

**Compliance with the Dr. Ron Davis Smoke-Free Air Law
Among Michigan Hospitality Venues**

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ABSTRACTS

Introduction: Compliance with the smoke free air laws “SFAL” is a critical part of the implementation. The enactment of a SFAL does not automatically result in smoke-free workplaces; unless the compliance levels with the law shows very high percentages.

Methods: A sample size of 964 venues was randomly selected from statewide hospitality venues which include restaurants, bars and bowling alleys. Observational compliance checks were conducted to these venues during three visits over the course of the first year after the implementation of the statewide SFAL. Local Tobacco Reduction Coalitions members observed unobtrusively each venue, and they complete the short survey about measures taken by the owners and observing whether smoking is occurring in the venue. We analyzed the data from these visits according to the three indicators: posting the “No smoking” signs, removing the ashtrays, and any activity of smoking.

Results: We found a very high level of compliance with the SFAL among hospitality venues. The compliance rate after the first year of the implementation was 92% for posting the “No smoking” sign, 97% for removing the ashtrays and other smoking paraphernalia, and 95.6% of the venues have no smoking activities. The difference between the first round as a baseline round with each of the other two rounds was significantly higher for posting the “No smoking” signs (McNemar test $P < .001$) with both rounds

Conclusion: The high level of compliance with the Michigan SFAL indicates that the law is implemented very well and is successfully reducing the secondhand smoke exposure.

INTRODUCTION

Smoking and exposure to secondhand smoke (SHS) is the leading cause of preventable death and cost in the United States (1). There is no risk-free level of exposure to SHS. Even brief exposure has immediate harmful effects on the cardiovascular system that can increase the risk of heart attack (2).

It was estimated that exposure to SHS kills approximately 3,400 adult nonsmokers from lung cancer and 22,700 - 69,600 from heart disease annually in the United States (2). There are more than one billion smokers globally, who can potentially expose all others to SHS (3).

Completely prohibiting smoking in restaurants, bars and worksites is the only effective way to protect nonsmokers from secondhand smoke (2). There is a wealth of research showing the health benefits to entire populations when communities implement comprehensive smoke-free laws which prohibits smoking in public places and worksites including bars and restaurants.

These laws reduce exposure to SHS and improve the health of hospitality workers and the general population by improving indoor air quality, reducing acute myocardial infarctions cases and asthma exacerbations and other diseases.

These outcomes may have more to do with implementation effectiveness than adoption (4,5,6).

Compliance with smoke free air laws is a critical part of the implementation. The enactment of a smoke free law does not automatically result in smoke-free workplaces; and then resulting in reduction of the SHS exposure, unless conducting a statewide educational campaign before and after the law, for the public and for the business owners and managers.

These procedures are very essential to have the community complied with law and will show a high percentages of compliance from both the public and the businesses.

Conducting an observational compliance studies is to assess whether this is the case or not (7).

The state of Michigan enacted the Dr. Ron Davis Smoke Free Air Law in 2009 (Public Act 188) which went into effect on May 1, 2010. The law prohibits smoking in all public places and worksites, including bars and restaurants. The compliance rate assessment component of our state smoke-free air law evaluation studies was selected based upon the Centers for Disease Control and Prevention's Evaluation Toolkit for Smoke-free Policies (2008) (7). The findings of our study provide insight into compliance with Michigan's statewide smoke free law. Our study is unique, in that it is a great collaborative effort with ALL statewide local health departments (LHDs) and it includes a large randomly selected sample of different types of venues from across the state.

METHODS

We used stratified sampling methodology for sample selection. The LHDs in our state have selected randomly, 10 - 20 establishments from their cities in each County they cover. The number of the Counties covered in these observations was 52 out of 83 Counties in Michigan. The same establishment has been visited three times over the course of the first year; at 3, 6 and 12 months after the implementation of the statewide smoke free law i.e. during August 2010, November 2010 and May 2011. The sample size was 964 establishments to start with. Types of the venues selected were restaurants, bars and bowling alleys. Local Tobacco Reduction Coalition members or volunteers observed unobtrusively each venue, three times per the first year and they complete the predesigned short survey about measures taken by the owners that include posting "No smoking" signs in an obvious place and removing ashtrays and other smoking paraphernalia from their venues; and observing whether smoking is occurring in the venue whether in the waiting area, outdoor setting or anywhere in the establishment. These visits

have occurred on either business days or weekends and at different times of the day.

