



Improve Community Safety by Investigating Accidents – one of the “new” roles for the future Fire Service.




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The idea about the future!



Less people should die, or be injured, and less property should be damaged by accidents!



And how should these ideas become reality?

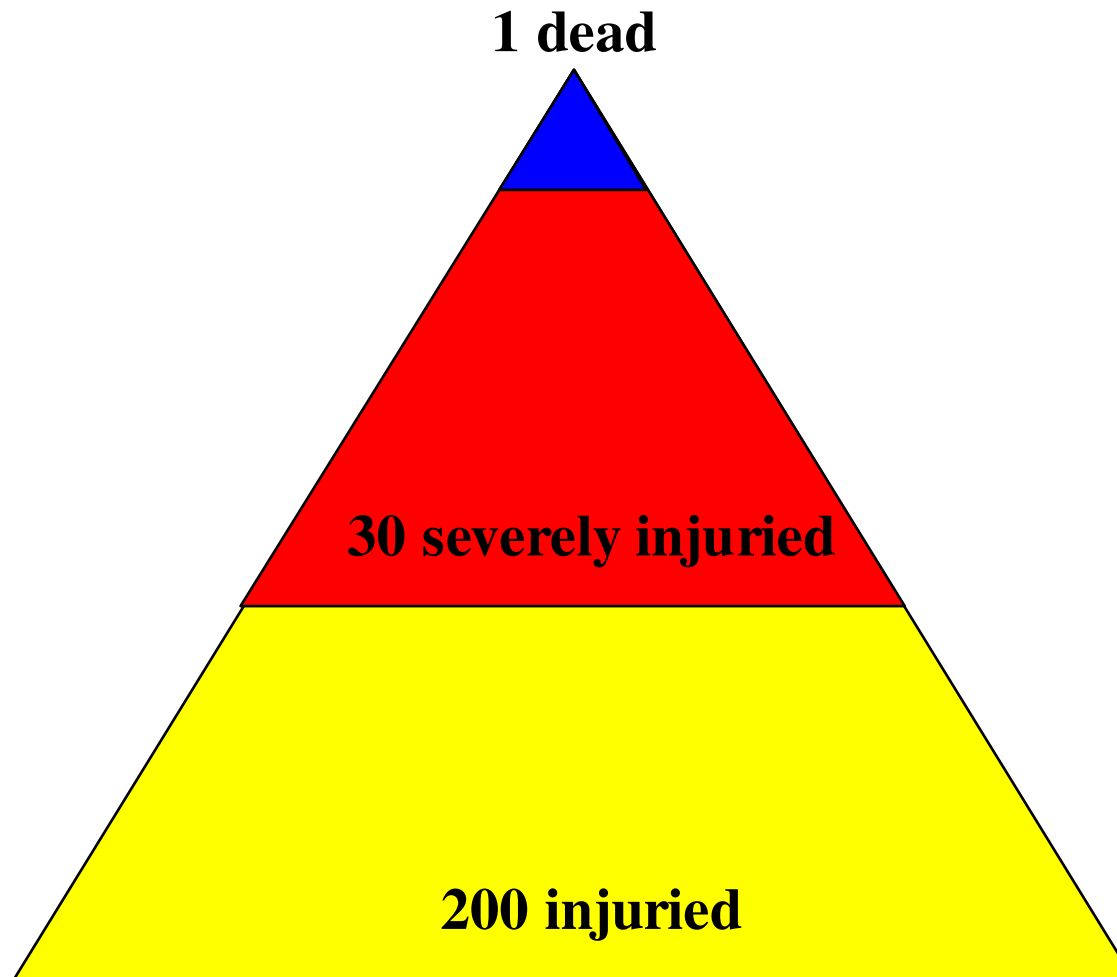




Mortality in injuries!

Injuries causes 5% of all deaths in Sweden. This means that injuries are the fourth largest cause of death, after cardiovascular diseases, respiratory organ diseases and tumors.

