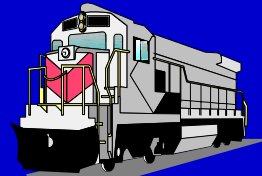
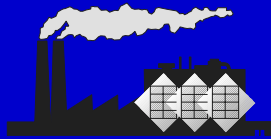


**Hazardous Substances Emergency
Events Surveillance (HSEES)
1993 - 1997
in Dallas and Surrounding Counties**

**presented to the Dallas Local
Emergency Planning Committee
July 18, 2000**



Year states entered HSEES system

1990	1992	1993	1994	1995	1999
CO	NY	AL	MO	MN	NJ
IA	NC	TX		MS	UT
NH*	OR				
WS	RI				
	WA				

*New Hampshire withdrew in 1996.

Goals:

- Describe the distribution and characteristics of hazardous substances emergencies
- Describe the injury (morbidity) and death (mortality) experienced by:
 - Employees
 - Responders
 - General Publicas a result of hazardous substances releases

Goals continued:

- Identify risk factors associated with the morbidity and mortality.
- Identify strategies to reduce future morbidity and mortality resulting from the release of hazardous substances.

Types of information collected:

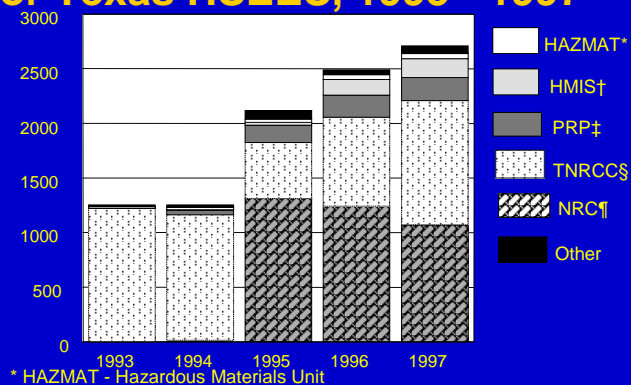
- General information on the event
- Substances released
- Victims (Employees, First Responders, General Public)
- Injuries and deaths
- Evacuations
- Estimates of number of people at risk of exposure during a specific event.

Texas definition of a HSEES event:

- Uncontrolled or illegal release, or threatened release, of hazardous substances (excluding events that exclusively involve petroleum products) that are over one gallon or ten pounds or exceed the CERCLA reportable quantity (RQ).

1. Where do we obtain our information?

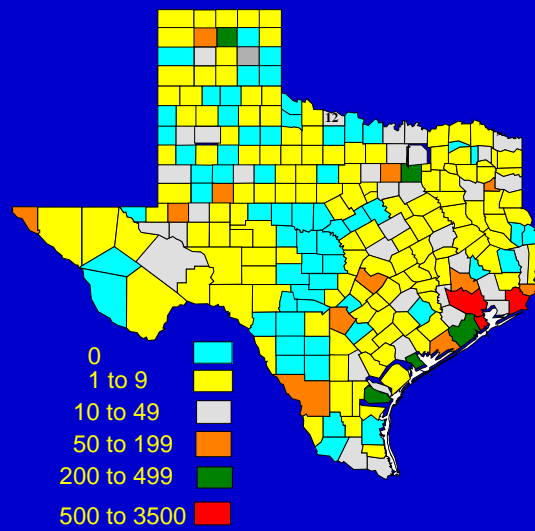
Distribution of events by data source for Texas HSEES, 1993 - 1997