Data were entered into a secured, electronic Excel file and analyzed with SPSS-19 (IBM, New York, NY). We calculated the McNemar test to see if any significant difference existing between the variables in round-2 and 3 compared to round-1 over the time period.

Our study protocol was exempted when submitted to the Michigan Department of Community Health, Institutional Review Board.

RESULTS:

Measures that owners have taken:

We found a high level of compliance with the smoke free law in Michigan, regarding the measures that the owners have taken to comply with the law (posting “No smoking” signs and removing ashtrays and other smoking paraphernalia from their venues). For the purpose of the comparison and since we could not measure the compliance level before the smoke free law went into effect, we will consider the first round (Round-1) of the observation after 3 months of the implementation as a base line data for the compliance with the law; and will use the dataset from the 6 months (Round-2) and first year (Round-3) after the implementation as to which we will compare. Posting of “No smoking Sign” in a visible place was required by the law, in round-1 we found that 84.1% “n=576” of the restaurants, 86% “n= 160” of the bars and 91.4% “n=64” of the bowling alleys owners have posted the sign in their venues. The percentages in round-2 were significantly higher when compared to round-1(McNemar test- P-value =.001). Also we found a significantly higher percentages in round-3 compared to round-1(McNemar test- P-value =.001) as it is shown in Table-1.

The second requirement that the owner should take is to remove the ashtrays and any other

smoking paraphernalia from their venues, and here we also found a high percentage of owners complying with the law. In round-1, we could not find any of these smoking paraphernalia in 98.5% “n=669” of the restaurants, 93.5% “n= 172” of the bars and 97% “n=69” of the bowling alleys. Similar high percentages were found in round-2 and round-3, and the difference was not significant (McNemar test- P-value =.065 between round-1 and 2, and (McNemar test- P-value =.314) between round-1 and 3 as it is shown in table -2.

Measures that the public and the employees have taken:

Regarding patrons and employees refraining from smoking inside the venue, we observed smoking activity in the waiting area if existing, in outdoor seating if existing and anywhere in the venue. In the waiting area, we found that smoking was observed in 5.2% “n=22” of the restaurants, 7.1% “n= 6” of the bars and none in the bowling alleys. Similar low percentages were found in round-2 and round-3, and the differences were not significant when using McNemar test as it is shown in table -3.

In outdoor seating, we found active smoking in more venues than inside the venues, in 9.3% “n=26” of the restaurants, 15.1% “n= 13” of the bars and 9.5% “n=2” of the bowling alleys in round-1, a relatively lower percentages were found in round-2 and round-3, but the differences were not significant when using McNemar test as it is shown in table -4.

We also observed smoking activity anywhere in the venues (including the waiting and the outdoor seating), and found in round-1 that 7.4% “n=52” of all the restaurants, 11.1% “n= 21” of all the bars and 4.2% “n=3” of all the bowling alleys have active smoking somewhere in the venue, The percentages in round-2 were significantly lower than round-1 (McNemar test- P-value =.001). Also we found a significantly lower percentages in round-3 compared to round-1 (McNemar test- P-value =.005) as it is shown in table -5.

DISCUSSION:

This study was conducted to assess the compliance level of the food establishments with the smoke free air law in Michigan.

We trained all the volunteers on how to conduct the observation in a way that the owners or the managers of these venues will not recognize that their venues were observed so we can eliminate the bias of the prescheduled visits and allowing the owners to prepare themselves for the visit. The compliance rate in our study is considered high, and it is similar to the compliance rate in New York State after the implementation of the statewide smoke free law in 2003(8).

The same high compliance rate also found in New York City after one year of the law in 2004(9). In California, a statewide smoke free law took effect in 1998, a study found increasing trend of compliance with the first 4 years of the law (10).

In Ireland, a national smoke free law took effect in 2004; after one year a telephone survey found a significant decrease in observed smoking in restaurants and pubs (11).