2/3 of the people dying in injuries are men.





Why did this fire kill 63 and injured 195 persons?





Storstockholms
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**Investigate all
accidents!**

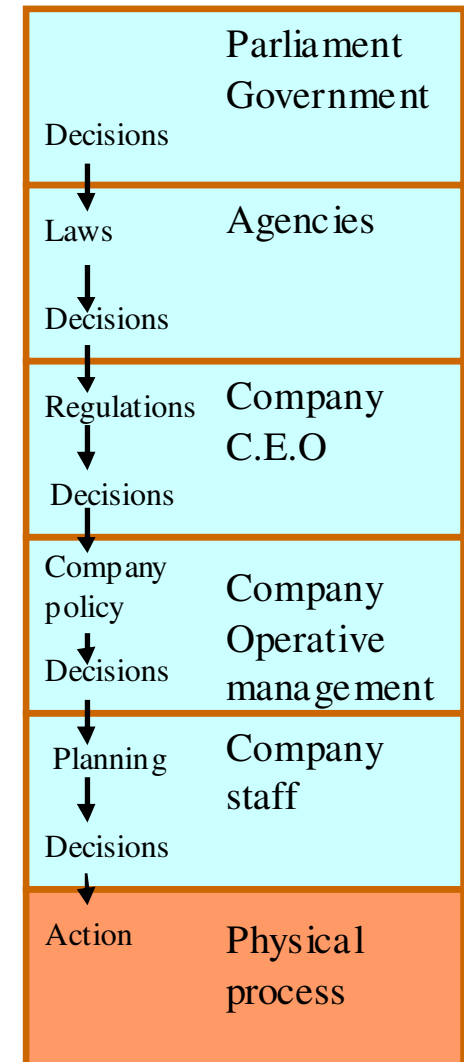
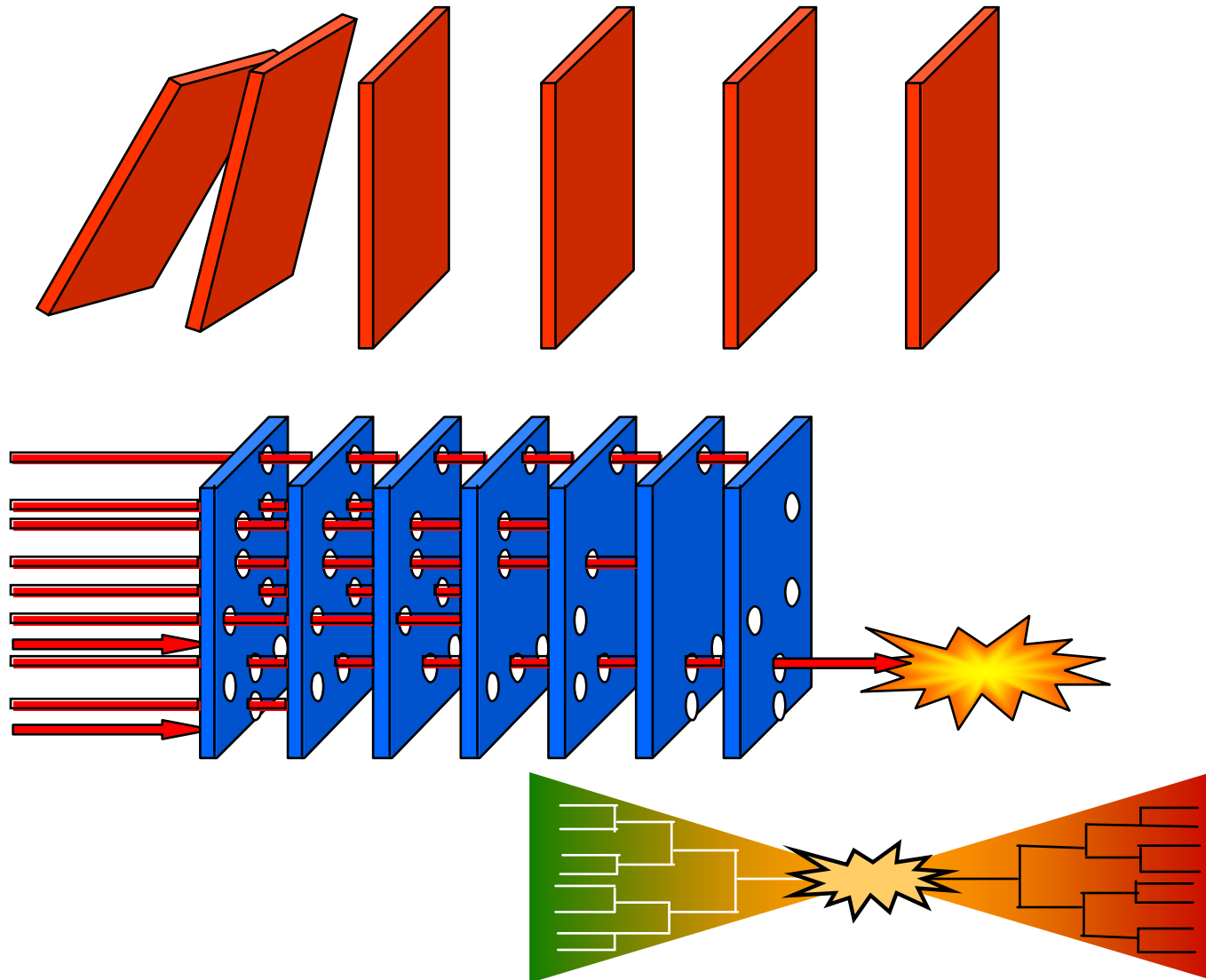


