld to the same penalty structure as some other sources of radiation. Thus, LD #1297 is proposing civil penalties that are in line with ACS CAN's model language for indoor tanning prohibitions for individuals under age 18.

The work plan included dissemination of information to influential individuals in the state of Maine, work with Representative Perry to update and strengthen the wording of the bill, produce more stakeholder support by networking, and be actively involved in legislative public hearings, and work sessions. This author communicated to stakeholders in the state of Maine via

email and telephone to try and encourage involvement in legislative efforts for spring 2019. Part of these efforts included disseminating the information on health risks associated with indoor tanning to important individuals such as: the Dempsey Center Cancer Prevention Coordinator, Maureen Higgins, Pediatrician Janice Pelletier, ACS CAN Hilary Schneider, and Representative Perry.

This author worked with Representative Perry and the state of Maine revisors office to make amendments to the 2019 legislative document. The final document included more detail within each section and included additional sections: 4. Written statement, 5. Duties of owner, 6. Duties of customer, 7. Certificate of registration, and 9. Local ordinance. The written summary of the original bill as presented in 2013, 2015 and 2017 stated that the bill: “prohibits a tanning facility from allowing an individual who has not attained 18 years of age to use a tanning device.” LD #1297 has been amended to also include:

“This bill:

1. Prohibits a tanning facility from allowing an individual who has not attained 18 years of age to use a tanning device;
2. Requires that the owner of a tanning facility or the lessee of a tanning device post a conspicuous notice regarding the laws governing tanning and the health risks associated with tanning;
3. Requires that each customer, prior to that customers first use in that calendar year of that tanning device, sign an acknowledgement that the customer understands the posted notice and agrees to use protective eyewear; and
4. Authorizes municipalities to adopt more restrictive regulation than required in this bill.”

Lastly, this author prepared a three-minute testimony based on research findings and personal experience with indoor tanning. This author's role as a dermatology nurse practitioner was to provide testimony that reflected professional patient experience as it relates to indoor tanning and skin cancer. In addition, the author attended work session to support LD #1297. The author did not participate in work session, but attended to demonstrate support of the bill passing.

Stage 3: Policy Formulation

In collaboration with Representative Perry, the updated 2017 bill, An Act To Reduce Youth Cancer Risk was amended for 2019 spring legislative session. The in process 2019 bill was finalized in February 2019 by the Office of the Revisor of Statutes and has been assigned to LD #1297. In March 2019, this author and stakeholders worked independently to prepare written testimony for the public hearing. Furthermore, this period of time was spent editing, revising, and practicing verbal testimony prior to the public hearing.

On Wednesday April 3, 2019 this author testified in support of LD #1297 with the Maine Health and Human Services (HHS) Committee in Augusta, Maine. See Appendix C, Figure 1 for the final version of An Act To Reduce Youth Cancer Risk. See Appendix C, Figure 2 for this author's final written testimony. Following the hearing, a work session with the HHS committee was held on April 16, 2019. The purpose of a work session is to allow the members of the HHS committee to discuss the bill thoroughly and vote on motions made during work session (U.S. House Representatives, 2019). The final committee report is determined by each member's vote: "ought to pass" or "ought not to pass." Furthermore, a legislative analyst will work with the committee to draft any proposed wording clarification or amendments made to the bill. These amendments are proposed to clarify, expand, or correct the drafted bill. Once the bill is reported

out by the committee it will need to be passed in the House, Senate, and then by the governor in order to be enacted into law. See Appendix D, Figure 1 for the legislative process in the state of Maine.

Stage 4: Policy Legitimation

The policy legitimation stage will occur once the bill has been enacted into law. Policy legitimation includes the process of acceptance of the new policy to public citizens. During this process, a public meeting and hearing will take place in order to eliminate concerns among citizens and confirm that all questions and concerns have been addressed (Ellenbecker & Edward, 2016). In Maine, nurse practitioners and other health care providers take an important role in supporting the new initiative. Nursing organizations and nursing leaders should be involved in promoting and encouraging educational programs for citizens and primary care providers surrounding skin cancer prevention. This may include campaigns for stronger educational programs in school systems. Nurse practitioners can attend local meetings such as parent-teacher associations or school board meetings in efforts to improve education surrounding skin cancer prevention. In addition, nurse practitioners can work with non-profit organizations such as Impact Melanoma to provide education, prevention, and support for skin cancer. Nurse practitioners can be involved by participating in future community outreach programs organized by Impact Melanoma.

