

Module 4: Establishing the Universe

Common Measures Training
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Goals of Module

- Explore interstate consistency issues in
 - **Defining universe**
 - **Identifying facilities** that belong to universe
- Explore issues related to SQGs

Defining and Identifying a Class of Facilities

- A familiar topic, with a twist:
 - New groups
 - Interstate comparability

Establishing the Universe

- Step One: **Define** Universe
- Step Two: **Identify** Facilities
- Step Three: **Update** Universe over the Course of the Project

Step One: Defining Characteristics

- **Jurisdiction**
- **Size** of entity (e.g., number of employees, volume of waste processed)
- **Ownership type** (e.g., private sector v. government)
- **Operational focus** of the entity
 - E.g., auto body shop universe: include larger operations that happen to do some collision repair/coating work?
 - Primary SIC/NAICS code versus secondary, tertiary, etc.
- **Basic Unit...**

What is the Basic Unit?

E.g., for dental mercury, what is it we are actually interested in counting?

- Dental facilities/practices?
- Individual practitioners?
- Individual chairs (possibly used by more than one dentist)?

Be Pragmatic in Defining

- Will available data sources allow you to identify facilities based on characteristics you have defined?
- Ideally, exclude as many false positives as possible in advance of the sample



Step Two: Identifying Facilities that Belong to the Universe

- **Known universe** (e.g., in state compliance database)
- **Unknown universe**



Resources to ID Unknowns

- Other **government databases** ("who else regulates this sector?")
- **Yellow pages**
- **Private databases**
- **Trade associations**
- **Phone calls**
- **Drive-bys**



Universe-Identification Pitfalls

- An **incomplete universe** might be *unrepresentative/biased*
 - E.g., if bad apples slip under the radar
- **False positives**—discovering too late that the list is full of facilities that don't belong could throw off statistical planning and the scheduling of inspections and affect *precision*



Step Three: Updating the Universe over the Course of the Project

Universe identification is never over

- New facilities open, others close
- False negatives, false positives
- Prepare for surprises...



Example: SQGs

- Variations in state definitions
- Challenges of working with a multi-sector group
- Interstate comparability issues



Defining SQGs

Quantities (converted to kg/mo)

- CO, MA, NY, VT: 100 – 1000 kg/mo, accumulation of no more than 6000 kg
- CT: 100 - 1000 kg/mo, accumulation of no more than 1000 kg
- RI: 0 - 1000 kg/mo
- NH: 0 - 100 kg/mo

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Defining SQGs

Waste Types

- CO, CT: RCRA only
- RI: RCRA and waste oil
- NH: RCRA and waste oil not recycled
- NY: RCRA and PCBs greater than 50 ppm
- MA: RCRA, PCBs greater than 50 ppm, and waste oil
- VT: RCRA, and petroleum contaminated wastes, but not waste oil

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Multiple Sectors within the SQG Group

- Subject to **same requirements**, but
- Face potentially very **different issues**, such as differences in:
 - Waste types,
 - Waste quantities,
 - Seasonality considerations,
 - Relationship with agency, etc.
- Difficulty of compiling universe multiplies when number of sectors increases

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Options for Dealing with Multi-Sector Groups

- **Focus on particular problem sector(s)** within SQG class
- **Cope with and report on quality issues** and move ahead



SQGs and Interstate Comparability

- **Multiple universe definitions** multiply the difficulty of producing comparable results
 - What **waste types & quantities** are being monitored?
 - What **sectors** are included?
 - **Practices required** in one state may be BMPs in another



Strategies to Define a "Uniform" Universe

- Narrow definition, as the **class of facilities where several definitions overlap** (e.g., everyone is interested in RCRA waste);
- Broader definition, to include **all facilities that any state would include in its definition** (e.g., RI's quantity criterion of 0 - 1000 kg/mo encompasses all others)
- Broadest definition, **all generating facilities**



Broader Universe may be Advantageous

Selecting just one generator class instead of all generators may allow facilities to slip out of the universe when they either start performing substantially better or substantially worse -- a potential bias



“Uniform” Universe May Not Be Necessary

As long as participants **keep track of subclasses** that overlap with other states’ universes



For more information...

Contact Michael Crow

- E-mail: mcrow@cadmusgroup.com
- Phone: 703-247-6131