Improve safety in society by
spreading the knowledge about
why there are accidents and
injuries!





Why do accidents occur – mental models!





Accident investigation





Accident investigation
.... it's like try to solve a jigsaw
puzzle!



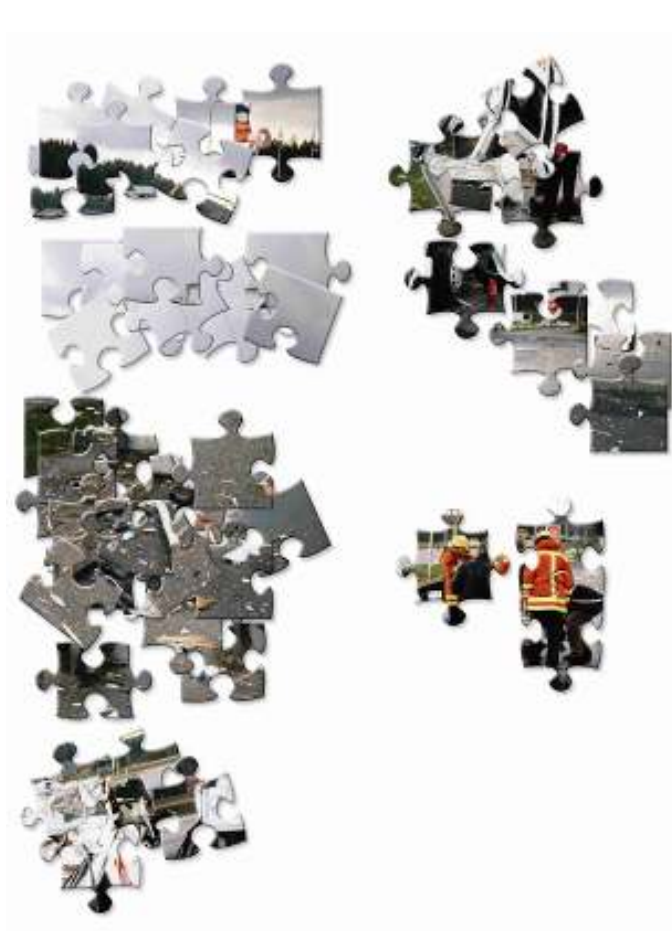


The parts has to be collected...