Stage 5: Implementation

The implementation stage describes the process of writing rules and regulations for how the new enacted law will be implemented (Ellenbecker & Edward, 2016). In this stage, either an agency or government will be held responsible for enforcing compliance. In addition, the rules and regulations around this law will be posted in the Federal Register. Health care providers in

the state of Maine should be well informed on rules and regulations and be cognizant of when the law becomes published.

Stage 6: Evaluation

The expected outcome is to change the state of Maine law to restrict the use of indoor tanning devices for minors under the age of 18. The future policy evaluation stage includes assessing public attitude towards indoor tanning, compliance rates, and public understanding of the risks of indoor tanning. Nurse practitioners can contribute to evaluating future impact of the bill by developing surveys that address these quality measurements and analyzing their results.

Results

The results of this legislative project are explained by the current status of LD #1297. The first public hearing was held on April 3, 2019 with the Health and Human Services (HHS) Committee in Augusta, Maine. This author, Representative Perry, American Cancer Society Cancer Action Network Hilary Schneider, Maine Center for Disease Control and Prevention Nancy Beardsley, nurse practitioner Betty Smalls, and a melanoma survivor testified in support of LD #1297. In contrast, opposing individuals such as American Suntanning Association Scientific Advisor John Levy, Sun Tan City Manager, Sun Tan City tanning bed operator, and an opposing parent testified against LD #1297.

Testimony by those in support of LD #1297 was supported by evidence outlined in the literature review of this report. In addition, those with a personal history of cancer attributable to ultraviolet radiation exposure shared their lived experiences at the public hearing. The opposing arguments made by American Tanning Association representative John Levy were:

- The bill would take away a parent's right to decide whether their teenagers can get a suntan in a professional salon.

- Professional salons already require that minors who want to tan must have their parent's consent.
- The bill would have unintended consequences. It will increase sunburn incidence in teens by them turning to unsupervised home tanning beds, basements, and gyms.
- U.S. sunbed research- sunburns in home sunbeds are the source of significant risk in the data.
- The ban would hurt female owned Maine businesses and will cost taxpayers money to implement.
- Dermatologists use sunbeds to treat cosmetic conditions (John Levy, American Suntanning Association).

Subsequently, a work session with the HHS Committee was scheduled and took place on April 16, 2019. There were several important highlights from the work session that included:

- The legislative analyst summarized the bill, noting some drafting issues with regard to removal of criminal penalties and providing the department the authority for rulemaking.
- The legislative analyst also included the need to determine fiscal impact. If so, the bill must be amended to include the fiscal note, which describes the fiscal impact.
- There was an initial concern by the department with a part of the bill that allows municipalities to go further than state law. There was concern that enforcement of multiple standards could be challenging. The concern was disregarded by the committee due to the fact that "home rule" is something that is typical in bills.
- Toby McGrath, representing the American Suntanning Association, proposed an amendment to the bill by Representative Perry that allows for the exception of physician prescription for indoor tanning. The legislative analyst noted that the prohibition for those under 18 does not apply to a phototherapy device prescribed by a physician. This amendment is to be determined.

- Janice Pelletier, Maine pediatrician, spoke on behalf of her written testimony due to her absence at the initial public hearing.
- Representative Craven made a motion “ought to pass as amended” with the amendment to clarify the language to remove criminal penalties and to provide the department with the authority to promulgate routine, technical rules. The motion was seconded.

Concluding the work session, the vote was 7-3 “ought to pass.” All Democrat representatives and Senator Moore voted “ought to pass.” Three House republications voted “ought to not pass.” Three democrats were absent: Senator Claxton, Representative Perry, and Representative Talbot-Ross. The legislative document currently resides in the HHS Committee pending final amendments and drafting of the bill as recommended during work session.