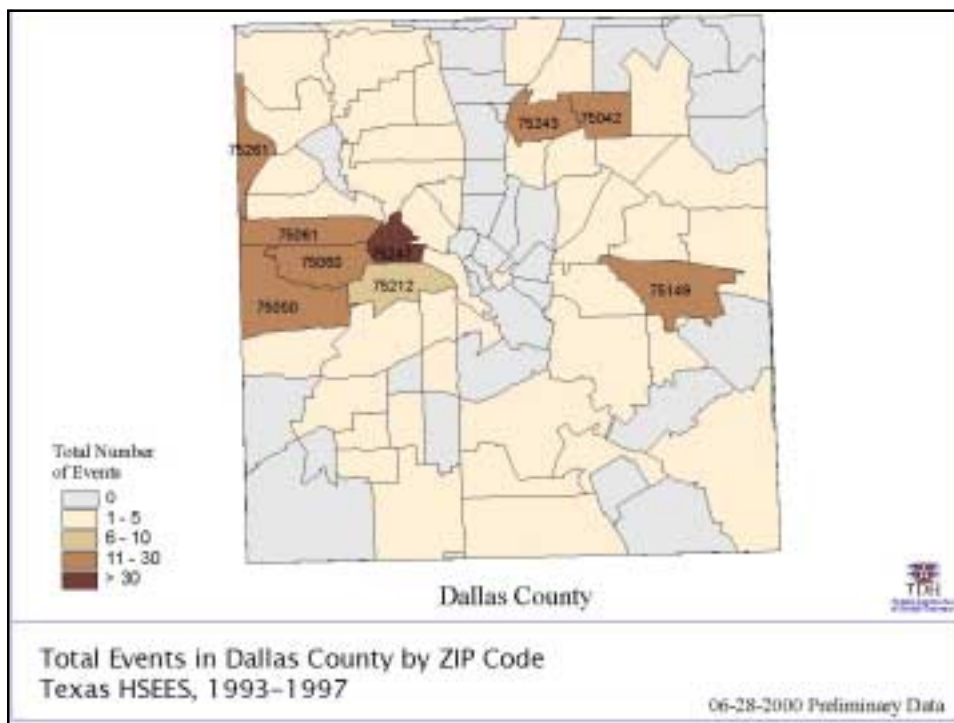
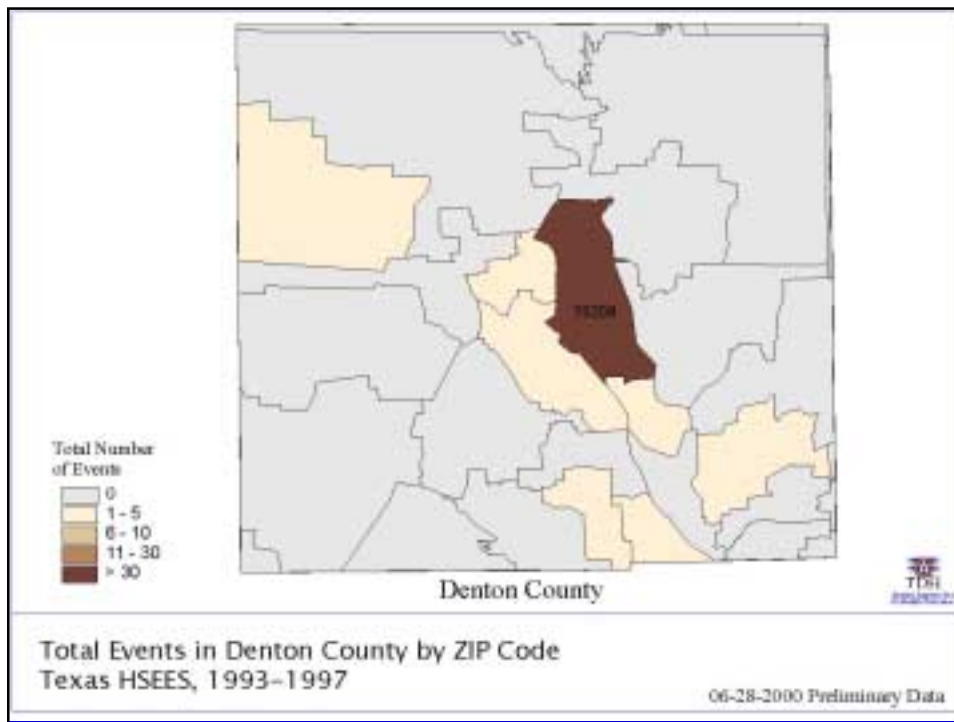


