

## CDC-Site Visit

July 21, 2011

### Evaluation Components for the Dr. Ron Davis Smoke Free Air Law in Michigan

Based upon the “Evaluation Toolkit for Smoke-Free Polices-CDC” the TCP has selected all recommended components to evaluate Michigan’s smoke free law (SFL)

#### 1. Public Support:

This study was conducted after passing the law in a survey design before and after the implementation of the SFL. The first survey was conducted during March and April, 2010 (2 months before the implementation) while the second survey was conducted during August and September 2010. Summary of the results are in table-1

*Table 1: Public Opinion results*

Results	Sample size (n)	Current smokers	Aware of the SHS health effect	Support the law	Go out to eat-behavior change		
					Go more	Go less	same
Before the law	<b>10,030</b>	20.8%	88.1%	75.3%	36.7%	10.6%	52.8%
After the law	<b>6,988</b>	24.5%	86.3%	73.3%	30%	14%	55.9%

#### 2. Compliance Level

##### a) Observational Compliance Checks :

To assess the level of compliance with statewide smoke free air law, we trained the local coalitions to select a random sample of the hospitality venues from each county stratified by geographical areas (cities) and type of venues (restaurants, bars, and bowling alleys), to visit the same venues in unobtrusive observations. Summary of the findings are in table -2

*Table 2: Compliance level by owners’ measures, public and employee behaviors*

Rounds of the observation	Sample size				Measures that owners have taken		Smoking observed by patrons and/or employee		
	Restaur-ant	Bar	Bow ling	Total (N)	Posting (No Smok-ing) signs	No ashtrays observed	In the waiting area	In the outdoor seating	Anywhere in the venue
After 3 months	704	189	71	<b>964</b>	85%	95.8%	5%	10.4%	7.9%
After 6 months	772	200	86	<b>1058</b>	88.2%	97.1%	2.7%	4.4%	3%
After 1 year	800	250	83	<b>1133</b>	86.7%	96.9%	3.2%	5.2%	3.9%

b) Enforcement agency records for complaints:

Complaints from all local health departments were collected after 1 year of implementation as shown in table-3

**Table 3: Number of complaints received by the local enforcing agencies about violations of the smoke free law for the first year**

<i>Type of proved complaints for the first year from statewide enforcing agencies</i>					
<i>Violations</i>		<i>Citations</i>		<i>Cease Order</i>	
<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
1132	3%	101	0.27 %	5	0.01%

c) Violations during periodic inspections to food establishments

This study is still in the process pending data organization and collection. It is a collaborative work with the MDA.

**3. Air Quality Monitoring**

Purpose: To measure changes in the air quality (level of Particulate Matter-PM<sub>2.5</sub>) in hospitality venues before and after the law

- All the 6 geographical regions of MI were represented.
- 14 sites (in 14 cities) as mentioned below; including the three Casinos in the City of Detroit ( which were exempted from the law) where pre-law data was collected for them
- Pre-Law data were collected between 2005 and 2008
- Six of the same restaurants from each site were monitored post-law( total of about 80 venues)
- Results: the average percent reduction in median PM<sub>2.5</sub> for each city is as follow:
  - (1) Ann Arbor, by **87%**
  - (2) Detroit, by **93%**
  - (3) Flint, by **92%**
  - (4) Grand Rapids, by **92%**
  - (5) Kalamazoo, by **91.2%**
  - (6) Lansing/East Lansing, by **91%**
  - (7) Marquette, by **96%**
  - (8) Midland, by **96%**
  - (9) Novi, pending (data were incorrectly entered)
  - (10) Saginaw, by **98%**
  - (11) Sault Ste. Marie, by **94%**
  - (12) Traverse City, by **89%**
  - (13) West Branch, by **88%**
  - (14) Casinos in the City of Detroit; pre-law median PM<sub>2.5</sub> was 92.1 µg/m<sup>3</sup> and post law is 82.9 µg/m<sup>3</sup> and both are in the “**unhealthy**” zone

#### 4. Secondhand Smoke Exposure and Employee Health

Purpose: To determine the differences in exposure to secondhand smoke and reported respiratory and general health among bar employees in MI before and after the implementation of the smoke-free air law. Forty adult nonsmoker bar employees, from 11 areas in MI participated in the study.