The health policy initiative will continue to be an ongoing process through the first regular legislative spring session 2019. Work will need to continue until LD #1297 An Act To Reduce Youth Cancer Risk is enacted into law. This author will continue to work on this legislation and engage in future anti-tanning campaigns and educational programs in the state of Maine.

Discussion

In the past eight months, this author completed a comprehensive literature review on indoor tanning, collaborated with appropriate stakeholders, created legislative document #1297, testified in support of restricting tanning for minors in the state of Maine, and attended the work session regarding LD #1297. The relationship between this author and practice mentor Representative Perry was productive. Objectives were accomplished in a timely manner.

Collaboration with Representative Perry provided this author with valuable exposure to the legislative process and provided newly gained knowledge related to health policy.

The primary framework used to implement the health policy initiative was changed from the proposed policy analytical framework to the policy process framework. The policy analytical framework analyzes health policies to gain understanding of the potential health, economic and budgetary impacts, and identifies evidence-based policy solutions (CDC, 2015). The policy process framework was chosen as an alternative because it better illustrates the linear progression of policy change. The population health framework served as a secondary framework as it also offers guidance for improving overall population health (Kindig, Asada, & Booske, 2008).

Ellenbecker and Edward (2016) suggest that although policy formulation appears to occur in a linear fashion, in actuality, it does not. The stages outlined in the policy process framework may not occur in the correct sequence or may be excluded entirely. For this project, the background research and legislative document were developed from a previous legislative attempt. The previous work provided a strong base for the health policy initiative. Thus, the bulk of the project resided within the policy formulation stage (stage 2).

There were many lessons learned while completing this health policy initiative. Prior to working with Representative Perry, there was a significant gap in knowledge on the legislative process and how a bill becomes a law. Collaboration with Representative Perry allowed this author to learn the legislation process and the role the DNP prepared nurse practitioner plays in the process. In addition, this project allowed the author to see differences between interest groups. Post-process, it was clear that there is a smaller engaged group of individuals who perceive indoor tanning as a danger. However, it is possible that a larger subset of the general

public does not. Therefore, further insight might be to consider whether this is a fair way to do policy formulation. If not, what are some alternatives to policy formulation and what role does the DNP prepared nurse practitioner play? Once the DNP project has been completed, this author will continue to dedicate time and advocate for LD #1297. If the bill passes into law, future evaluation of outcomes will include assessing public attitude towards indoor tanning, public understanding of the risks associated with indoor tanning, and measuring compliance rates.

Ethical Considerations/Protection of Human Subjects and Funding

This quality improvement initiative did not require University of New Hampshire (UNH) Internal Review Board (IRB) approval prior to initiating the DNP project. Persons over the age of 18 volunteered their own testimony on the lived experience of skin cancer attributable to indoor tanning devices, and had no communication or collaboration with this author prior to the hearing date. There was no risk to vulnerable populations by conducting this health policy initiative. This author did not receive any specific funding for this health policy initiative.

Summary and Conclusion

The Doctor of Nursing Practice (DNP) prepared nurse practitioner (NP) makes significant contributions to health policy by engaging in coalition building, policy intervention, and legislation evaluation. NP's begin the process of health policy change by using previous extensive nursing knowledge to review literature and analyze policy research. This health policy initiative demonstrated this author's ability to be influential in health policy. The next step in the progression of the health policy change is for the bill to be edited and/or amended as appropriate before it moves to the House. The DNP prepared NP plays a significant role in ensuring that the initiative continues to be a success by continuing collaboration with the appropriate stakeholders,

making sure that future evaluation of outcomes is measured, and that information regarding rules and regulations is disseminated to the public once the bill becomes a law.