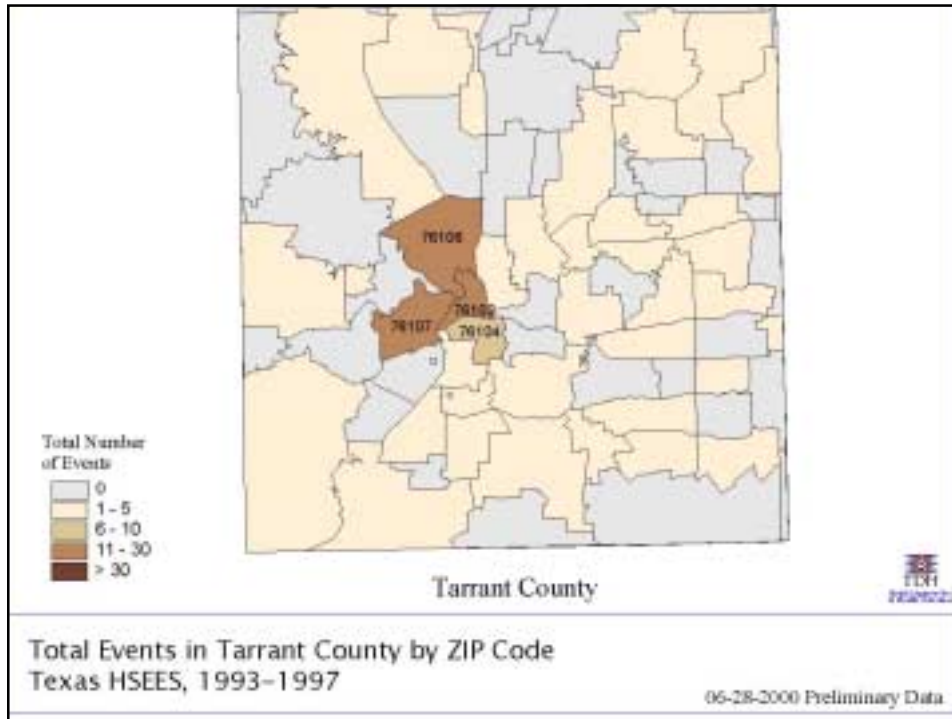
* HAZMAT - Hazardous Materials Unit
† HMIS - Hazardous Materials Incident System
‡ PRP - Primary Responsible Party
¶ NRC - National Response Center
§ TNRCC - Texas Natural Resource Conservation Commission

1. Where do we obtain our information?
2. Where are these events occurring?

Number of reported events by county, Texas HSEES 1993 - 1997

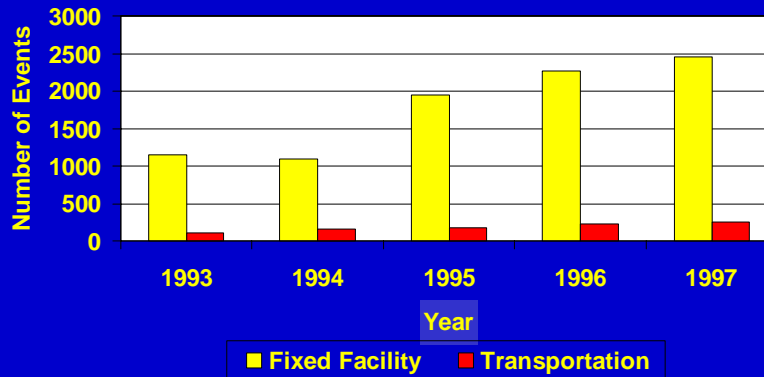






1. Where do we obtain our information?
2. Where are these events occurring?
3. What is the proportion of fixed-facility events compared to transportation events?

Distribution of type of event by year for Texas HSEES, 1993 - 1997



Distribution of fixed-facility and transportation events in Dallas and surrounding counties

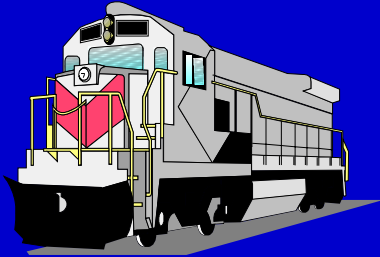
County	Fixed Facility	Transportation	Total
Dallas	173 (71.5%)	69 (28.5%)	242
Tarrant	102 (77.9%)	29 (22.1%)	131
Denton	28 (60.9%)	18 (39.1%)	46
Collin	10 (55.6%)	8 (44.4%)	18
Parker	16 (100.0%)	0 (0.0%)	16
Grayson	13 (76.5%)	4 (23.5%)	17
Ellis	12 (85.7%)	2 (14.3%)	14
Johnson	9 (64.3%)	5 (35.7%)	14
Cooke	8 (66.7%)	4 (33.3%)	12
Total	371 (72.7%)	139 (27.3%)	510

1. Where do we obtain our information?
2. Where are these events occurring?
3. What is the proportion of fixed-facility events compared to transportation events?
4. How many events involve victims?

