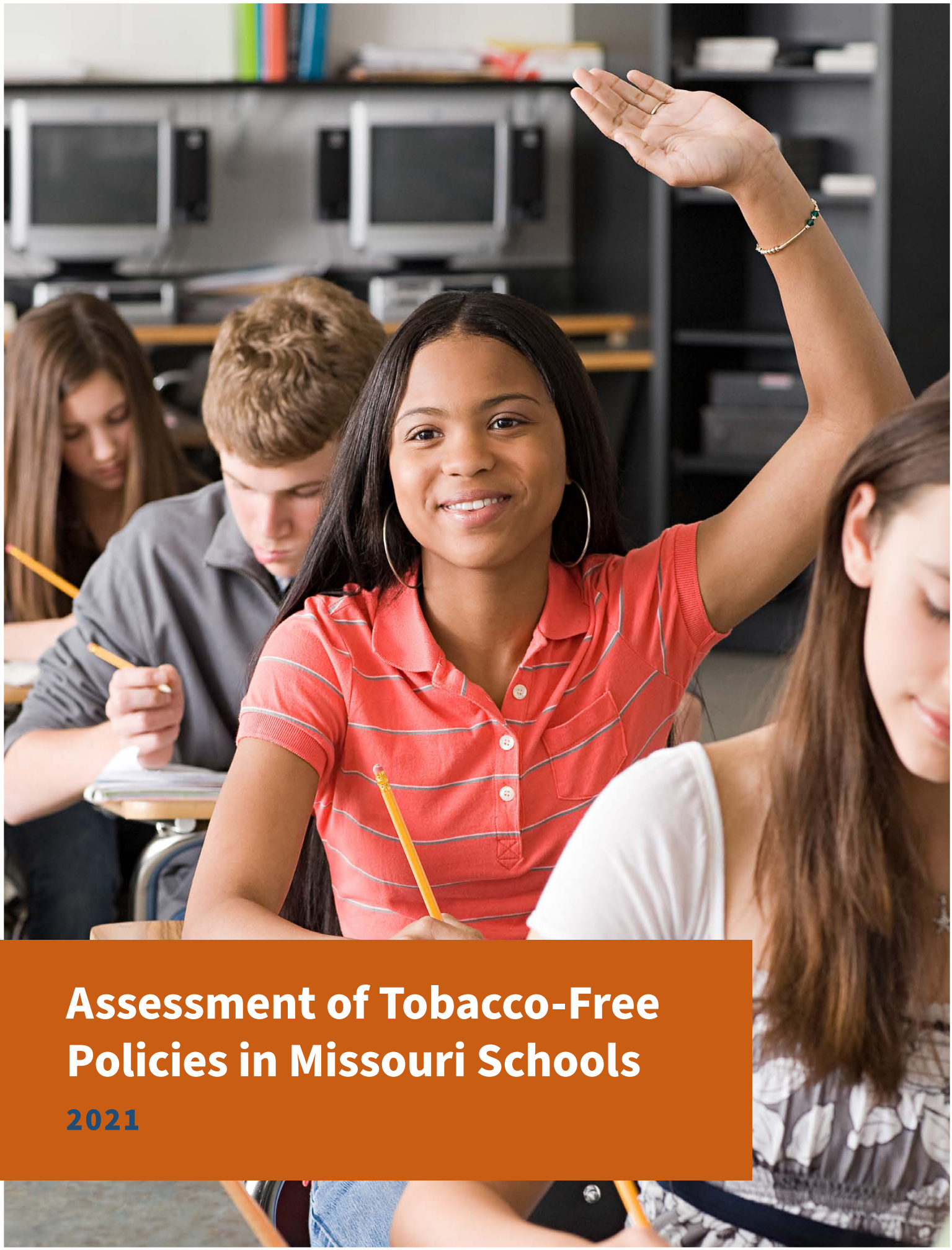

Assessment of Tobacco-Free Policies in Missouri Schools

2021

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Executive Summary

Tobacco use and exposure continue to be a serious concern for Missouri youth. Overall youth tobacco use in Missouri, like in the U.S., has declined. However, youth e-cigarette use is significantly higher than other tobacco products, and most use flavored products, following industry tactics targeting youth.

Evidence-based strategies, including comprehensive tobacco-free K–12 school policies, help reduce tobacco use among youth. Schools have a vitally important role in preventing youth tobacco use initiation and protecting youth from exposure to harmful secondhand smoke and e-cigarette aerosol. The most effective way schools can achieve this is to implement and enforce a comprehensive tobacco-free and vape-free school policy.

The primary purpose of this report is to describe the tobacco-free K–12 school policies, along with their strengths and gaps, that exist throughout Missouri. A secondary purpose is to describe the improvement in the quality and comprehensiveness of tobacco-free school policies compared to prior 2018 findings by the University of Missouri.

Key findings from the report include the following:

- Ninety-one percent of school districts had a tobacco-free campus policy.
- The Missouri School Boards' Association member school districts scored higher on the overall score, and prevention and treatment and student enforcement policy components.
- School districts in urban locales had consistently lower policy component scores than those in suburban and rural locales.
- Approximately 33% of school districts had scores of 28 or greater (on a scale of 0 to 30), signifying the most comprehensive policies.
- Approximately 86% of school districts included nearly all of the comprehensive policy criteria for the tobacco-free environment component, and 81% had policies that applied at all times for all persons.
- From 2018 to 2021, Missouri school districts improved their policies.
- A significant number of school district policies contain gaps, especially in the communication, prevention and treatment and enforcement components, which point to opportunities for school districts to increase the comprehensiveness of their tobacco-free campus policies.

