# Evaluation of OBDII I/M Programs

Sandeep Kishan
Timothy H. DeFries
Eastern Research Group, Inc.

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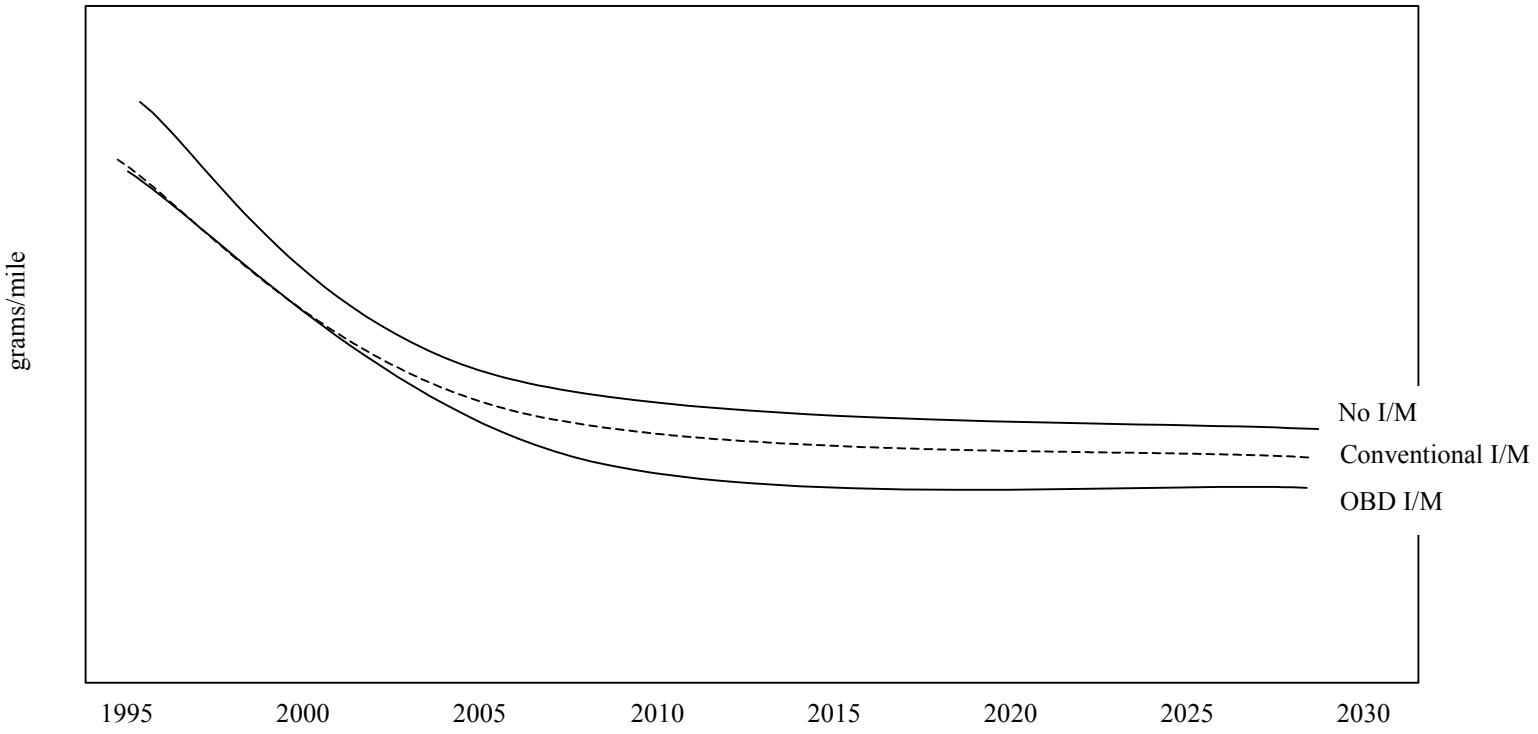
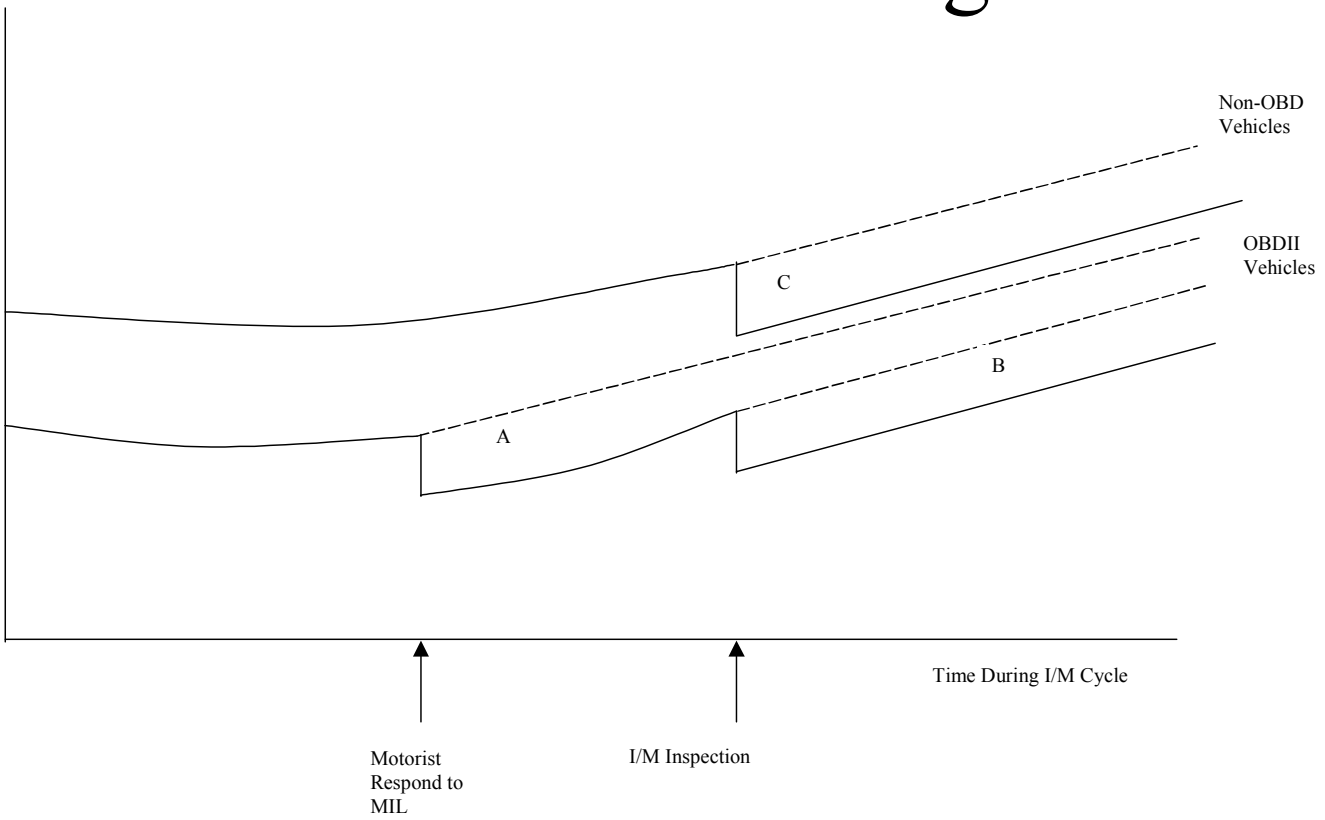
# Expect Lower Fleet Emissions



