

Impaired Driving Enforcement Programs

Evaluating Their Effect on Alcohol-Related Casualty Collisions in Saskatchewan

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1. Background

2. The Programs – EOD and RID

3. Analysis

- **Study objectives and data**
- **Methodology and challenges**

4. Results

- **Policy implications**
- **Considerations for future evaluation**


Drinking and Driving in Saskatchewan

- **Alcohol impairment has consistently been one of the top contributing factors in serious collisions in Saskatchewan.**
- **Since the early 90's, Saskatchewan has led the nation in per-capita alcohol-related (AR) traffic casualties.**
- **On average, 59 people are killed and more than 700 injured in AR collisions every year in the province.**
- **Research has shown that perceived risk of apprehension is more important than severity of punishment as a deterrent factor.**
- **Therefore, in addition to strong sanctions, sustained and highly visible enforcement is necessary to reduce impaired driving behaviour.**

Consequences

- **New drivers are subject to zero BAC tolerance.**
- **For experienced drivers, administrative sanctions at 0.04 BAC, Criminal Code charges at 0.08 BAC.**
- **Sanctions escalate upon subsequent offences.**
- **Immediate roadside licence suspension, vehicle impoundment, financial penalties, alcohol and drug education programs, ignition interlock...**
- **With changes to traffic safety legislation in 2014, drug-impaired drivers now face the same consequences as alcohol-impaired drivers.**

ENFORCEMENT

 **OVERDRIVE**

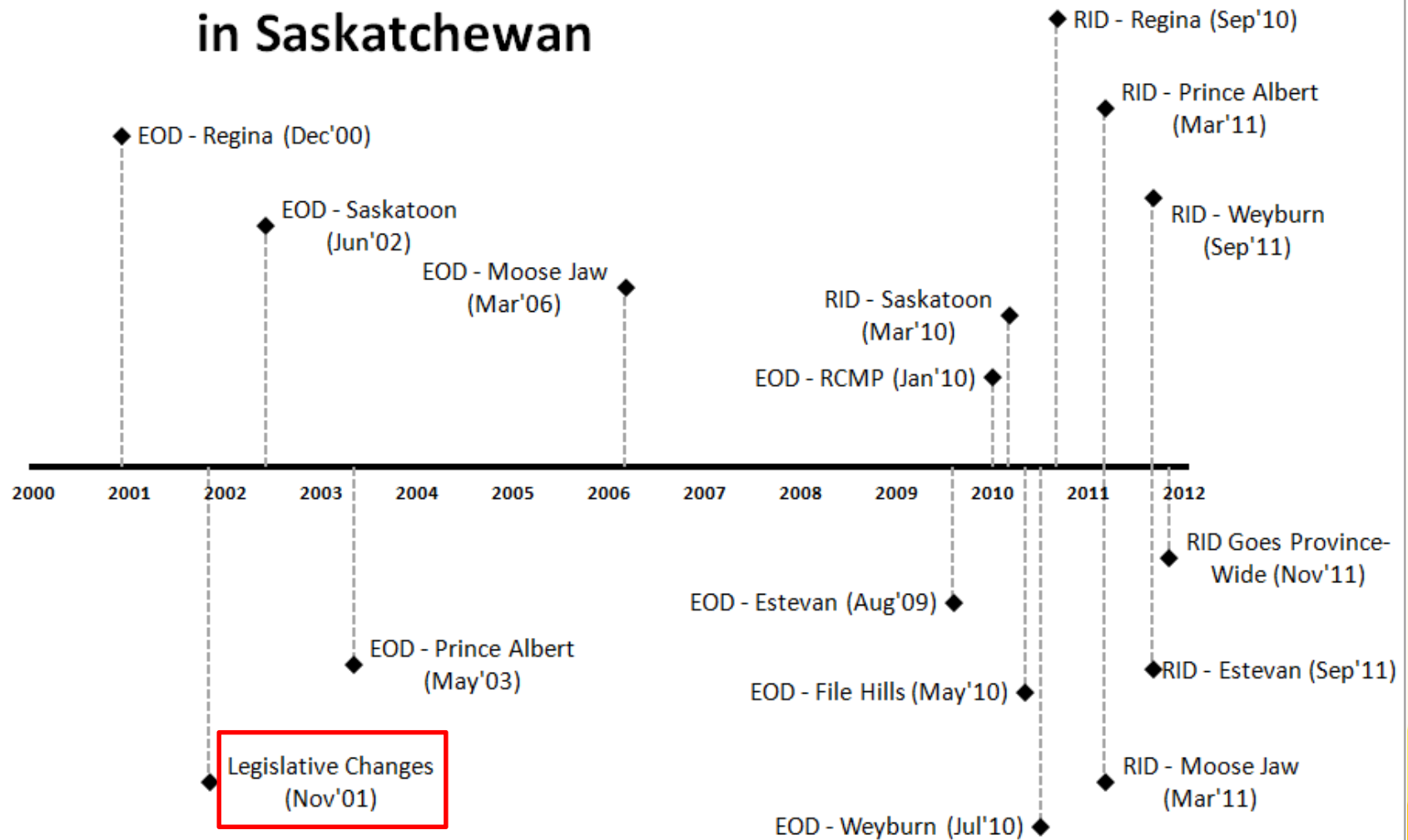
If you drink and drive,
you *will* get caught.

