



Published in final edited form as:

*Tob Control*. 2020 March ; 29(2): 226–227. doi:10.1136/tobaccocontrol-2019-054942.

## State and regional gaps in coverage of “Tobacco 21” policies

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### Introduction

In 2015, the US Institute of Medicine (IOM) concluded that raising the minimum legal sales age for tobacco products to 21 nationally would result in 223,000 fewer premature deaths, 50,000 fewer deaths from lung cancer, and 4.2 million fewer years of life lost for individuals born between 2000 and 2019.<sup>1</sup> Despite the IOM’s findings, no federal policy has been enacted, leaving inherent gaps in coverage between and within US states. State and local “Tobacco 21” policies could close the gaps, however significant barriers have included lawsuits leading to delayed policy implementation, governors and mayors vetoing policies, and state-imposed preemption of local authority (in 20 states).<sup>2,3</sup> Gaps in coverage may exacerbate inequities in access to tobacco products in areas where the burden of tobacco-related illness is greatest, such as southern US states.<sup>4,5</sup> For the first time, this research estimates how many youth are and are not protected by Tobacco 21, separately for ages 18–20 (who were previously able to purchase tobacco) and ages 15–17 (for whom the policy presumably restricts access through social sources).

### Methods

Policy data were obtained in January 2019 from the Campaign for Tobacco-Free Kids, who maintains comprehensive policy data from regional advocacy directors as well as reports

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Author Contributions:

Dr. Leas had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: Leas, Henriksen.

Acquisition, analysis, or interpretation of data: All authors.

Drafting of the manuscript: Leas, Recinos, Henriksen, Mahoney.

Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Leas, Schleicher, Recinos.

Obtained funding: Henriksen.

Supervision: Henriksen.

from press and technical partners.<sup>6</sup> Data on preemption laws were obtained from the US Centers for Disease Control and Prevention.<sup>7</sup>

Merging the Tobacco 21 policy data to population data from the American Community Survey 2012–2016 required creating a crosswalk for jurisdictions. We used Census 2010 block and Census 2012–2016 block group data for population estimates in jurisdictions where county policies applied only to unincorporated areas (Illinois, Kansas, Mississippi, Missouri), and where Tobacco 21 communities were not classified as a Census Designated Place (Barrington, Rhode Island). We report the number and percent of residents (ages 18–20 and 15–17) covered by Tobacco 21 for the entire US, and by state and Census region.

## Results

Overall, 9.7 million (72.1%) residents ages 18–20 were not yet covered by a Tobacco 21 policy in 2018 (Figure 1). As of January 2019, six state policies (California, Hawaii, Maine, Massachusetts, New Jersey, Oregon) and the District of Columbia protected 2.6 million residents ages 18–20 and an additional 144 local ordinances in 16 states without state policies protected 1.1 million residents ages 18–20. Gaps in policy coverage were 40.4% in the West, 45.1% in the Northeast, 84.2% in the Midwest and 97.9% in the South. Among states with any local Tobacco 21 policies but no statewide policy, New York covered the largest proportion of residents ages 18–20 (71.1%); Arkansas, Alaska, Arizona, Colorado, and Mississippi covered the smallest proportion (<1%). State preemption of local age restriction policies jeopardizes the coverage of 5.5 million residents ages 18–20 across 20 states. An online appendix summarizes state-level data by age group (15–17 and 18–20).

## Discussion

The vast majority of US residents ages 18–20 were not covered by a Tobacco 21 policy as of January 2019. The largest gaps in coverage exists in the South, where adult tobacco use is higher than the national average (26.0% vs. 24.2% in 2017),<sup>8</sup> and a greater proportion of cancer deaths are attributed to smoking.<sup>9</sup>

A nationwide Tobacco 21 policy, as adopted in countries such as Japan, Thailand, and Uzbekistan,<sup>10</sup> would close gaps in coverage. National coverage would make evasions through cross-border purchases across state lines or on tribal lands impossible (limiting concerns to international borders, internet sales, and identifying illegal sellers). In addition to reducing regional/state inequity in smoking-related morbidity and mortality, coverage could also extend to sales of tobacco products to US Active Duty Military personnel and retailers on American Indian/Alaskan Native tribal lands, thus potentially impacting the higher smoking rates among these populations.<sup>11,12</sup> However, a national policy that preempts state and local authorities from passing further restrictions on the retail environment for tobacco or other local tobacco control measures could severely inhibit these jurisdictions from making progressive-advances toward “endgame” goals, such as further increasing age restrictions.<sup>13</sup> Effectiveness also at least partially depends on whether a policy is implemented in an environment with sufficient funding for education of retailers and monitoring of retailer compliance, as well as cessation services for smokers impacted by

the policy.<sup>14</sup> Currently, only the US Congress has the federal authority to set a minimum legal sales age for tobacco; it is also possible for Congress to incentivize states to raise purchasing ages to 21, as they did with alcohol purchasing policies in 1984.