# Individual Vehicle Technologies Deteriorate with Age

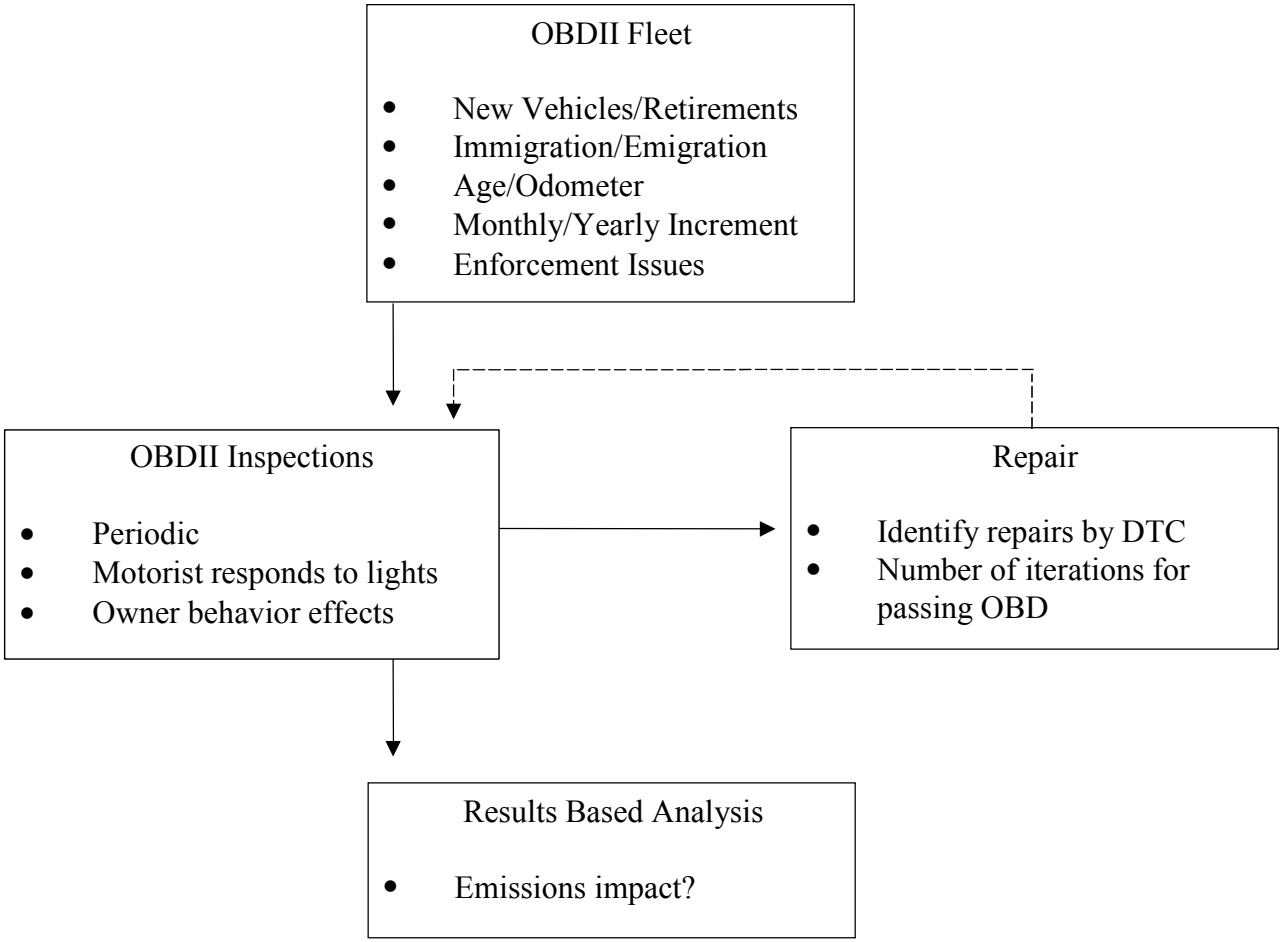



Area A: Independent Motorist Benefit
Area B: Periodic OBDII I/M Benefit
Area C: Emissions test benefit

# The Challenge:

- What goals should we set?
- What can we measure?
- What can we do to achieve cost-effective emission reductions?
- How can we take maximum advantage of OBDII systems?
- How do we measure the impact of these actions?

# OBDII Fleet Simulation



# Evaluation Methods

## Process Based

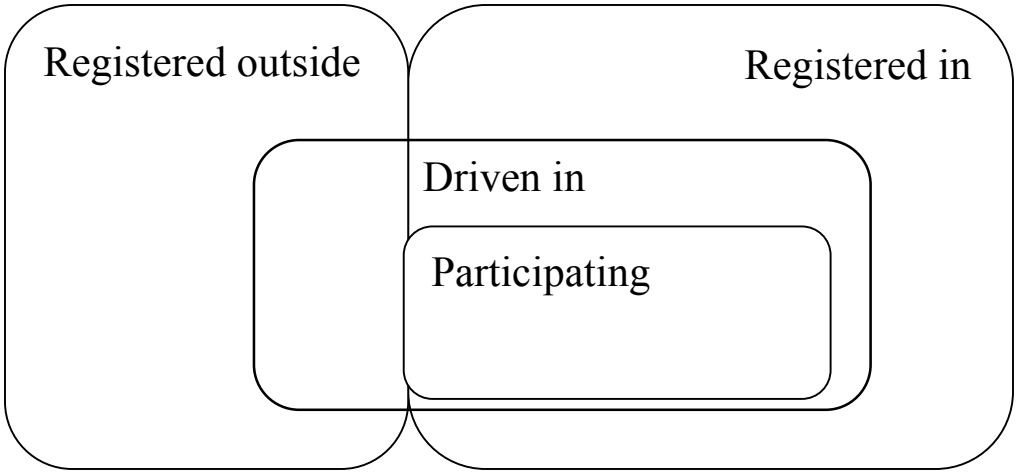
- Coverage
- Inspections (self directed or periodic)
- Repairs
- Enforcement

## Results Based

- Out of program data:  Roadside surveys, gas station surveys
- In-program data:  Inspection-failed-repaired statistics