**(a) Cotinine**

There was a *significant decrease* in mean cotinine levels among the participants before ( $M = 35.92$ ) and after ( $M = 0$ ) the smoke-free law went into effect ( $t = 13.043, df = 39, p < .001$ ).

**(b) NNAL**

There was a *significant decrease* in mean NNAL levels among the participants before ( $M = .086$ ) and after ( $M = .034$ ) the smoke-free law went into effect ( $t = 4.477, df = 35, p < .001$ ).

**(c) Self reported “Respiratory and General Health Status”**

The results also demonstrated a *significant improvement* in reported general health status on a scale from 1 = “Worst” to 10 = “Best”, before ( $M = 7.20$ ) and after the law went into effect ( $M = 8.23$ ), ( $t = -5.272, df = 39, p < .001$ ). There was also a significant decrease in six reported respiratory symptoms before and after the smoke-free law went into effect as summarized in table -4

*Table 4: Self reported respiratory symptoms (pre-law compared to post-law)*

Respiratory Symptom	Pre-law Mean (1=Not Present, 5= Severe)	Post-law Mean (1=Not Present, 5= Severe)	Paired-samples t-test results
Allergic symptoms	2.50	1.55	$t = 5.538, df = 39, p < .001$
Wheezing	1.33	1.15	$t = 2.014, df = 39, p = .051$
Shortness of breath	1.69	1.38	$t = 2.226, df = 38, p = .032$
Phlegm production	1.79	1.44	$t = 2.483, df = 38, p = .018$
Day time cough	1.48	1.18	$t = 2.504, df = 39, p = .017$
Morning cough	1.55	1.13	$t = 3.185, df = 39, p = .003$

#### 5. Economic Impact

a) Business owners survey

The study was conducted on October 2010, to assess the owner’s perceptions about their businesses (no adjustment to economy or seasonal situations was made). Sample was selected from Local Health Departments, and data were collected from 557 food establishments in 54 Counties.

Summary of the results are in table -5

**Table 5: Business’s owner’s survey study (October-2010)**

Sample size				Financial change			Employment-change			Patron’s change		
<i>Resta urant</i>	<i>Bar</i>	<i>other</i>	<i>Total (N)</i>	<i>+ve</i>	<i>same</i>	<i>-ve</i>	<i>+ve</i>	<i>same</i>	<i>-ve</i>	<i>+ve</i>	<i>same</i>	<i>-ve</i>
428	99	28	<b>557</b>	18%	41%	41%	10%	74%	16%	17%	43%	40%

*b) Public Opinion survey about “going out to eat” behavior change*

Summary in table-6

**Table 6: Public Opinion regarding going out to eat after the implementation of the smoke free law.**

<i>Results</i>	<i>Sample size (n)</i>	<i>Have you gone out to eat more often since the SFlaw?</i>		
		<i>More often</i>	<i>Same</i>	<i>Less often</i>
Post -law	<b>6,988</b>	30%	55.9%	14%

*c) Economic impact “taxable retail sales”*

✓ Pending available data for full calendar year of 2011 and for the at least 3 years before SFL in order to adjust for other factors that effect the outcomes of interest.

✓ Also we are seeking an economist-researcher from one of the universities in MI

**6. Heart Study** – In process

Study Team members are comprised from different bureaus and Michigan State University.

- 1) The title will be “Hospital Admissions for Acute Myocardial Infarction (AMI) One Year after Implementation of the Dr. Ron Davis Smoke-Free Air Law in Michigan”.
- 2) IRB of MDCH has approved the study protocol.
- 3) The data source is hospital discharges occurring between Jan. 1, 2007 and June 30, 2011.
- 4) The study will assess AMI discharge rates occurring before and after the May 1, 2010 implementation of the Dr. Ron Davis Smoke-Free Air Law.

**7. Health Impact on asthma:**

Pending planning meetings and protocol development.