Background

Most people who use tobacco products started during adolescence, and the younger they start the more likely they are to become addicted to nicotine and have trouble quitting.[1,2,3]

While youth tobacco use has declined significantly, youth e-cigarette use has far surpassed the use of other tobacco products, including combustible and smokeless products. In the U.S., in 2022, 14% of high school students currently used e-cigarettes. Only 2% smoked cigarettes, 3% smoked cigars and 2% used smokeless tobacco.[4] The surge of youth e-cigarette use led the U.S. Surgeon General, in 2018, to declare e-cigarette use among youth an epidemic and call for aggressive action to protect youth from becoming the next generation with a lifetime of nicotine addiction and the associated health risks.[5]

Most youth who use tobacco use flavored products. In 2021, 75% of U.S. middle school and 80% of high school students who used tobacco used flavored products, and even more (82% of middle school and 86% of high school students) who used e-cigarettes used flavored e-cigarettes in 2022.[4] The youth e-cigarette epidemic follows the e-cigarette industry's surge in fruit, candy, dessert and other flavored disposable e-cigarette sales. It also follows the industry's raising the addictive nicotine concentration in its products and increasing spending on advertising and promotions that make products more desirable, cheaper and easier for youth to access.[6]

Tobacco use and exposure continue to be a serious concern for Missouri youth.

The trend in Missouri youth tobacco use is similar to that in the U.S. Among Missouri high school students, current use of conventional tobacco products (cigarettes, cigars, smokeless tobacco) decreased from 16% in 2017 to 11% in 2021. Current use of e-cigarettes increased 73%, from 11% to 19%, during that time.[7,8] There was also an increase in middle school students who ever used e-cigarettes, from 9% in 2013 to 14% in 2017.[7,9]

Missouri youth also continue to be exposed to secondhand smoke at indoor and outdoor public places, with 39% of middle school students being exposed in 2017, and 39% of high school students being exposed in 2021.[7,8] There is no safe level of exposure to secondhand smoke, and even limited exposure can cause immediate harm. Children are especially vulnerable to the effects of secondhand smoke, whether indoors or outdoors.[1,10,11] Additionally, the more often youth see others use tobacco products, the more likely they are to use tobacco products.[2,12,13,14]

Since the brain continues developing until age 25, nicotine exposure during this developmental phase affects key brain receptors that make youth more susceptible to nicotine addiction, and they become addicted more quickly. Nicotine harms the parts of the brain that control attention, learning, memory, mood and impulse control. It also makes stress, anxiety and depression worse. It primes the brain for addiction to other substances.[1,15,16,17]

Comprehensive strategies and policies to prevent tobacco use among youth are critical to ending the tobacco epidemic.[4,17]

Evidence-based strategies and policies to help reduce e-cigarette use among youth include the following (a comprehensive strategy including all of the following would be even more effective):

- Comprehensive smoke-free and e-cigarette aerosol-free air policies in all enclosed public places and workplaces.
- Comprehensive tobacco-free property policies (voluntary organizational policies and those adopted by elected bodies) (e.g., K–12 school and college campuses, child care properties, multi-unit housing properties, government properties, hospital campuses, health care and behavioral health properties, parks, etc.).
- Increasing the availability and accessibility of cessation treatment for youth.
- Increasing the price of all tobacco products.
- Licensing all tobacco retailers and ensuring compliance with all tobacco sales laws.
- Raising to at least 21 and strongly enforcing the tobacco minimum legal sales age.
- Restricting youth access and exposure to tobacco products and marketing, advertising and promotions at retail settings.
- Prohibiting the sale of all flavored tobacco products.[18,19,5]

In Missouri, state and local governments/elected bodies can adopt the above policies.

Schools have a vitally important role in preventing youth tobacco use initiation and protecting youth from exposure to harmful secondhand smoke and aerosol.

The most effective way schools can achieve this and show their strong commitment to protecting youth from tobacco and providing a healthy learning environment is to fully and consistently implement, communicate and enforce a comprehensive tobacco-free and vape-free school policy.[20]

Tobacco-free places create positive social norms promoting healthy tobacco-free lifestyles. The benefits of a tobacco-free and vape-free school environment include the following:

- Improved school attendance.
- Positive role modeling by adults (administrators, teachers, staff, parents and adult visitors).
- Preventing youth from initiating tobacco use.
- Protecting everyone from exposure to secondhand smoke and aerosol.
- Supporting everyone in reducing and quitting tobacco use.
- Preparing youth for smoke-free workplaces, colleges and communities.
- Reducing fire risks.
- Reducing tobacco litter.
- Reducing maintenance, cleaning and insurance costs.[20,21,22,23,24,25,26,27,28]

A comprehensive tobacco-free and vape-free school policy prohibits the use of all tobacco products by all people, at all times (including during any school-sponsored events) and in all places, including any school-owned property (including vehicles, athletic fields and parking lots). The policy includes tobacco product and related definitions, enforcement, policy communication, staff training, prevention education, treatment for students, staff and administrators and periodic policy re-evaluation.[20]

Purpose

The primary purpose of this report is to describe the tobacco-free K–12 school policies, along with their strengths and gaps, that exist throughout Missouri. A secondary purpose is to describe the improvement in quality and comprehensiveness of tobacco-free school policies compared to the 2018 findings.