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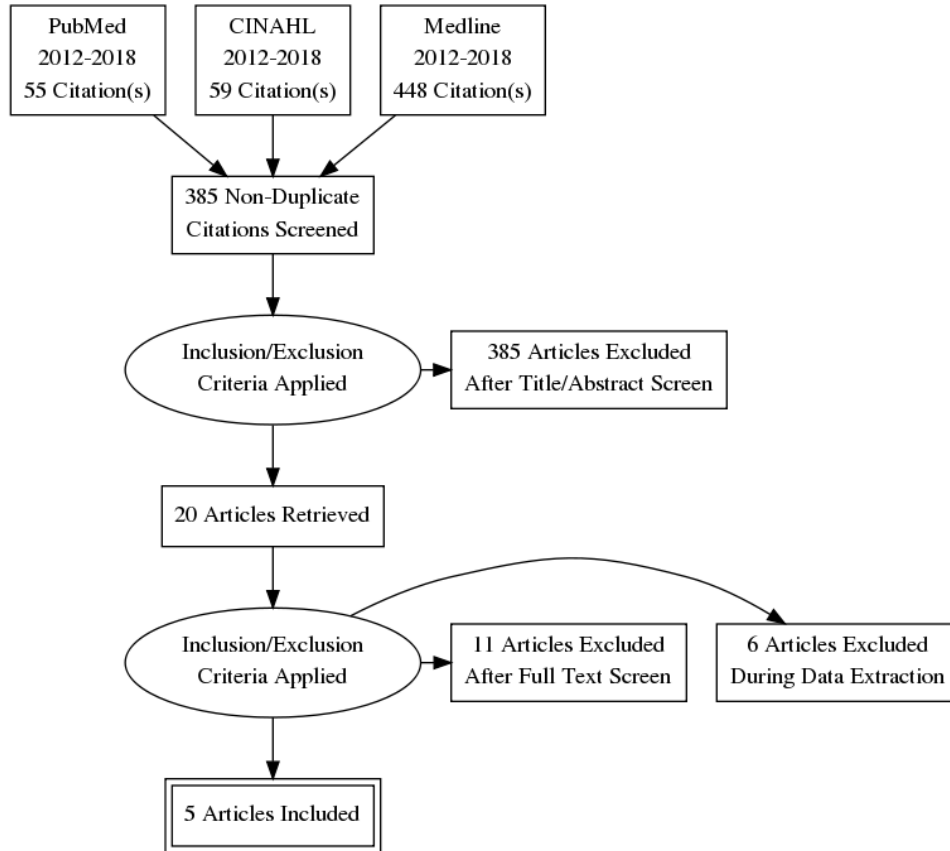
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Appendix A