Comparison of Dallas and surrounding counties with statewide numbers

	Texas	Dallas and Surrounding Counties Number (%)
Total no. of events	9817	510 (5.2%)
Total no. of events with victims	312	24 (7.7%)
Total no. of victims	2507	269 (10.7%)

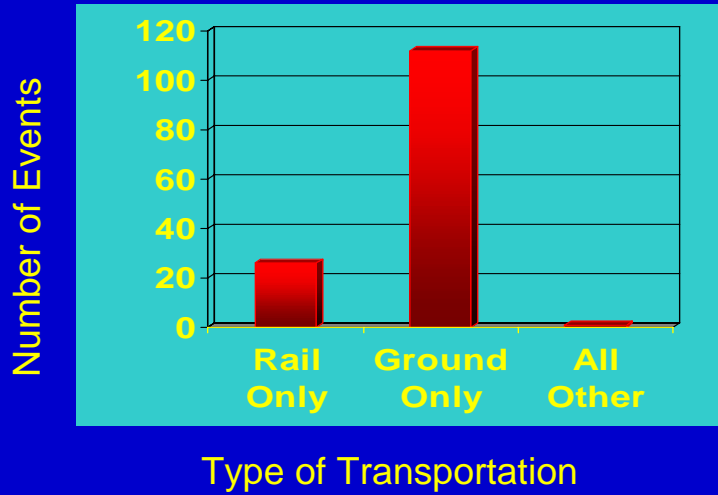
5. Transportation events



Comparison of Dallas and surrounding counties with statewide numbers for transportation events

	Texas	Dallas and Surrounding Counties Number (%)
No. of transportation events	908	139 (15.3%)
No. of transportation events with victims	94	5 (5.3%)
No. of victims from transportation events	409	141 (34.5%)

Distribution of transportation type in Dallas and surrounding counties



Substances associated with transportation events in Dallas and surrounding counties

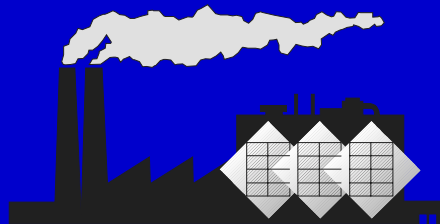
Chemical Category	No. of Events	No. of Events with Victims	No. of Victims
Volatile organic compounds	39	0 (0.0%)	0
Other	32	1 (3.1%)	1
Other inorganic substances	18	2 (11.1%)	3
Mixture across categories	15	1 (6.7%)	1
Acids	10	1 (10.0%)	1
Bases	10	1 (0.0%)	1
Paints and dyes	8	0 (0.0%)	0
Pesticides	5	1 (20.0%)	136
Ammonia	5	0 (0.0%)	0
Polychlorinated biphenyls	3	0 (0.0%)	0
Chlorine	1	1 (100.0%)	1
Total	146	8 (5.5%)	144*

*Total number of victims exceeds actual number of victims (n=141) because some events involved more than one type of substance.

Substances associated with transportation events involving victims in Dallas and surrounding counties

Substance(s) released	Total No. of Victims
Aldicarb	136
Mix: Ammonium Phosphate/Ammonium Sulfate	2
Mix: Calcium Carbonate/ Calcium Sulfate/Oil NOS	1
Chlorine; Indeterminate; Sodium Hydroxide	1
Chromium Trioxide; Nitric Acid	1
Total	141

6. Fixed-facility events



Comparison of Dallas and surrounding counties with statewide numbers for fixed- facility events

	Texas	Dallas and Surrounding Counties Number (%)
No. of fixed-facility events	8909	371 (4.2%)
No. of fixed-facility events with victims	218	19 (8.7%)
No. of victims for fixed facilities	2098	128 (6.1%)