Methods

The Missouri Department of Health and Senior Services (DHSS) contracted with Missouri State University (MSU) to assess local education agency (LEA) tobacco-free policies in Missouri, and MSU conducted the 2021 assessment. DHSS sent MSU the previous 2017-18 tobacco-free LEA policy assessment conducted by the University of Missouri (MU).

Participants

MSU obtained the Missouri Department of Elementary and Secondary Education's (DESE) LEA listing on their website on March 21, 2021. At that time, there were 559 LEAs listed in Missouri. MSU visited each LEA's website and found some tobacco-free policy information for 507 (91%) of the 559 listed. Of those without information available online, 6% were public schools. The remaining 3% were private schools.

For the 2021 to 2018 comparisons, MSU utilized MU's 2018 assessment. MU obtained DESE's 2017-18 school year LEA listing, which included 550 LEAs. MU visited each LEA's website to obtain their tobacco-free policy and contacted LEAs to obtain policies not available online. MU obtained and assessed policies for 523 (95%) of the 550 LEAs.

Instrument

MSU developed a survey instrument to assess Missouri tobacco-free LEA policies. The South Dakota Department of Health (SD DoH) developed the original instrument to assess South Dakota tobacco-free school policies. MSU expanded SD DoH's instrument scale to make the current assessment more comprehensive and reflect more recent trends in tobacco product usage. The current School Tobacco Policy Evaluation Tool (Tool) (see Figure 1 and Appendix A) originally consisted of 36 assessment items within four policy components: tobacco-free environment, enforcement, prevention and treatment services and policy communication. Using feedback from the Missouri School Boards' Association, the assessment team reduced the number of items to 30 (see Figure 1).

Instrument Construction and Validation

Before any other analyses, the Tool was evaluated for reliability in two ways. **The first form of reliability evaluated was inter-rater reliability, which was necessary to ensure data were consistently evaluated by the two raters evaluating LEA policies online.** MSU examined a 10% sampling and established the inter-rater reliability at 97%, indicating raters consistently coded data.

The second form of reliability evaluated was the scale's internal consistency, which evaluates the cohesiveness or how well the scale binds together as a coherent unit. This examination was done over all 30 items and the four policy components. Results show that the overall reliability of the scale, as reflected in a Cronbach's Alpha score, was .925, indicating high internal consistency of the scale overall. However, when each policy component was evaluated separately, reliabilities varied widely. The Cronbach's Alpha for each of the policy components was as follows: .631 for tobacco-free environment, .845 for enforcement, .989 for prevention and treatment and .399 for policy communication. Therefore, providing more detailed information about policy components is appropriate, except for the Policy Communication area, which was unreliable.

Procedures

MSU developed the LEA tobacco-free policy assessment instrument using SD DoH's instrument and expanding the scale for a more comprehensive assessment. They obtained tobacco-free policies for 507 (91%) of 559 LEAs from May 3, 2021 through June 25, 2021. They trained two graduate student research assistants on the assessment instrument, and they used it to evaluate policies. Raters coded a 0 if they did not find any particular policy item and coded a 1 when they found one. Raters left data fields blank if they did not find any information for a specific LEA. MSU excluded overlapping data and merged raters' datasets into a master dataset for analysis.

Data Analysis

MSU performed data analysis using SPSS. They first examined data for anomalies and resolved the few they found before analysis. They grouped scale items by policy component into scale scores for tobacco-free environment (10 items), enforcement (10 items), prevention and treatment services (6 items), policy communication (4 items) and overall score (30 items). They evaluated scale items for reliability (internal consistency) before conducting further descriptive and comparative analyses.

Current assessment results were compared to the 2018 results. The 2018 instrument was shorter and less comprehensive than the current instrument. However, MSU matched current scale items to equivalent items in the 2018 assessment for comparison across time.

Results

2021 Results

Affiliation

In Missouri, there are a variety of organizations to which LEAs turn for assistance with policy issues, including tobacco-free campus policies. Nearly half (49%) of all LEAs were affiliated with the Missouri School Board' Association (MSBA). Another 20% were affiliated with Missouri Consultants for Education (MCE), and an additional 4% drew support from either the EdCouncil, LLC (3%) or the Missouri Charter Public School Association (MCPSA) (1%). The remaining 28% were unaffiliated. Table 1 outlines results based on organizational affiliation.

MSU conducted comparisons to determine if affiliation with one of the consultation organizations affected the comprehensiveness of an LEA's tobacco-free policy, as measured with the current assessment tool. The results showed that, except for policy communication, the consultation group with which an LEA was affiliated did not significantly impact the degree to which its tobacco-free policy was comprehensive (see Table 1).