This high level of compliance which is the most significant factor in protecting the health of the employees and the public was the result of the great collaboration between the state tobacco control program and the (LHDs). The training activities were preplanned before the implementation of the smoke free air law. The state tobacco control program trained all the LHDs through frequent regional workshops all over the state. The LHDs were very successful in educating their communities; and conducted many workshops in different community venues to increase the public awareness about the smoke free law, they also targeted and educated the businesses in their geographical areas which are regulated and covered by the law.

WHAT THIS PAPER ADDS:

Our paper will add strong evidence to the literature about the successful implementation of the smoke free policy and how the people like and support it by complying with law. This has resulted in our very high compliance rate with the law without any significant enforcement procedures among the hospitality venues.

CONCLUSIONS:

The key to successful implementation and high compliance of a statewide smoke-free law is not a strong enforcement rules but public education and awareness,. These results were achieved because of the many educational campaigns that have educated the public and the business owners and managers about the smoke-free law before and shortly after the implementation of the law.

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COMPETING INTERESTS:

There were no competing interests associated with this study.

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Table 1: Posting “No smoking” signs in the venues

Round of the observation	(No Smoking) signs are posted				McNemar test
	Restaurant % (N)	Bar % (N)	Bowling % (N)	Total % (N)	P-value
Round-1 (After 3 months)	84.1(576)	86 (160)	91.4(64)	85 (800)	-
Round-2 (After 6 months)	90.8(565)	93.5(158)	97 (64)	91.8(787)	.000 a
Round-3 (After 1 year)	91.2(570)	94.1(160)	92.3(60)	91.9(790)	.000 b

a McNemar test between Round-1 and Round-2

b McNemar test between Round-1 and Round-3

Table 2: Ashtrays are not found in the venues

Round of the observation	Ashtrays are removed				McNemar test
	Restaurant % (N)	Bar % (N)	Bowling % (N)	Total % (N)	P-value
Round-1 (After 3 months)	98.5(669)	93.5(172)	97(69)	95.8(910)	—
Round-2 (After 6 months)	98.5 (610)	93.5 (158)	97 (65)	97.4(833)	.065a
Round-3 (After 1 year)	97.9 (612)	93.5 (159)	95.4(62)	97 (833)	.314b

a McNemar test between Round-1 and Round-2

b McNemar test between Round-1 and Round-3

Table 3: Smoking observed in the “waiting area” of the venues

Round of the observation	Smoking observed In the waiting area				McNemar test
	Restaurant % (N)	Bar % (N)	Bowling % (N)	Total % (N)	P-value
Round-1 (After 3 months)	5.2 (22)	7.1 (6)	0 (0)	5 (28)	—
Round-2 (After 6 months)	3.1 (11)	1.5 (1)	2.6 (1)	2.8 (13)	.108a
Round-3 (After 1 year)	3.4 (13)	1.4 (1)	5.1 (2)	3.3 (16)	.442b

a McNemar test between Round-1 and Round-2

b McNemar test between Round-1 and Round-3

Table 4: Smoking observed in the outdoor seating of the venues

<i>Round of the observation</i>	<i>Smoking observed In the outdoor seating</i>				<i>McNemar test P-value</i>
	<i>Restaurant % (N)</i>	<i>Bar % (N)</i>	<i>Bowling % (N)</i>	<i>Total % (N)</i>	
Round-1 (After 3 months)	9.3 (26)	15.1 (13)	9.5 (2)	10.6 (41)	—
Round-2 (After 6 months)	1.7 (3)	8.5 (5)	0 (0)	3.2 (8)	.267a
Round-3 (After 1 year)	6.4 (15)	8.7 (6)	16.7 (3)	7.5 (24)	.648b

a McNemar test between Round-1 and Round-2

b McNemar test between Round-1 and Round-3

Table 5: Smoking observed “anywhere” in the venue

Round of the observation	Smoking observed by patrons and/or employee anywhere in the venue				McNemar test P-value
	Restaurant % (N)	Bar % (N)	Bowling % (N)	Total % (N)	
Round-1 (After 3 months)	7.4 (52)	11.1 (21)	4.2 (3)	7.9 (76)	-
Round-2 (After 6 months)	2.4 (15)	5.9 (10)	1.5 (1)	3 (26)	.000a
Round-3 (After 1 year)	4 (25)	5.9 (10)	4.6 (3)	4.4 (38)	.005b

a McNemar test between Round-1 and Round-2

b McNemar test between Round-1 and Round-3