Future research on coverage of Tobacco 21 policies in the US could estimate the impact that gaps in coverage have on exacerbating inequities in morbidity and mortality, both across states and regions as well as sociodemographic variables. Studies could also address the extent to which gaps in Tobacco 21 mirror gaps in other tobacco control policies, such as weaker smoke-free air policies, lower taxes, or below-average tobacco control spending.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

## Acknowledgments

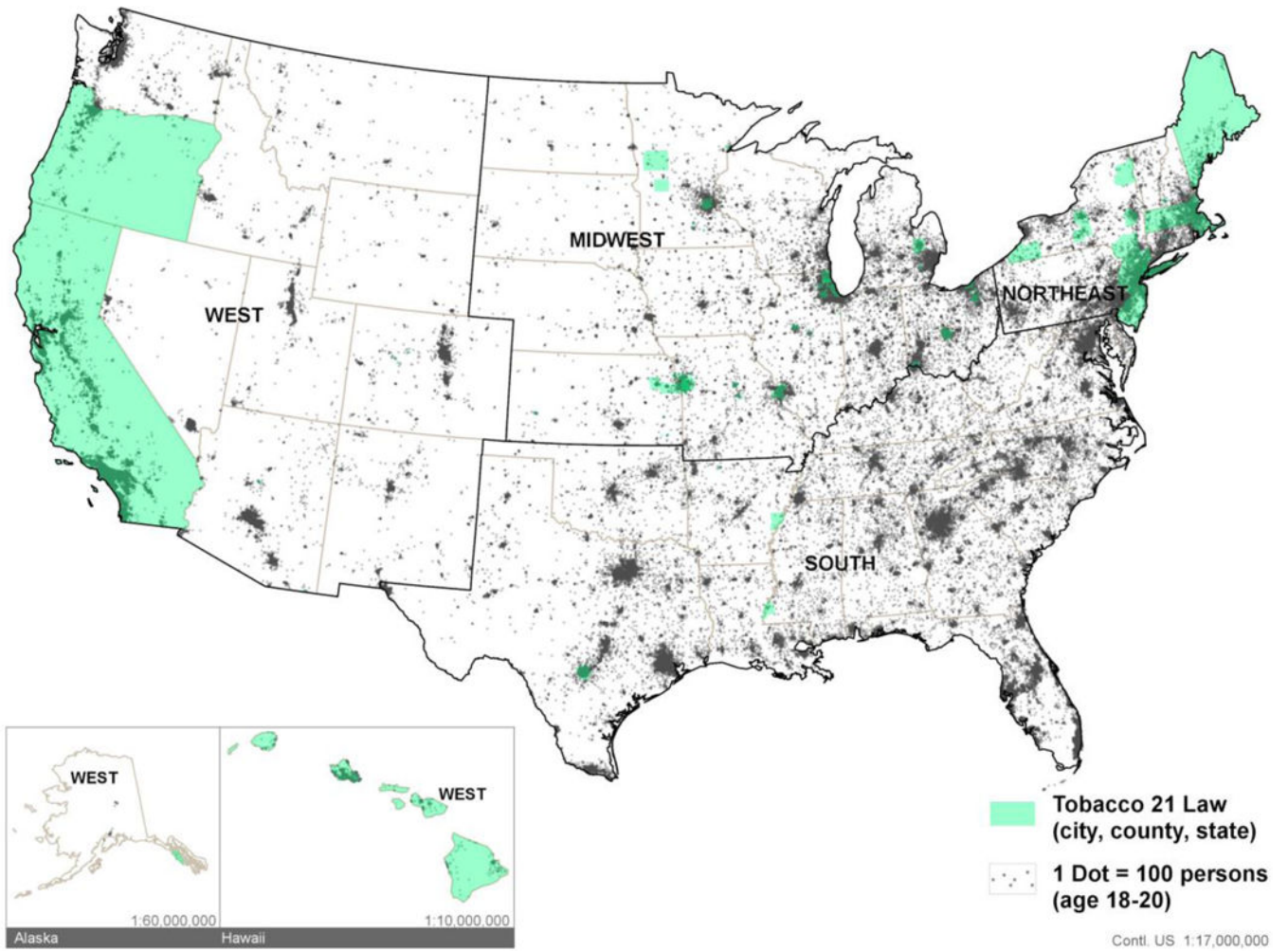
**Funding Statement:** This work is supported by NIH grant P01-CA225597 from the National Cancer Institute. Dr. Leas was supported by NIH grant T32-HL007034 from the National Heart, Lung and Blood Institute.

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**Figure 1. Tobacco 21 policy coverage across the United States (Jan, 2019).**

Note: Grey dots indicate the number of residents ages 18–20 and green areas indicate where state and local Tobacco 21 exist.