TABLE 1

School District Organizational Affiliation

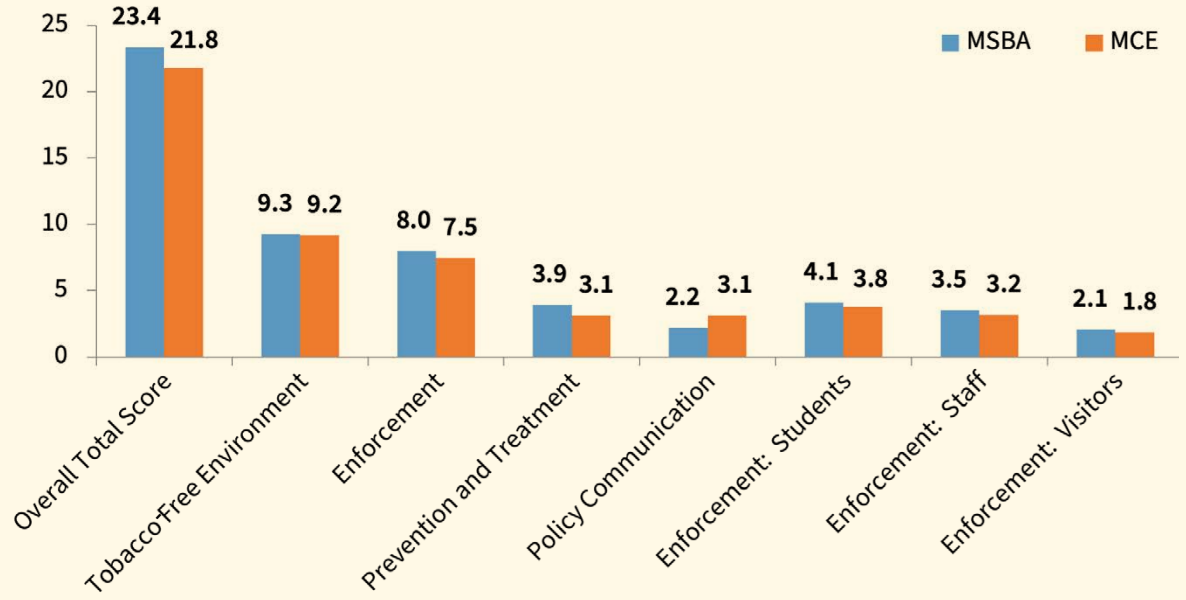
MSBA	271	48.6	23.35	6.05
MCE	113	20.3	21.83	5.84
MCPSA	4	0.7	24.75	5.25

Note. Overall score ranges from 0 to 30.

Given the number of comparisons performed, several differences that at first appeared to be significant were not, but others maintained a statistically significant difference. Specifically, the overall score, prevention and treatment and student enforcement varied significantly between these major organizations, with MSBA scoring higher on these policy components (see Figure 1). The effect size for the differences between the organizations on the overall score suggested a major difference.

FIGURE 1

Comparison of Policy Component Scores by Board Affiliation



LEAs were also stratified by "locale" (i.e., urban, suburban, rural). Most LEAs were rural (see Figure 2).

FIGURE 2

Percent of Schools by Locale

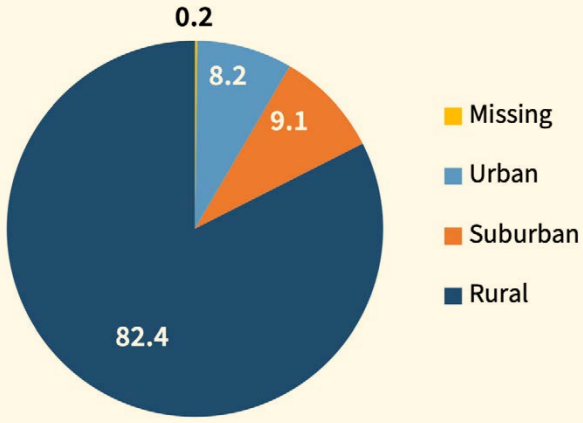
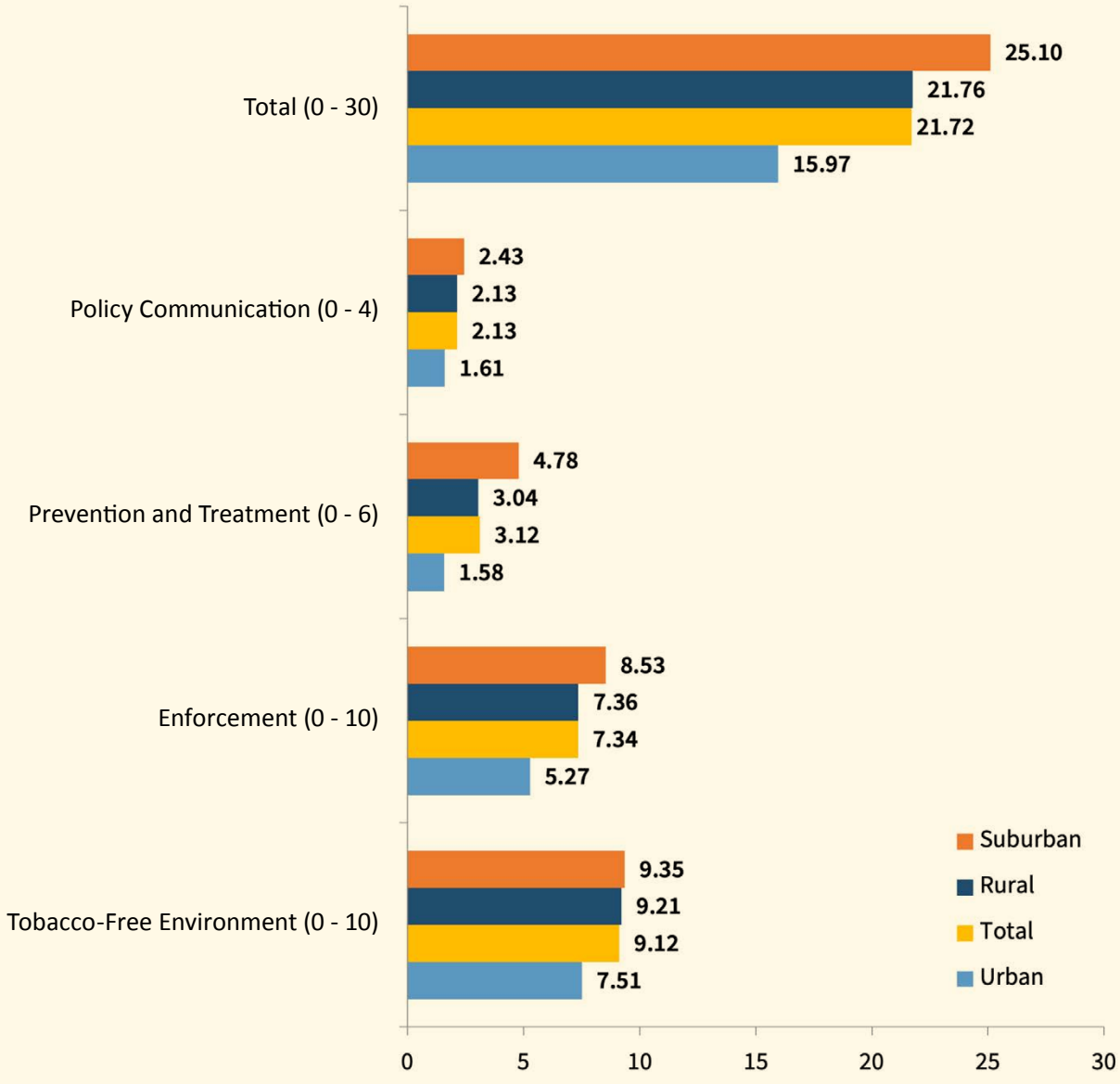