... be structured in some way...





...be added together.....





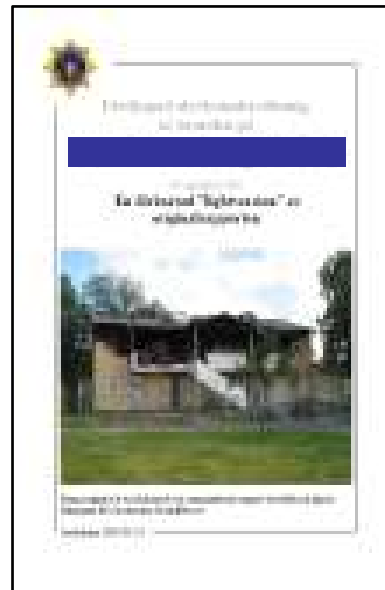
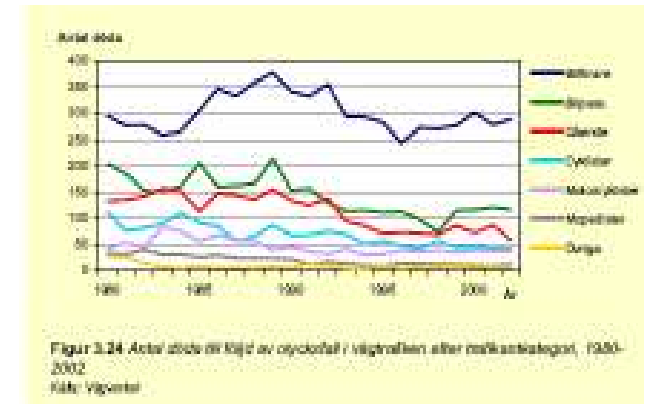
...to get an “correct” image of the accident.





Learning from accidents!

- Accident investigation reports
- Databases
- Accident and injury statistics



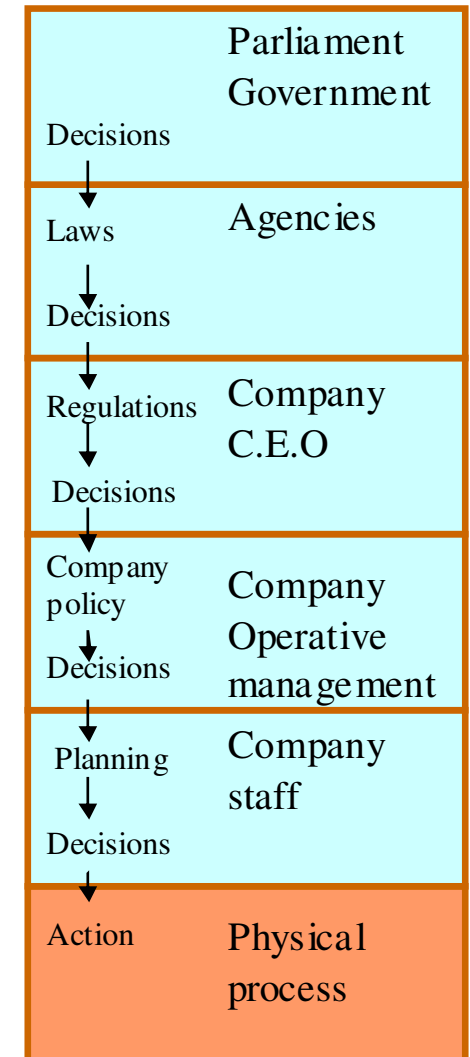
Tabell 70
Antal slutenvårdade, totalt och per åldersgrupp

