VALIDATION OF ORAL SCREENING DEVICES FOR DRUG-IMPAIRED DRIVING

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CARSP
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Road Safety
It starts with you

Ontario

OVERVIEW

- Issue
- Objective: Drug Screening Devices
- Partnership with RCMP/CSFS
- Drug Screening Devices
- Methodology
- Timeline
- Field Work
- Operational Considerations
- Roadside Drug and Alcohol Survey

ISSUE

- Drug-impaired driving is becoming as significant a problem as alcohol-impaired driving
- Drug-impaired driving is different and more complex than drinking and driving
  - Many drugs, different effects on driving (dose/response)
  - No roadside screening device or "approved instrument" as in case of alcohol

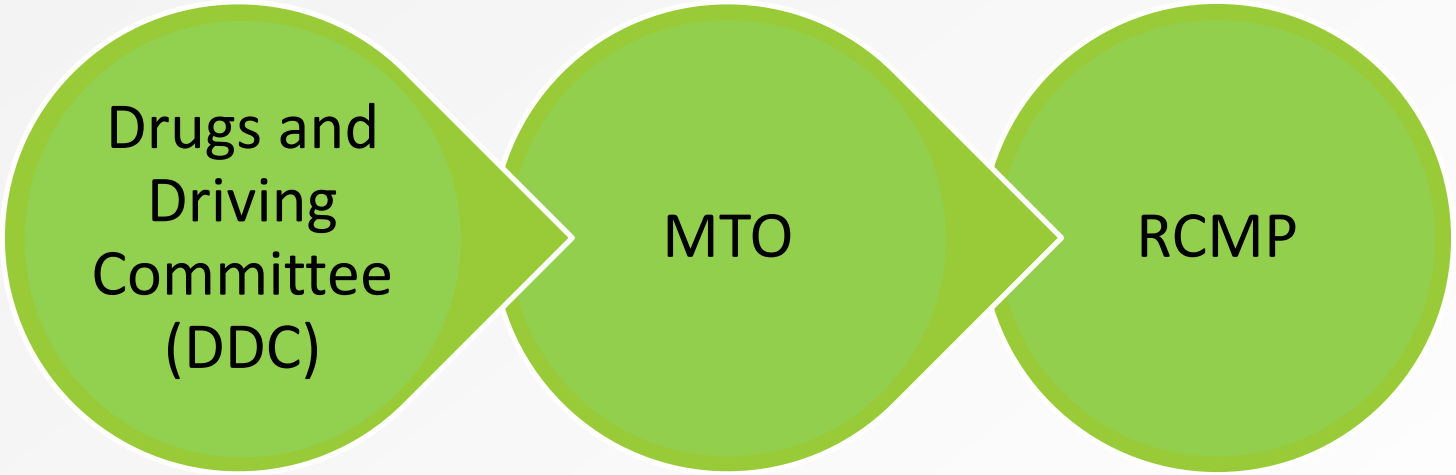
Recorded Occurrence of Driver Condition in Drivers Killed (ORSAR Table 2.7)

	2010	2011	2012
Had Been Drinking or Alcohol-impaired	117	83	101
Drug-impaired (Increased drug testing of drivers killed began in February 2011)	3	57	65
Inattentive	24	23	18
Medical/Mobility impairment	15	27	6
Fatigue	9	7	9

OBJECTIVE: DRUG SCREENING DEVICES

- Since 2009: Growing body of research shows improvements in technology
- MTO has provided funding to help speed up the work of testing screening devices for roadside drug testing
- Research project--results will allow standards to be established to determine the accuracy and reliability of devices

Partnership/Main Players



- Established by Canadian society of forensic science.
- Will lead data collection and analysis.
- Will develop standards and final report.

- Contributed $100k in funding
- Will provide support to project staff as needed

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- Provided senior staff in-kind to work on project