- Implemented in Regina in late 2000, expanded to other communities over the next ten years.
- Operation of stationary checkstops with the primary goal of detecting and apprehending impaired drivers.
- Focus was broadened in 2011 to include both targeted mobile patrols and stationary checkstops.



- **Piloted in Saskatoon in 2010, expanded to other communities over the next few years.**
- **Citizens are encouraged to call 911 and report drivers they suspect are impaired.**
- **Police attempt to locate the vehicle, a warning letter is sent if it isn't intercepted.**

Impaired Driving Enforcement in Saskatchewan



Objective

Evaluate the long-term impact of Enforcement Overdrive and Report Impaired Drivers on AR casualty collisions in Saskatchewan communities.

Specifically:

- **Determine the number of collisions prevented; and,**
- **Estimate the return on investment for funding these programs.**

Study Data

- **AR casualty collision data from 1997 to 2012**
- **Licensed driver counts**
- **Population, unemployment rate**
- **Data was grouped on a monthly basis for six main communities (Regina, Saskatoon, Prince Albert, Moose Jaw, Estevan, Weyburn)**
- **Indicators for months with an extra Saturday and presence of each enforcement program**

Methodology

Intervention Analysis:

- **Negative binomial regression with GEE**
- **Examine the effects of multiple interventions with different implementation dates in separate cities**

Cost-Benefit Analysis:

- **Modified cash flow method**
- **Collision reduction estimated using NB model**

Intervention Analysis

Factor	Levels		Description
City	1 – Regina*	4 – Moose Jaw	Location
	2 – Saskatoon	5 – Estevan	
	3 – Prince Albert	6 – Weyburn	
Month	1 – January*	7 – July	Observation month
	2 – February	8 – August	
	3 – March	9 – September	
	4 – April	10 – October	
	5 – May	11 – November	
	6 – June	12 – December	
Extra Saturday	Yes, No		Indicator for months which contain a fifth Saturday
Unemployment Rate			Labour Force Survey estimate for Saskatchewan
Legislative Changes	Yes, No		Presence or absence of legislative changes
EOD Program	Yes, No		Presence or absence of EOD program
RID Program	Yes, No		Presence or absence of RID program

(Partial) Model Output

Parameter	Estimate	Standard Error	95% Confidence Interval	Z Score	P-value
Intercept	- 2.9578	0.1001	-3.1540 to -2.7616	-29.55	<0.0001
Extra Saturday	0.0933	0.0391	0.0165 to 0.1700	2.38	0.0172
EOD Program	- 0.1927	0.0418	-0.2746 to -0.1109	-4.62	<0.0001
RID Program	- 0.2149	0.0526	-0.3181 to -0.1118	-4.08	<0.0001

Interpretation

- **Decrease of 18 per cent in the rate of AR casualty collisions associated with EOD.**
- **In the six communities under study, an estimated 379 AR casualty collisions were prevented through EOD.**
- **RID associated with a decrease of 19 per cent in the rate of AR casualty collisions.**
- **An additional estimated 79 AR casualty collisions prevented by RID.**
- **Collision reductions were more substantial in larger communities.**

Cost Benefit Analysis

- **NB model was used to estimate collision counts for each community...no program in effect, EOD only, EOD and RID.**
- **Benefits reflect estimated collision savings based on average collision cost.**
- **Costs include funding for overtime, sign installation, promotional materials, advertising, etc.**

Cost Benefit Analysis - EOD

City	Costs	Benefits	Benefit-Cost Ratio
Regina	\$766,121	\$6,104,405	7.97 to 1
Saskatoon	\$697,690	\$3,345,547	4.80 to 1
Prince Albert	\$327,000	\$658,049	2.01 to 1
Moose Jaw	\$261,200	\$382,849	1.47 to 1
Estevan	\$128,000	\$91,317	0.71 to 1
Weyburn	\$93,000	\$91,317	0.98 to 1
TOTAL	\$2,273,011	\$10,673,484	4.70 to 1

Cost Benefit Analysis - RID

Year	Costs	Benefits	Benefit-Cost Ratio
2010	\$87,315	\$447,960	5.13 to 1
2011	\$224,470	\$949,034	4.23 to 1
2012	\$79,866	\$1,017,687	12.74 to 1
TOTAL	\$391,651	\$2,414,681	6.17 to 1

Conclusions

- **Study has produced positive results, both EOD and RID are associated with decreases in AR casualty collisions.**
 - EOD – 18 percent reduction, 379 collisions prevented**
 - RID – 19 per cent reduction, 79 collisions prevented**
- **Legislative changes were not significant at the community level, but this is likely due to the specific and localized nature of the analysis.**
- **Unemployment rate was also not significant, may have been a limitation of the data.**

Recommendations

- 1. Continue funding EOD in Regina and Saskatoon;**
- 2. Re-evaluate the EOD strategy for smaller cities and rural areas;**
- 3. Continue RID program with a focus on ongoing awareness; and,**
- 4. Establish consistent data collection requirements from law enforcement agencies.**

Questions?



Thank You!