Kön	År														
Ålder	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Totalt	129 420	1 28 4 17	12 7 7 710	128 350	1 30 50 7	13 4 24 4	140 073	1 46 19 1	147 162	145 3 76	1 35 77 4	127 828	132 5 35	1 31 96 7	136 336
dä röv															
0-14	1 567 1	15 378	15 738	15 373	15 076	15 126	15 798	16 752	16 818	16 105	15 556	15 064	1 5 815	15 333	15 285
15-24	1 683 2	16 221	16 510	15 496	14 379	14 425	14 267	14 935	14 579	13 931	13 328	11 575	1 2 341	12 299	12 857
25-44	2 483 3	23 518	23 243	22 853	22 531	23 751	24 297	25 732	25 492	24 559	22 728	20 525	2 1 474	21 380	21 264
45-64	2 079 5	20 565	20 042	20 429	21 093	22 338	23 697	25 652	26 146	25 424	24 049	23 049	2 3 594	24 080	25 356
65-79	2 784 9	28 223	27 537	28 174	29 339	30 496	32 035	32 241	32 373	32 921	29 101	27 443	2 8 323	27 443	28 362
80+	2 344 0	24 512	24 640	26 025	28 089	28 108	29 979	30 879	31 754	32 436	31 012	30 172	3 0 988	31 432	33 212
Män	63 850	62 948	62 801	62 477	62 384	64 773	66 735	69 663	70 021	68 800	65 144	60 160	6 3 118	62 760	64 997
dä röv															
0-14	9 322	9 283	9 485	9 208	9 028	9 011	9 408	9 907	9 949	9 654	9 389	9 000	9 468	9 128	9 274
15-24	10 994	10 656	10 714	10 044	9 305	9 307	8 975	9 334	9 045	8 599	8 319	7 136	7 595	7 577	7 833
25-44	15 816	14 906	14 878	14 515	14 189	15 038	15 146	15 808	15 406	14 916	13 958	12 344	1 2 982	12 692	12 694
45-64	11 099	10 948	10 852	11 009	11 307	11 870	12 580	13 633	13 890	13 356	13 115	12 474	1 2 769	13 184	13 843
65-79	10 744	11 082	10 776	11 086	11 527	12 273	12 786	12 901	13 200	13 403	11 954	11 131	1 1 122	11 453	11 974
80+	5 875	6 073	6 096	6 615	7 028	7 274	7 840	8 080	8 531	8 872	8 409	8 075	8 582	8 726	9 379
Kvinnor	65 570	65 469	64 909	65 873	68 123	69 471	73 338	76 528	77 141	76 576	70 630	67 668	6 9 417	69 207	71 339
dä röv															
0-14	6 349	6 095	6 253	6 165	6 048	6 115	6 390	6 845	6 869	6 451	6 167	6 064	6 347	6 205	6 011
15-24	5 838	5 565	5 796	5 452	5 074	5 118	5 292	5 601	5 534	5 332	5 009	4 439	4 746	4 722	5 024
25-44	9 017	8 612	8 365	8 338	8 342	8 713	9 151	9 924	10 086	9 643	8 770	8 181	8 492	8 688	8 570
45-64	9 696	9 617	9 190	9 420	9 786	10 468	11 117	12 019	12 256	12 068	10 934	10 575	1 0 825	10 896	11 513
65-79	17 105	17 141	16 761	17 088	17 812	18 223	19 249	19 340	19 173	19 518	17 147	16 312	1 6 801	15 990	16 388
80+	17 565	18 439	18 544	19 410	21 061	20 834	22 139	22 799	23 223	23 564	22 603	22 097	2 2 406	22 706	23 833



Why do we have accidents!