**Table 1.**

Type of Tobacco 21 coverage, legal preemption and percent of population covered, by age group and state

State	Type of coverage <sup>†</sup>	Legal Preemption <sup>‡</sup>	Residents ages 15–17		Residents ages 18–20	
			N	%	N	%
Alabama <sup>§</sup>	None	No	192731	0.0	205063	0.0
Alaska <sup>§</sup>	Partial	No	30082	1.1	30618	1.0
Arizona	Partial	No	272870	0.3	286722	0.4
Arkansas <sup>§</sup>	Partial	No	119237	1.2	125926	1.0
California	Full	Yes	1564955	100.0	1664166	100.0
Colorado	Partial	No	203520	0.3	217892	0.3
Connecticut	Partial	No	145740	3.5	158352	5.7
Delaware	None	Yes	34607	0.0	39815	0.0
District of Columbia	Full	No	15549	100.0	34274	100.0
Florida	None	No	709706	0.0	750875	0.0
Georgia	None	No	420514	0.0	444739	0.0
Hawaii	Full	No	48065	100.0	51117	100.0
Idaho	None	No	71487	0.0	68524	0.0
Illinois	Partial	No	520622	30.5	526275	33.4
Indiana	None	Yes	272447	0.0	289016	0.0
Iowa	None	Yes	122159	0.0	142459	0.0
Kansas	Partial	No <sup>*</sup>	118944	30.8	128215	24.7
Kentucky	None	Yes	171689	0.0	182627	0.0
Louisiana	None	Yes	184430	0.0	194349	0.0
Maine	Full	No	47981	100.0	52056	100.0
Maryland	None	No	230882	0.0	239484	0.0
Massachusetts	Full	No	251578	100.0	315197	100.0
Michigan	Partial	Yes <sup>*</sup>	404840	5.1	430873	7.5
Minnesota	Partial	No	213587	15.1	216777	18.1
Mississippi	Partial	Yes	123844	0.5	137789	0.4
Missouri	Partial	No	238769	24.7	254094	28.0
Montana	None	Yes	37236	0.0	43338	0.0
Nebraska	None	No	75154	0.0	82711	0.0
Nevada	None	Yes	110872	0.0	102179	0.0
New Hampshire	Partial	No	50844	3.2	58159	6.4
New Jersey	Full	No	356313	100.0	337673	100.0
New Mexico	None	Yes	84138	0.0	88207	0.0
New York	Partial	No	735437	73.9	835077	71.1
North Carolina	None	Yes	385891	0.0	420191	0.0
North Dakota	None	No	25623	0.0	36079	0.0
Ohio	Partial	No	465105	15.6	479930	21.7
Oklahoma	None	Yes	154324	0.0	163914	0.0

State	Type of coverage <sup>†</sup>	Legal Preemption <sup>‡</sup>	Residents ages 15–17		Residents ages 18–20	
Oregon	Full	No	147313	100.0	153873	100.0
Pennsylvania	None	Yes	481595	0.0	550400	0.0
Rhode Island	Partial	No <sup>*</sup>	38781	4.0	54276	2.4
South Carolina	None	Yes	182587	0.0	206717	0.0
South Dakota	None	Yes	33160	0.0	36836	0.0
Tennessee	None	Yes	254404	0.0	263106	0.0
Texas	Partial	No	1165199	5.2	1176865	5.7
Utah	None	No	140824	0.0	132213	0.0
Vermont	None	No	23042	0.0	31697	0.0
Virginia	None	No	313265	0.0	354421	0.0
Washington	None	Yes	267550	0.0	273868	0.0
West Virginia	None	No	65917	0.0	73095	0.0
Wisconsin	None	Yes	225177	0.0	243301	0.0
Wyoming	None	Yes	21992	0.0	24650	0.0

<sup>†</sup>None = No Tobacco 21 laws; Full = Statewide Tobacco 21 law; Partial = Local Tobacco 21 laws only

<sup>‡</sup>Source: <https://healthdata.gov/dataset/cdc-state-system-tobacco-legislation-preemption>. Other analyses have reached a different conclusion regarding local authority in Michigan. Berman ML. “Raising the Tobacco Sales Age to 21: Surveying the Legal Landscape.” *Public Health Rep.* 2016;131(2):378–381.

<sup>§</sup>Alabama, Alaska and Arkansas have age 19 sales restrictions for tobacco; however, the census does not allow separation of 18 and 19 year age groups, so the 15–17 and 18–19 categories were retained.

<sup>\*</sup>There are pending lawsuits in Kansas, Michigan, and Rhode Island, to determine whether local governments have the authority to adopt Tobacco 21 laws. For more information, see: The Topeka Capital-Journal, “Topeka appeals tobacco ruling, requests Kansas Supreme Court hear case.” May 2, 2018 (available from: <https://www.cjonline.com/news/20180502/topeka-appeals-tobacco-ruling-requests-kansas-supreme-court-hear-case>); Public Health Law Center. Amicus brief in RPF Oil Co. v. Genesee Cty. June 13, 2017 (available from: <https://www.publichealthlawcenter.org/amicus-briefs/rpf-oil-co-v-genesee-cty-and-genesee-cty-health-dep%E2%80%99t-genesee-cty-circuit-ct-case-no>); Public Health Law Center. Amicus brief in K&W Automotive v. Barrington. June 1, 2018 (available from: <https://www.publichealthlawcenter.org/amicus-briefs/k-w-automotive-v-barrington-no-pc-2018-0471-providence-ri-sc-2018>).