FIGURE 3

Comparison of Policy Component Score by Locale



When MSU examined policy component scores by locale, a pattern emerged. While suburban and rural locales were relatively comparable on component scores and overall score, the urban locale showed consistently lower scores (see Figure 3).

Grouping by Overall Policy Scores

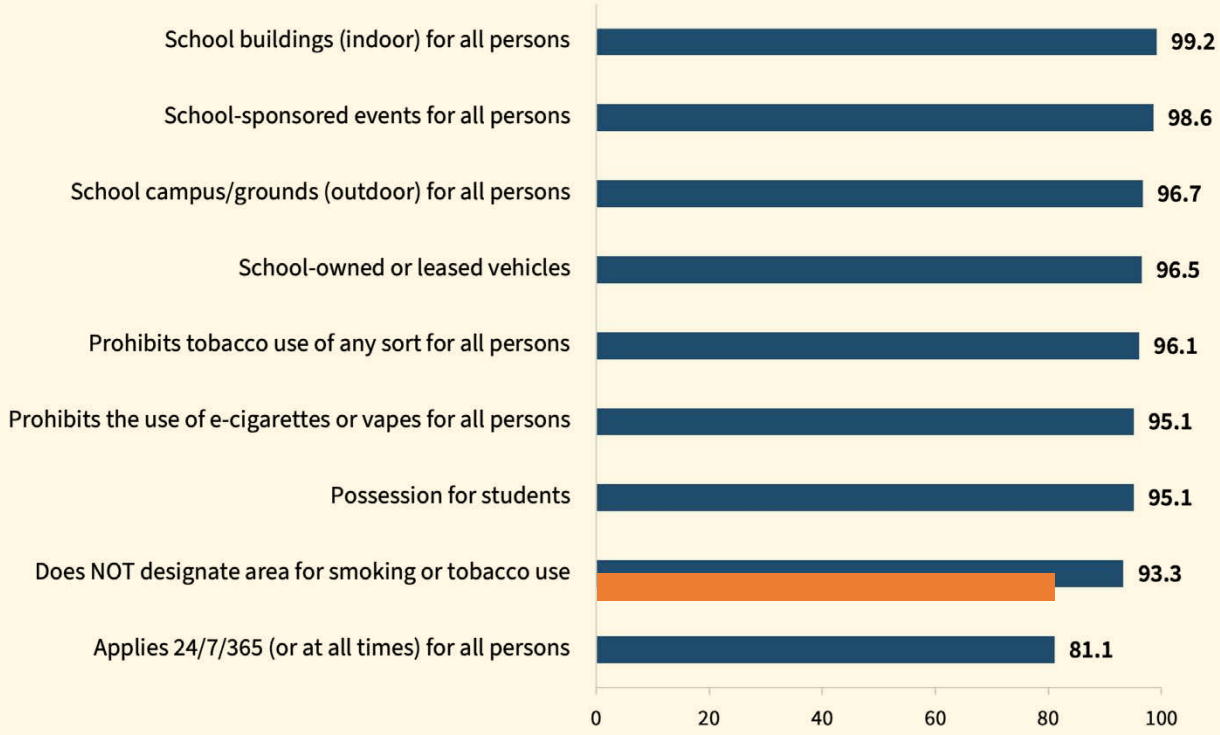
Scores on the overall index theoretically ranged from 0 to 30. Policy scores for districts with a tobacco-free school policy ranged from 3 to 30 for all components of a comprehensive tobacco-free school policy, with an overall mean of 21.72 and a standard deviation of 6.20. Using SPSS, the distribution of overall scores, with multiple LEAs having the same scores, fell into three groupings: the bottom 20% (least comprehensive), the middle 60% (partially comprehensive) and the top 20% (most comprehensive). Given this overall score grouping, in the bottom grouping (the least comprehensive), approximately 26% of LEAs assessed had scores of 16 or less out of 30. In the middle grouping, 41% had scores between 17 and 27. In the top grouping (partially comprehensive), and 33% had scores of 28 or greater. These results show that the largest percentage of LEAs had partially comprehensive policies.