Figure 1: PRISMA Flow Chart



Appendix B

Figure 1: Policy Process Framework

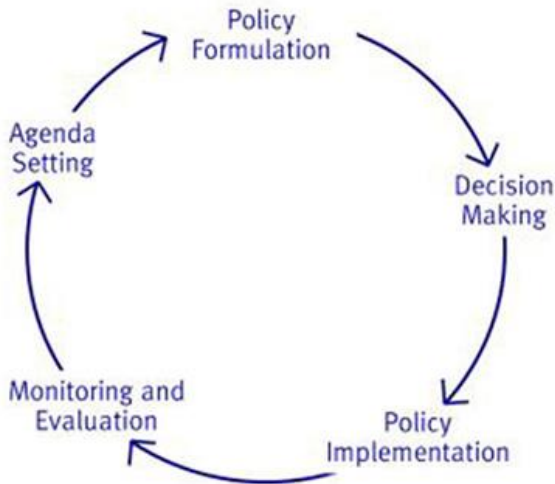
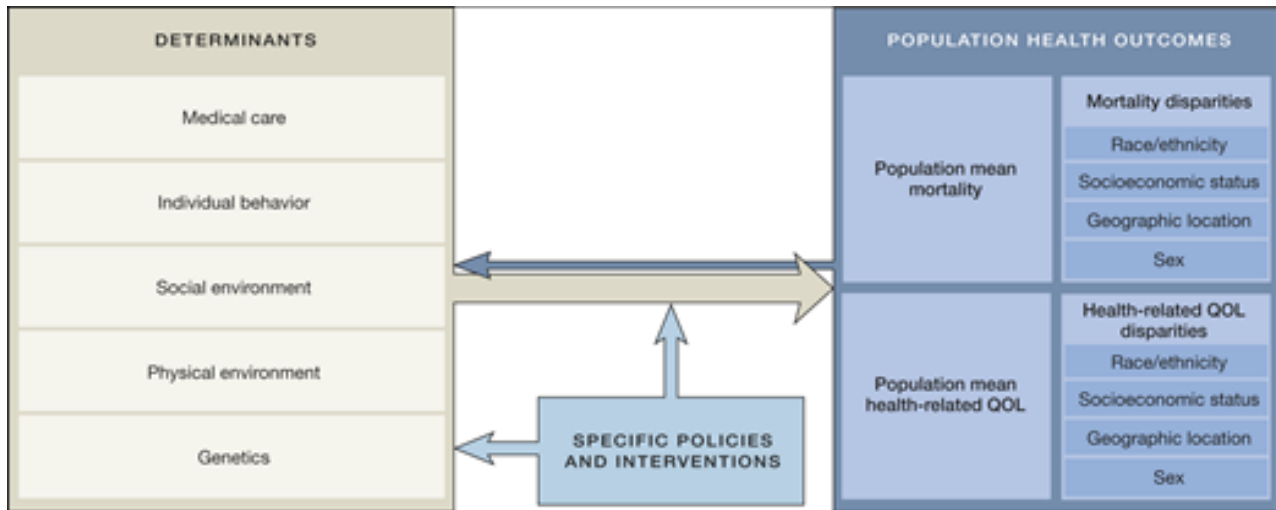


Figure 2: Population Health Framework



Appendix C

Figure 1: An Act To Reduce Youth Cancer Risk



129th MAINE LEGISLATURE

FIRST REGULAR SESSION-2019

Legislative Document

No. 1297

H.P. 940

House of Representatives, March 19, 2019

An Act To Reduce Youth Cancer Risk

Reference to the Committee on Health and Human Services suggested and ordered printed.

Handwritten signature of Robert B. Hunt in cursive.

ROBERT B. HUNT
Clerk

Presented by Representative PERRY of Calais.
Cosponsored by Senator MOORE of Washington and
Representatives: HANINGTON of Lincoln, HYMANSON of York, MADIGAN of Waterville,
McCREIGHT of Harpswell, MEYER of Eliot, Senators: DAVIS of Piscataquis, ROSEN of
Hancock, VITELLI of Sagadahoc.

1 **Be it enacted by the People of the State of Maine as follows:**

2 **Sec. 1. 22 MRSA §689-A** is enacted to read:

3 **§689-A. Tanning facilities; minors**

4 **1. Definitions.** As used in this section, unless the context otherwise indicates, the
5 following terms have the following meanings.

6 A. "Operator" means a person designated by the owner of a tanning facility or the
7 lessee of a tanning device to operate, or to assist and instruct in the operation and use
8 of, a tanning facility or tanning device.

9 B. "Phototherapy device" means equipment that emits ultraviolet radiation and is
10 used in the diagnosis or treatment of disease or injury.

11 C. "Tanning device" means equipment that emits electromagnetic radiation having
12 wavelengths in air between 200 and 400 nanometers that is used for the tanning of
13 human skin and any equipment used with that equipment, including but not limited to
14 protective eyewear, timers and handrails. "Tanning device" includes a sunlamp,
15 tanning booth or tanning bed but does not include a phototherapy device used or
16 prescribed for use by a physician.

17 D. "Tanning facility" means a location, place, area, structure or business that
18 provides persons access to a tanning device, including tanning salons, health clubs,
19 apartments and condominiums, regardless of whether a fee is charged for access to
20 the tanning device.

21 **2. Prohibition.** An owner of a tanning facility, a lessee of a tanning device or an
22 operator may not allow an individual under 18 years of age to use a tanning device. Proof
23 of age may be satisfied with a driver's license or other government-issued identification
24 containing the date of birth and a photograph of the individual.