Distribution of fixed-facility events involving victims by location within fixed facility

Location	No. of Events at that Location	No. of Events with Victims at that Location No. (%)	No. of Victims
Material handling	94	1 (1.1%)	4
Storage above ground	86	6 (7.0%)	45
Piping	44	3 (6.8%)	15
Process vessel	37	2 (5.4%)	15
Ancillary process equipment	33	2 (6.1%)	19
Transportation within fixed facility	23	0 (0.0%)	0
All other	76	6 (7.9%)	49
Missing	2	0 (0.0 %)	0
Total*	395	20 (5.1%)	147

*Totals exceed number of events and number of victims because each event may involve up to two location types. There were 19 events involving 128 victims.

Substances associated with fixed-facility events in Dallas and surrounding counties

Chemical Category	No. of Events	No. of Events With Victims No. (%)	No. of Victims
Other	86	6 (7.0%)	70
Volatile organic compounds	65	3 (4.6%)	18
Acids	60	3 (5.0%)	26
Mixture across categories	57	5 (8.8%)	9
Other inorganic substances	49	3 (6.1%)	42
Ammonia	33	2 (6.1%)	34
Bases	20	2 (10.0%)	3
Paints and dyes	14	2 (14.3%)	4
Pesticides	13	2 (15.4%)	2
Chlorine	7	3 (42.9%)	28
Polychlorinated biphenyls	5	0 (0.0%)	0
Total*	409	31 (7.6%)	236

*Total number of victims exceeds actual number of victims (n=128) because some events involved more than one type of substance.

Substances associated with fixed-facility events involving the largest number of victims in Dallas and surrounding counties

Substance	No. of Events	Total No. of Victims
Ammonia	2	34
Chlorine	3	28
1-Bromo-3-chloro-5,5-dimethyl-2,4-imidazolidinedione	1	19
Calcium Hypochlorite	2	23
Lithium Hypochlorite	1	19
Mix: 2-Butoxyethanol/Oxalic Acid/Phosphoric Acid	1	19
Sodium Dichloroisocyanurate	1	19
Trichloroisocyanuric Acid	1	19

6. Transportation events

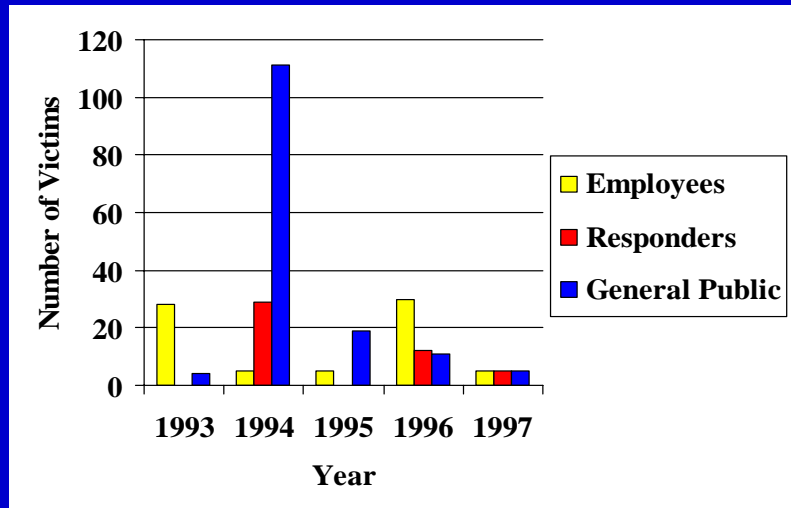
7. Fixed-facility events

8. Who are the victims?

Distribution of victims by victim category in Dallas and surrounding counties

Victim Category	Fixed Facility	Transportation	Total
Employee	70	3	73
Responder	21	25	46
General Public	37	113	150
Total	128	141	269

Distribution of victim category by year for Dallas and surrounding counties



6. Transportation events

7. Fixed-facility events

8. Who are the victims?

9. Injury severity?

Severity* by victim category for Dallas and surrounding counties

	Responders	Employees	General Public	Total
First aid	1	2	24	27
Treated and released**	45	63	114	222
Admitted**	0	6	5	11
Observed only**	0	2	7	9
Total	46	73	150	269

* No fatalities during the five year period.