Assessments of Policy Components

When MSU examined the tobacco-free environment component, approximately 86% of evaluated LEAs had scores at or above the 90th percentile. This suggests that the vast majority included most criteria for a tobacco-free environment in their policy. However, only 81% have tobacco-free policy criteria that apply to all persons at all times (see Figure 4).

FIGURE 4

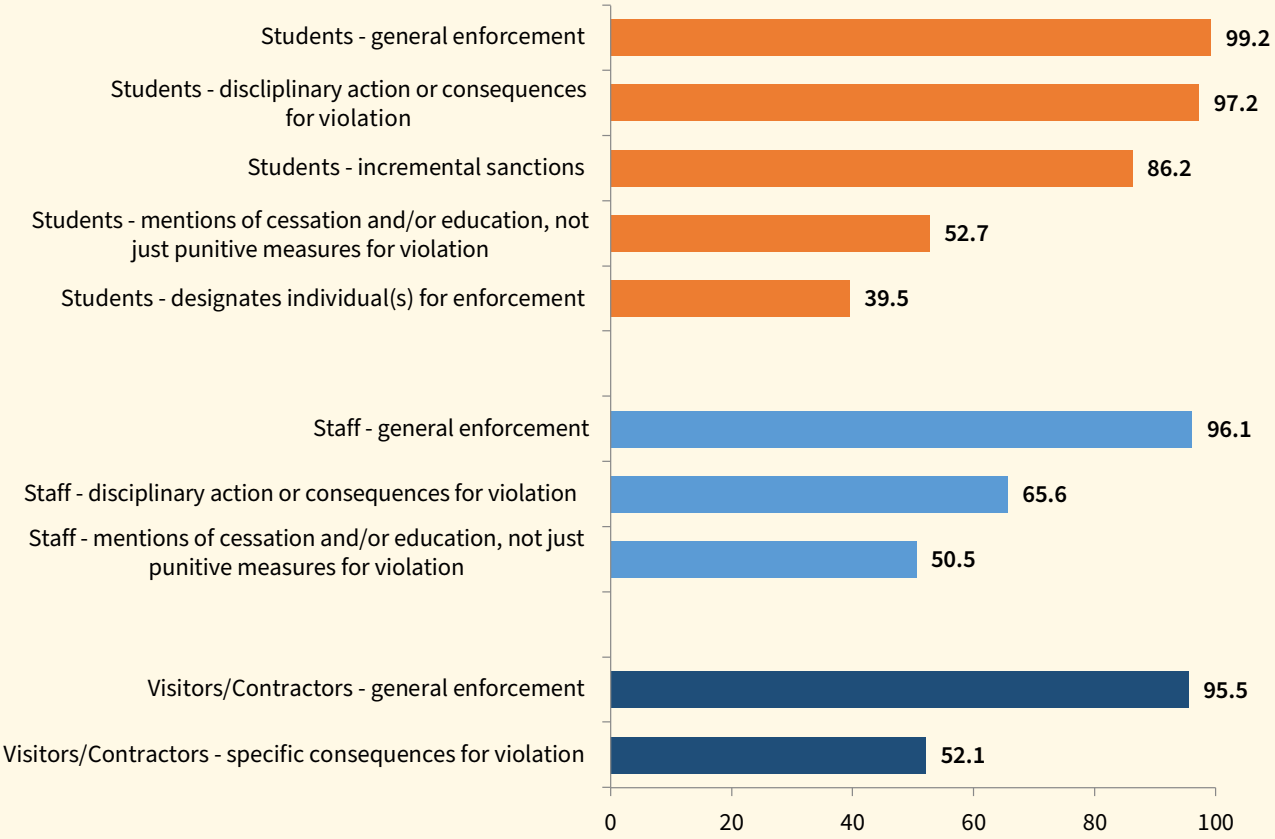
Tobacco-Free Environment Subscale Item Frequency



For the enforcement policy component, general enforcement for policy violations by students was addressed in 99% of policies, staff in 96% and visitors/contractors in 96%. Disciplinary action/consequences for student violations were identified in 97% of policies, and the vast majority (86%) included incremental sanctions for students. However, fewer policies (40%) identified who is responsible for enforcement with students. Many policies only included punitive actions for violations, with 53% outlining education/cessation for students who violate the policy and 51% for staff violations (see Figure 5).