25 **3. Notice.** An owner of a tanning facility or a lessee of a tanning device shall post in
26 a conspicuous place in the tanning facility notice, in a form developed by the department:

27 A. That it is unlawful for a tanning facility, a lessee of a tanning device or an
28 operator to allow an individual under 18 years of age to use a tanning device;

29 B. That a tanning facility, a lessee of a tanning device or an operator that violates the
30 provisions of this section is subject to penalties;

31 C. That an individual may report a violation of this section to the local law
32 enforcement agency or radiation control program of the Maine Center for Disease
33 Control and Prevention; and

34 D. That the health risks associated with tanning include but are not limited to skin
35 cancer, premature aging of the skin, burns to the skin and adverse reactions to certain
36 medications, foods and cosmetics.

37 **4. Written statement.** An owner of a tanning facility, a lessee of a tanning device
38 or an operator shall provide to every customer prior to that customer's first use in that
39 calendar year of that particular tanning device a written statement that must be signed by

1 the customer prior to use of the tanning device. The statement must be developed by the
2 department and must include:

3 A. The information required in the notice set forth in subsection 3;

4 B. An acknowledgment signed by the customer indicating that the customer
5 understands the notice posted in accordance with subsection 3 and the information set
6 forth pursuant to paragraph A; and

7 C. An agreement that the customer will use protective eyewear.

8 **5. Duties of owner.** An owner of a tanning facility, a lessee of a tanning device or
9 an operator shall ensure that:

10 A. An individual under 18 years of age is not permitted to use the tanning facility;

11 B. There is present at the tanning facility during its hours of operation an operator
12 who is able to inform customers about, and assist customers in, the proper use of
13 tanning devices;

14 C. Each tanning device is properly sanitized after each use;

15 D. Before a customer uses a tanning device, the customer is provided, at no cost,
16 with properly sanitized and securely fitting protective eyewear that protects the
17 customer's eyes from ultraviolet radiation and allows enough vision to maintain
18 balance;

19 E. A customer is not allowed to use a tanning device unless the customer uses
20 protective eyewear;

21 F. A customer is shown how to use physical aids including handrails and markings
22 on the floor to maintain a proper exposure distance from the tanning device as
23 recommended by the manufacturer;

24 G. A timing device that is accurate within 10% of any selected timer interval is used
25 and is remotely located so customers cannot set their own exposure time;

26 H. Each tanning device is equipped with a mechanism that allows the customer to
27 turn the tanning device off;

28 I. A customer is limited to the maximum exposure time recommended by the
29 manufacturer for that customer's skin type;

30 J. A customer is not allowed to use a tanning device more than once every 24 hours;

31 K. The interior temperature of the tanning facility does not exceed 100 degrees
32 Fahrenheit; and

33 L. The following records are maintained: copies of all consent forms signed by
34 customers; a record of a customer's total number of uses of a tanning device at the
35 facility; the dates and durations of uses of a tanning device; and any injury reports for
36 a period of 3 years after tanning device use for each customer.

37 **6. Duties of customer.** A customer may not use a tanning device of a tanning
38 facility unless the customer:

1 A. Immediately before the customer's first use of a unique tanning facility in a year,
2 signs a statement acknowledging that the customer has read and understands the
3 notice and the information required under this section and specifying that the
4 customer agrees to use protective eyewear; and

5 B. Uses protective eyewear at all times while using a tanning device.

6 **7. Certificate of registration.** A person may not operate a tanning facility without
7 first obtaining from the department a certificate of registration. The registrant shall
8 display the certificate of registration in a conspicuous place at the tanning facility. A
9 certification of registration issued under this subsection expires annually.

10 **8. Violation; penalty.** A person who violates this section is subject to civil penalties
11 in accordance with section 690, subsection 2. Violation may also result in suspension or
12 revocation of a registration issued in accordance with subsection 7.

13 **9. Local ordinance.** This section does not preempt local ordinances that provide for
14 more restrictive regulation of tanning facilities than required in this section.