# Process Based: **Coverage**

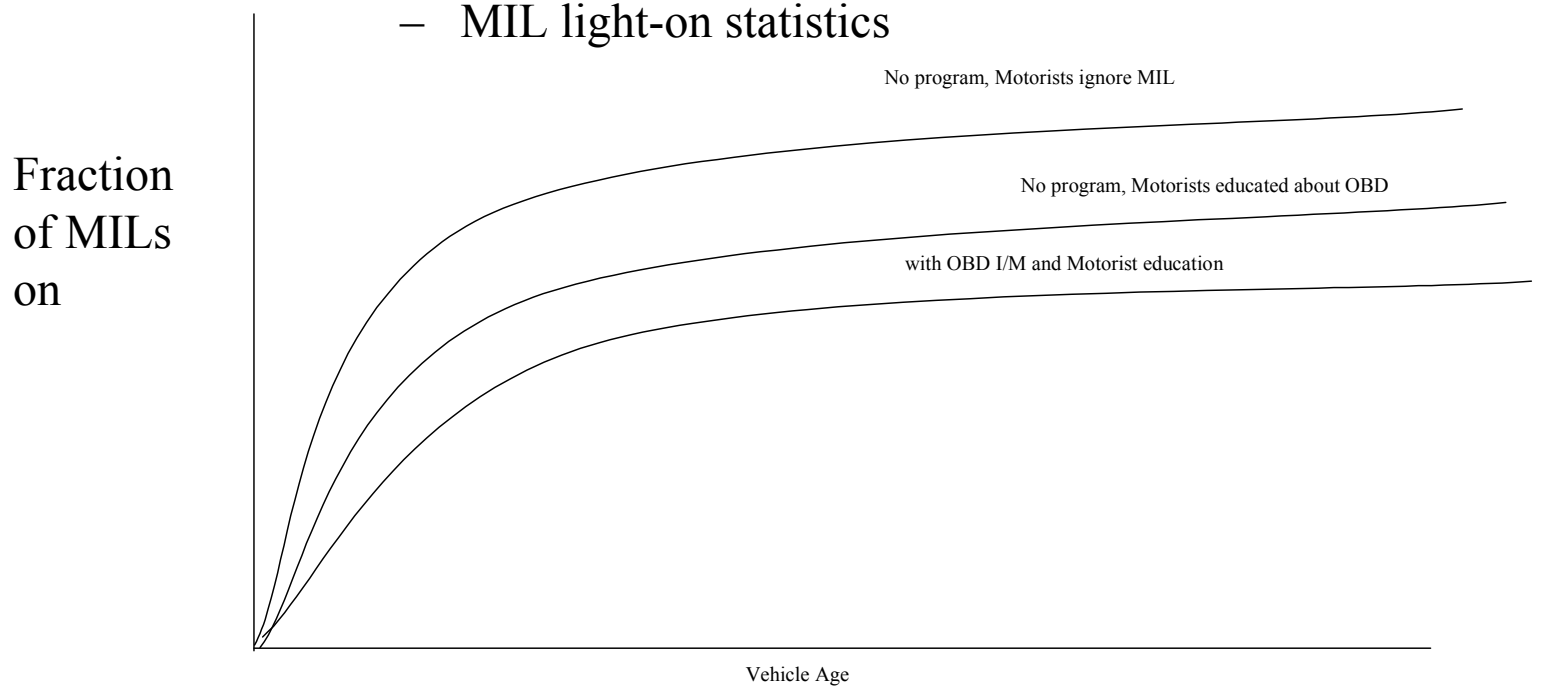
What fraction of on-road OBDII equipped vehicles are participating in the program?




Data Sources: License plate readers, parking lot surveys, registration records, I/M records

# Process Based: **Inspections**

- Readiness status
- Location/communication issues
- DTC statistics
- MIL light-on statistics