FIGURE 5

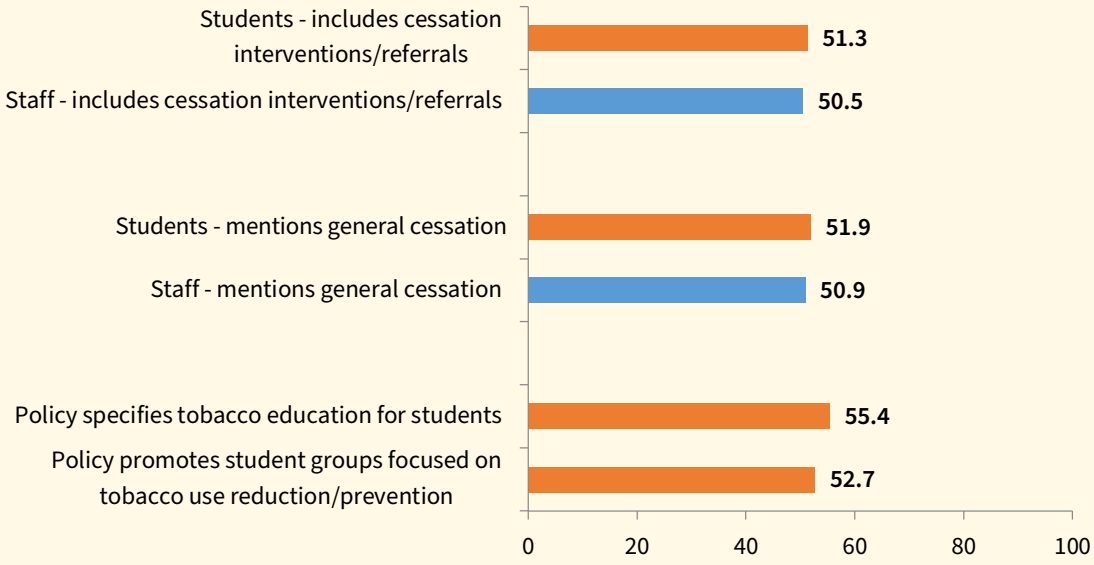
Enforcement Subscale Item Frequency



For the prevention and treatment policy component, approximately half (51%) of school districts' policies included cessation interventions/referrals or mentioned general cessation for students and staff. Additionally, 55% of district policies specified tobacco education for students, and 53% promoted student groups focused on tobacco use reduction or prevention (see Figure 6).

FIGURE 6

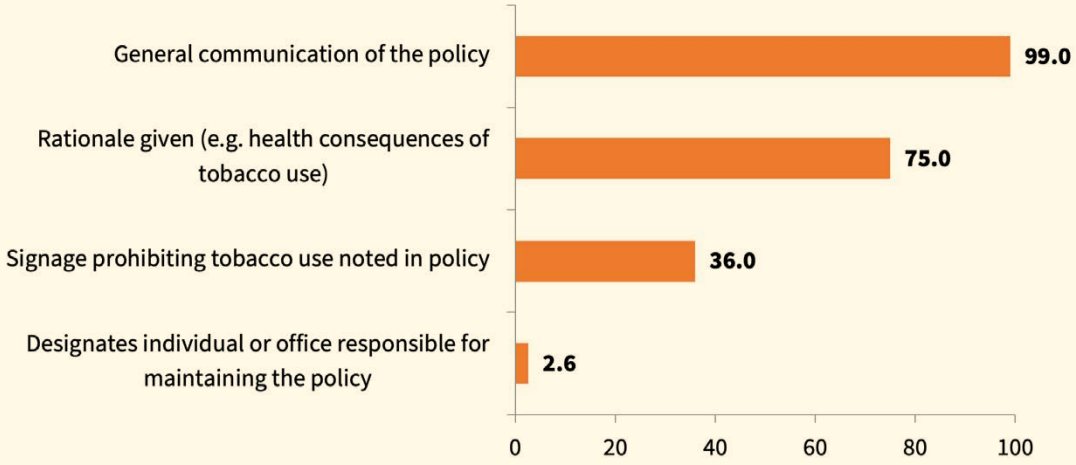
Prevention and Treatment Services Subscale Item Frequency



For the communication policy component, nearly all (99%) school districts' policies included general communication of the policy, and 75% included the policy rationale. However, few district policies (36%) mentioned signage prohibiting tobacco use or had a designated individual or office for maintaining the policy (3%) (see Figure 7).

FIGURE 7

Policy Communication Subscale Item Frequency



Note. All results reflect the percentage that had the specific policy component criteria in their policy out of the entire sample of 559 districts/schools, exclusive of missing data.

2018 to 2021 Comparison

Scale criteria from the previous 2018 Missouri school policy evaluation were used as a guide to select matching criteria from the current tool. While some specific wording may have varied slightly, the criteria contents matched. The figures below present the comparative results.