15 **SUMMARY**

16 This bill:

17 1. Prohibits a tanning facility from allowing an individual who has not attained 18
18 years of age to use a tanning device;

19 2. Requires that the owner of a tanning facility or the lessee of a tanning device post
20 a conspicuous notice regarding the laws governing tanning and the health risks associated
21 with tanning;

22 3. Requires that each customer, prior to that customers first use in that calendar year
23 of that tanning device, sign an acknowledgment that the customer understands the posted
24 notice and agrees to use protective eyewear; and

25 4. Authorizes municipalities to adopt more restrictive regulations than required in
26 this bill.

Figure 2: Jamie Lowery's Written Testimony

Testimony of Jamie Lowery, Dermatology Nurse Practitioner
In Support of LD #1297 An Act To Reduce Youth Cancer Risk
Health and Human Services Committee

April 3, 2019

Good afternoon Senator Gratwick, Representative Hymanson, and members of the Health and Human Services Committee. My name is Jamie Lowery. I am here today as a Maine resident and dermatology nurse practitioner to support LD #1297 An Act To Reduce Youth Cancer Risk, which would protect our minors from the dangers associated with indoor tanning. Thank you for allowing me to testify.☐

I am a practicing dermatology nurse practitioner. In my work, I see the serious health effects of over exposure to ultraviolet radiation. Yes, tanning machines are a source of toxic radiation. The existing evidence confirms without question that exposure to UV radiation from indoor tanning devices is carcinogenic to humans. Melanoma, one of the most deadly of all cancers, has been directly linked to UV radiation. In 2015 in the United States, 80,442 new cases of Melanomas of the skin were reported, and 8,885 people died of Melanomas of the skin. Indoor tanning devices are a dangerous source of ultraviolet radiation.

Indoor cosmetic tanning devices were identified by the World Health Organization in 2009 as carcinogenic to humans, the highest cancer risk category. This is the same category as tobacco smoke. Subsequently, in 2014 the FDA also issued strengthened warnings. There is a strong association between indoor tanning and melanoma, ocular melanoma, and other skin cancers such as squamous cell carcinoma and basal cell carcinoma. These are the cancers I see in my own clinic everyday.

Most alarming is that the risk of melanoma of the skin has been shown to increase by 59% when tanning bed use started before age 35. With all of this evidence, the International Agency for Research on Cancer recommends a ban on the use of indoor tanning devices for those younger than 18 years. In addition, 19 states and one territory have now banned the use of UV tanning devices by anyone younger than 18. This includes our neighboring states: Massachusetts, New Hampshire and Vermont.

☐ I was not always a dermatology practitioner. I too was involved in the indoor tanning fad when I was a young Maine teen. I found indoor tanning to be addicting in the way it made me feel, and believed that my skin looked more beautiful with a tan. By 19, I had significant sun

damage that included hyperpigmentation and fine lines. I soon realized that the “healthy glow” I was trying to achieve had damaged my skin. I stopped tanning, and thus began my journey into dermatology work. In my current practice, I see patients who have suffered harm from UV radiation exposure. I feel and hear their sense of regret and fear associated with previous sun tanning behaviors. Some live day-to-day worrying about each and every mole on their body because they’ve already had melanoma or a severely atypical nevus. ☐

☐ However, the young teens over the age of 14 that we currently allow to tan are rarely seen in my clinic until there are significant and noticeable mole changes or they eventually become worried of their previous tanning exposure later on in life. In my profession, I counsel patients on how to prevent skin cancer from this point forward; but as we know, once exposed to UV radiation our DNA is damaged indefinitely.☐

☐ I wish someone influential had been there to prevent me from harmful tanning UV exposure. Now, we can be those influential people. As stated previously, I am here to ask for your support for LD #1297 to ban the use of UV tanning devices for anyone under the age of 18. ☐

Thank you for the opportunity to testify before you today. I would be happy to show supporting documents or answer any questions you may have.☐

☐

Jamie Lowery NP-C APRN ☐

☐

☐

Appendix D

Figure 1: How a Bill Becomes a Law in the State of Maine (Maine State Legislature, 2019)