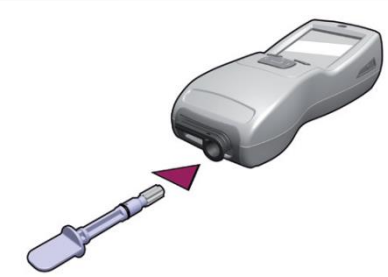
DRUG SCREENING DEVICES

- Alere DDS 2

- A: Insert test cartridge into analyser

- B: Collect oral fluid sample

- C: Insert collection device into test cartridge



DRUG SCREENING DEVICES

- Securetec DrugWipe 6S

- A: Separate two parts of tester

- B: Swipe down the tongue

- C: Re-connect two parts

- D: Insert into reader

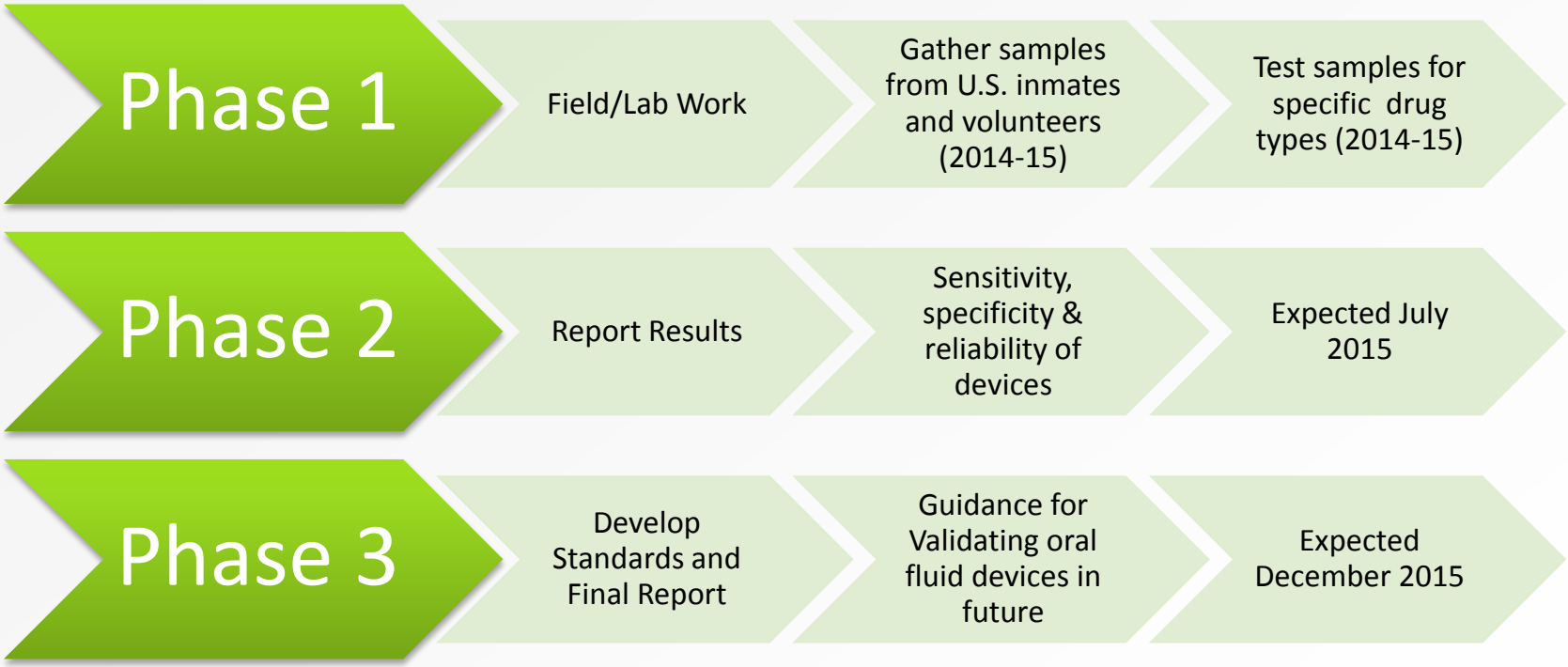
DRUG SCREENING DEVICES

- Dräger DrugTest 5000

- A: Test Kit: a ready-to-use test cassette with a built-in sample collector and volume adequacy indicator.

- B: Analyzer: a rechargeable, fully automated analyzer providing controlled accurate analysis on site

METHODOLOGY



TIMELINE

March 2014	• MTO provided $100k to match funding from RCMP
March 2014 –June 2015	• Collect 600 samples from inmates and test 4000 lab samples
July 2015	• Report on Phase 1 • Focus group testing with law enforcement
Dec 2015	• Draft standards and final report

Field Work

- D'Arcy Smith (RCMP, CSFS) has done data collection (biological samples) primarily in Phoenix and Jacksonville (Florida)
- Locations pre-arranged as sites for DRE training and certification.
  - Tests done on all subjects who are available, and agree to participate. Suspected or known to have drugs on board
- In some cases D'Arcy has had to make additional arrangements to find promising sites—especially for benzodiapines
- Samples tested on site, as recommended by manufacturers; then sent to a lab for independent verification

Field Work Details

- Each device tests for 6 panels of drug types
  - Needed: 600 samples; 170-180 subjects
  - As of May 6, 2015 the number of subjects tested are: 219 (Alere), 210 (Securetec) and 172 (Drager) (includes 'known' Negatives)
  - This has yielded just over 700 results: 256 results (Alere), 235 results (Securetec) and 211 results (Drager) (more than one drug from some samples) with a further 30 or so samples still awaiting analysis as of May 10, 2015