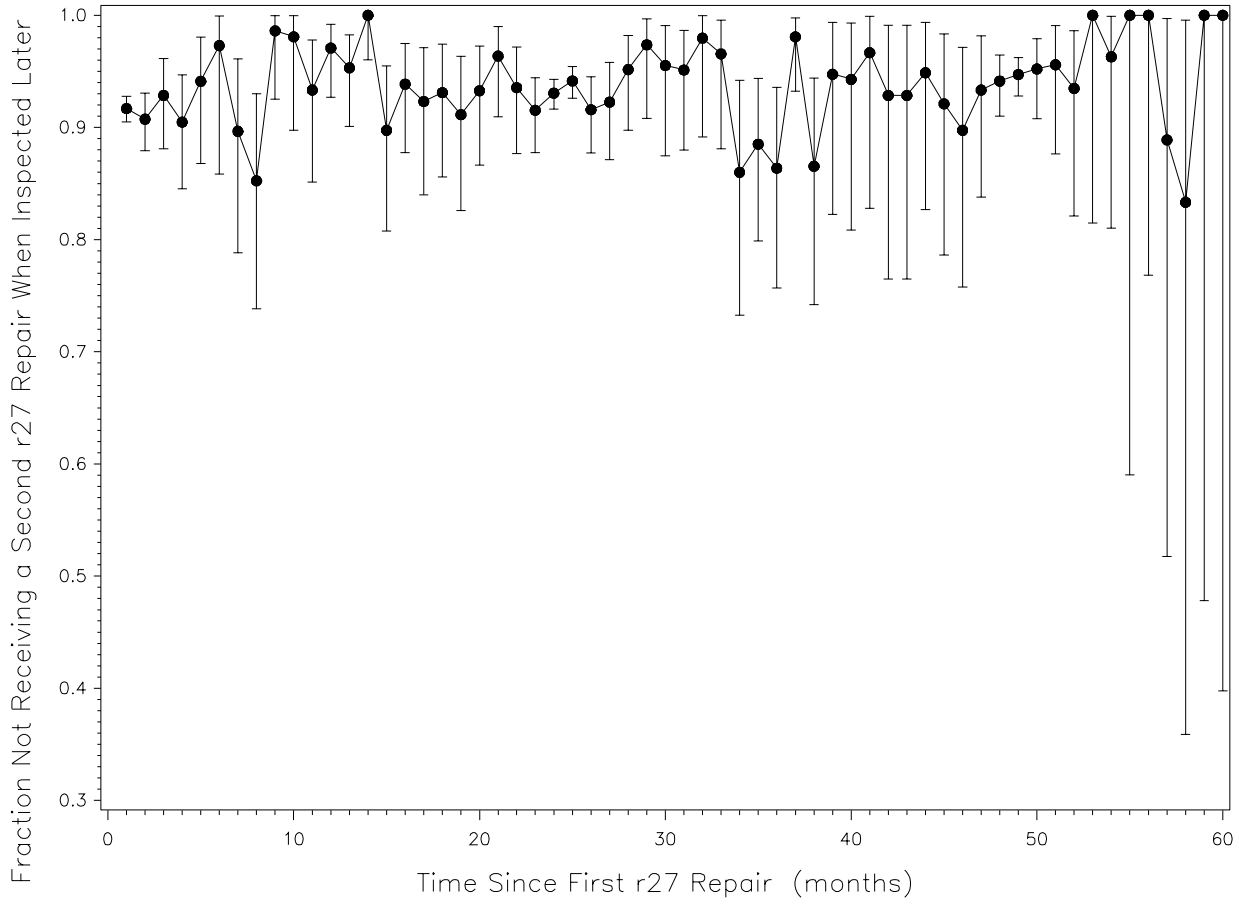

Data Sources: OBD I/M Data, Pump Surveys, Motorist Surveys, Repair Station Surveys, ...

# Process Based: **Repair**

- Repairs associated with DTC
- Repeat OBD inspection rates
- Duration of repairs
- Repeat DTC codes

Data Sources: OBD I/M repair data; Survey of failed vehicles; Six-month repeat survey of failed vehicles.

# Time Trend of Vehicles not Receiving a Second Oxygen Sensor (R27) Repair



# Process Based: **Enforcement**

- Compliance is black and white but participation is intention and time related.
- What are the loopholes?
- What happens to non-complying vehicles?
- Examples of data sources.
  - How many tickets do the enforcement agencies issue for non-compliance?
  - RED stickers for failures.
  - Follow-up on failed vehicles.
  - Market-based incentives.
  - Can come up with your own ideas.

# Results Based: **Evaluation**

## Out of Program Data:

- Snapshot of the fraction of OBDII equipped vehicles have their lights on (Gas Pump Survey)
- What are their emissions on roadside or RSD tests?
- Is there evidence of out of cycle OBD compliance (Motorists Survey)
- Change of ownership tests.

## In Program Data:

- Initial fail statistics
- DTC code frequencies
- DTC - Repair statistics

# Monitoring and Improving Performance - An Approach

1. Set a result goal for the fleet
   Simple: ≤ x % OBDII vehicles have their MILs on.

2. Develop a method for measuring status with respect to result goal.
   - OBDII status can be based on gas station surveys.
   - Emissions benefit can be based on roadside traditional test.
   - RSD
3. Develop methods for evaluating processes:
   - Coverage
   - Inspection
   - Repair
   - Enforcement

4. Identify process weaknesses and implement improvements.