Comparing 2018 and 2021 assessment results shows Missouri LEAs made gains in most areas. The analysis shows specific policy language that includes all tobacco products and that specifies on-site treatment services for students may have decreased slightly from the previous analysis. Since it is unclear what produced this difference, clarification is needed in the next re-evaluation. Otherwise, most policy components assessed by the 2018 evaluation showed modest to very significant improvements in quality and comprehensiveness, particularly for the tobacco-free environment component (i.e., all persons, all places, all products, all the time), averaging a 22.3 percentage point improvement. LEAs also improved in most areas of the treatment policy component, with an additional 13% adding language about on-site services for staff, and an additional 7% and 17% adding language about off-site services for students and staff, respectively (see Figure 8).

Results for the enforcement component were marginal. For instance, the inclusion of signs around campus appears to have decreased from 73% in 2018 to only 33% in 2021 (see Figure 9). These results are largely due to the lack of consistency between the 2018 and current tool and some item wording differences that made the comparison challenging.

FIGURE 8

Treatment Services Subscale Item Frequency 2018 to 2021 Comparison

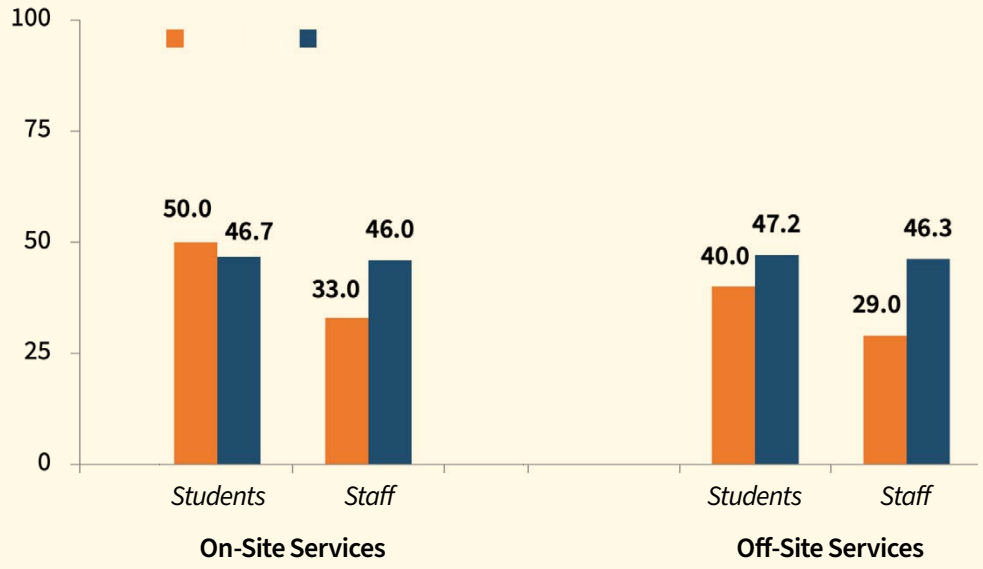


FIGURE 9

Enforcement Subscale Item Frequency, 2018 to 2021 Comparison

Summary

While the assessment team identified significant improvements in several comprehensive tobacco-free school policy components from 2018 to 2021, many Missouri LEAs have policies that were found to contain gaps, especially in the communication, prevention and treatment and enforcement components.

Results reveal opportunities for school districts to strengthen the quality and comprehensiveness of their tobacco-free campus policies. Those who work with Missouri LEAs can use these assessment results to provide specific feedback and support to LEAs about policy gaps and improvements they may want to consider pursuing to achieve comprehensive tobacco-free campus policies, which are effective for preventing and reducing youth tobacco and e-cigarette use when fully and consistently implemented, communicated and enforced.

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Appendix A

School Tobacco Policy Evaluation Tool

District Name: ..... **Date:** ..... **Rater's Initials:** .....

Where was data obtained: .....

MODIFIED SOUTH DAKOTA VERSION (Total Score: .....**)**

TOBACCO-FREE ENVIRONMENT

YES		
		School buildings (indoor) for all persons
		School campus/grounds (outdoor) for all persons
		School-sponsored events for all persons
		School-owned or leased vehicles
		Possession for students
		Applies 24/7/365 (or at all times) for all persons
		Does NOT designate area for smoking/tobacco use
		Identifies prohibited products (including vape, chew, snuff)
		Prohibits tobacco use OF ANY SORT for all persons
		Prohibits the use of e-cigarettes/vapes for all persons

ENFORCEMENT

YES	NO	
		Students - General enforcement
		Students - Disciplinary action or consequences for violation
		Students - Mention of cessation and/or education not just punitive measures for violation
		Students - incremental sanctions
		Students - Designates individual(s) for enforcement
		Staff - General enforcement
		Staff - Disciplinary action or consequences for violation
		Staff - Mention of cessation and/or education not just punitive measures for violation
		Visitors/Contractors - General enforcement
		Visitors/Contractors - Specific consequences for violation

PREVENTION AND TREATMENT SERVICES

YES	NO	
		Students - Mentions general cessation
		Students - Includes cessation interventions/referrals
		Staff - Mentions general cessation
		Staff - Includes cessation interventions/referrals
		Policy promotes student groups focused on tobacco use reduction/prevention
		Policy specifies tobacco education for students

POLICY COMMUNICATION

YES	NO	
		General communication of the policy
		Rationale given (e.g., health consequences of tobacco use)
		Designates individual or office responsible for maintaining the policy
		Signage prohibiting tobacco use noted in policy

MISSOURI DEPARTMENT OF
HEALTH &
SENIOR SERVICES

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Tobacco Prevention and Control Program

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