Spring 2015

- Issues include: moving supplies across U.S. border, finding human subjects with "benzos," access to a working Drager device, groups canceling scheduled events.
- Field work is now essentially complete and will be turned over for statistical analysis.
- Lab work in Halifax: work underway
- Even with logistical difficulties, only a slight delay
  - Results look promising, devices are generally working well

Sensitivity/Specificity

- In the field, 30% "negative" results—threshold at which machine records "positive" often too high for the drugs people have in them.
  - False negatives (checking against lab): devices are set at a pre-determined level for each drug; for cannabis it might be 4 or 5 nanograms; lab can detect much lower levels
- 1% to 3% "false positives" (checking against lab):
  - Sometimes lab checks for 8 opiates, device picks up one not included in 8
- Machines not achieving sens/spec as advertised; special artificial saliva, etc.

Operational Considerations

- Possible use
  - Initial screen if driver seems impaired but not by alcohol
  - Supplement to Standard Field Sobriety Test (SFST) (at roadside), Drug Recognition Expert (DRE) Evaluation (at station)
- Cannot replace DRE, or even SFST (at this time)
  - Most useful in rural areas, no office with DRE training?
  - Can reduce load on DRE officers
- Will always test for a limited panel of drugs vs. designer drugs, etc.

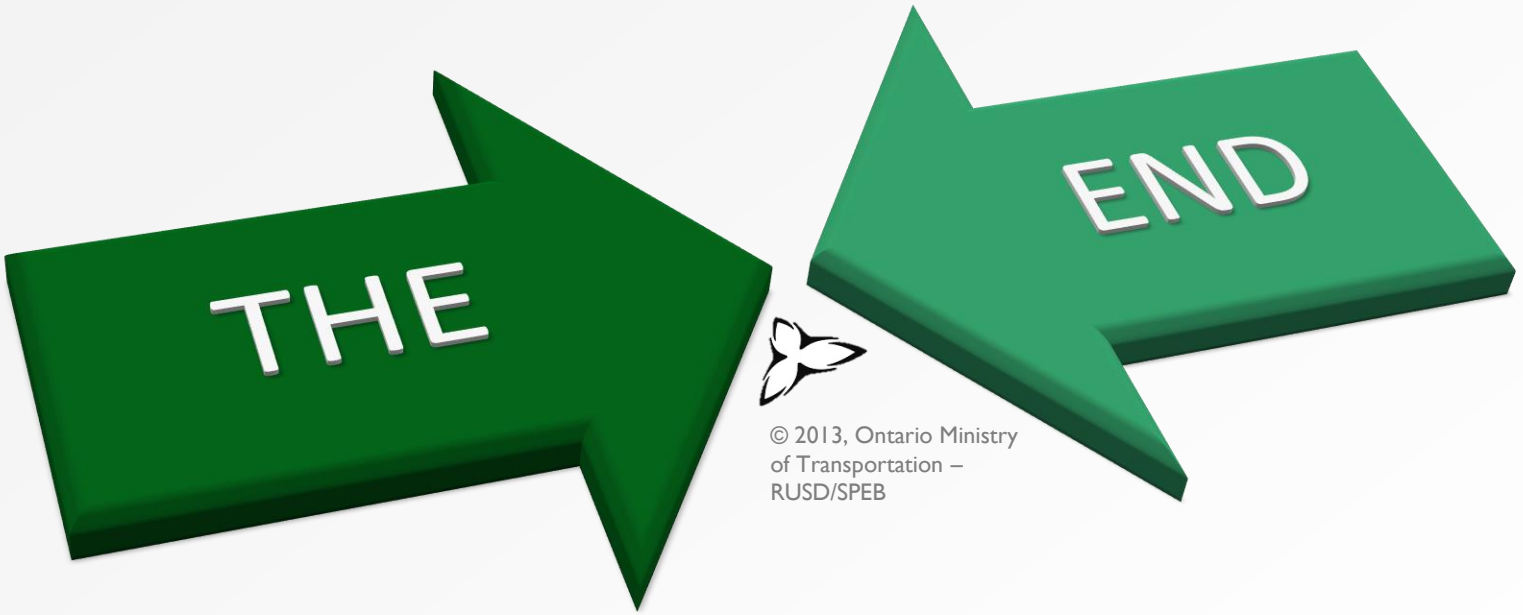
NEXT STEPS

- Discussions at the federal level: Criminal Code
- Discussions with police, other road safety stakeholders

ROADSIDE DRUG/ALCOHOL SURVEY: FINAL REPORT

Driver age groups	Positive for alcohol	Positive for drugs
16-18	0	6.6% (all cannabis)
19-24	3.4%	21%
25-34	6.6%	13.9%
35-44	6.5%	10.0%

- Males/females equally likely to test positive for drugs but: males more cannabis, females more opioids
- More cannabis among younger drivers; opioids and stimulants among older



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