**At hospital

6. Transportation events
7. Fixed-facility events
8. Who are the victims?
9. Injury severity?
10. Types of injuries

Types of injuries reported by victims (n=141) in transportation events in Dallas and surrounding counties

Type of Injury	Number of Times Reported
Respiratory irritation	112
Eye irritation	58
Gastrointestinal problem	48
Headache	36
CNS*or dizziness	12
Skin irritation	11
Trauma	3
Heart problems	1
Other	1
Total**	282

*Central Nervous System

**Total number of injuries exceeds number of victims because some people sustained more than one type of injury.

Types of injuries reported by victims (n=128) in fixed-facility events in Dallas and surrounding counties

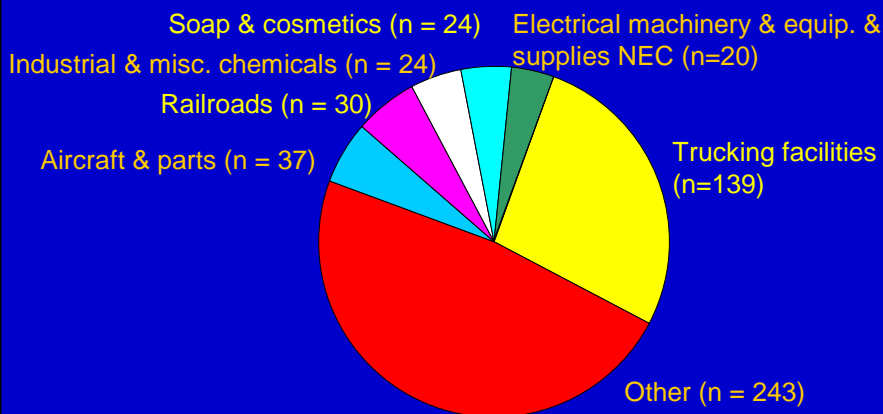
Types of Injuries	Number of Times Reported
Respiratory irritation	90
Eye irritation	36
Gastrointestinal problems	20
Other	15
CNS*/dizziness	8
Skin irritation	6
Chemical burns	6
Headache	3
Trauma	1
Heart problems	1
Total**	186

*Central Nervous System

**Total number of injuries exceeds number of victims because some people sustained more than one type of injury.

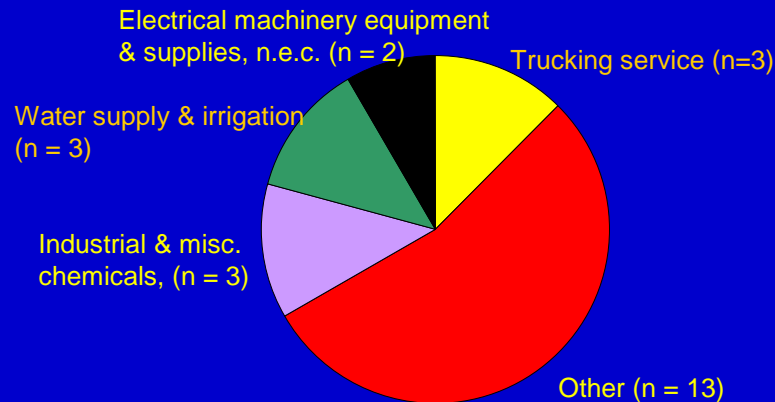
6. Transportation events
7. Fixed-facility events
8. Who are the victims?
9. Injury severity?
10. Types of injuries
11. Industries associated with HSEES events

Distribution of industries* in HSEES events (n=510) in Dallas and surrounding counties, Texas HSEES, 1993 - 1997



*Number of industries exceeds the number of events because some events were coded to more than one industry.

Distribution of events with victims* by industry in Dallas and surrounding counties, Texas HSEES, 1993 - 1997



*There were 24 events involving 269 victims.

In conclusion:

- Keep up the training and good work and safety practices.
- Be especially aware of situations involving ammonia, chlorine, acids, or bases.
- In fixed facilities, be aware of material handling (loading/unloading), above ground storage areas, piping, process vessels, and ancillary process equipment.
- Statewide data show that explosions and crashes causing trauma injuries often result in fatalities.

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