- Important to use a broad perspective when investigating;
 - Human failure
 - Design failure
 - Organizational failure
 - System failure
- Realize that the accident cause can be found on a higher system level
- There are normally combinations of causes that lead to an accident

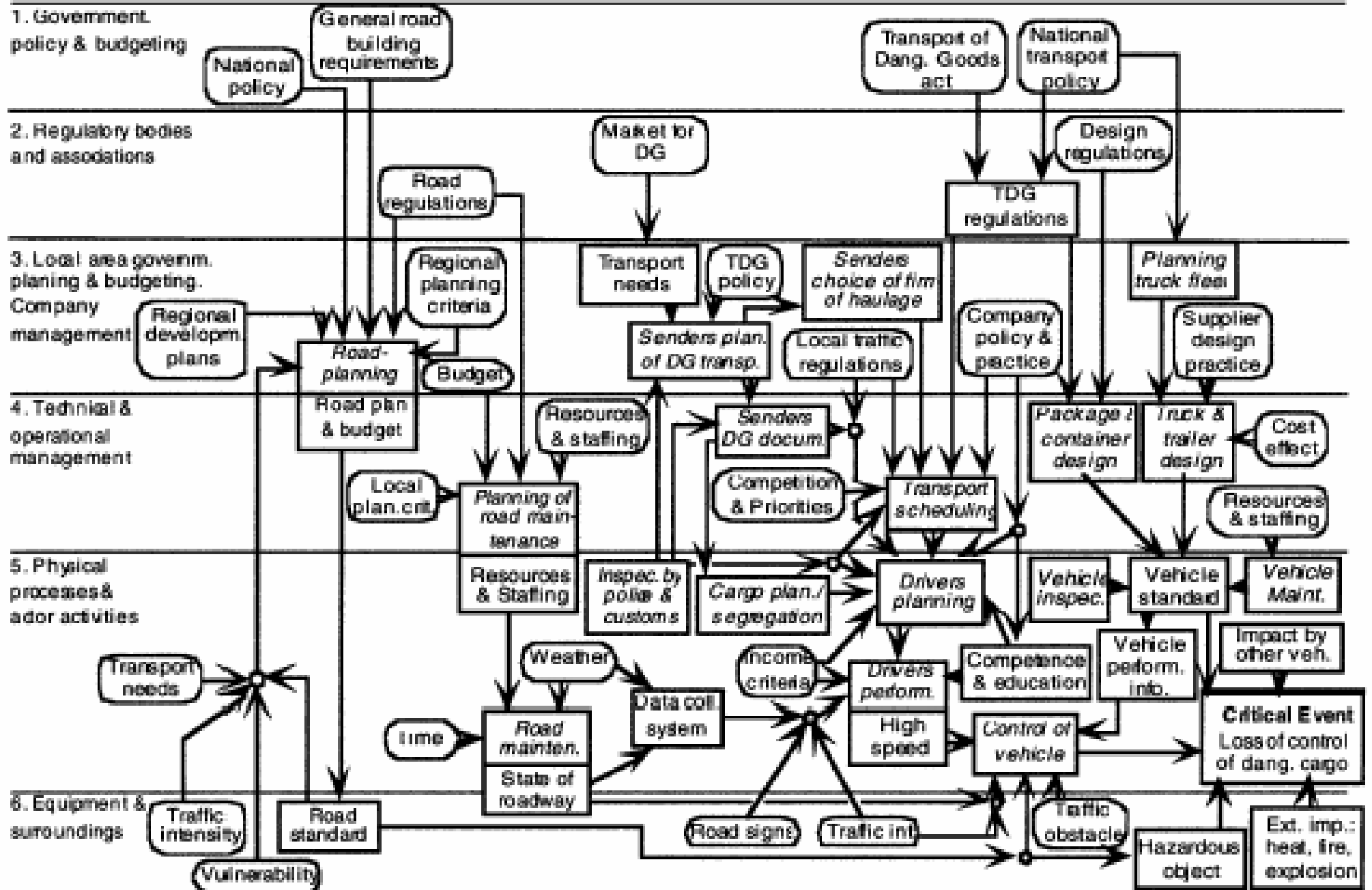




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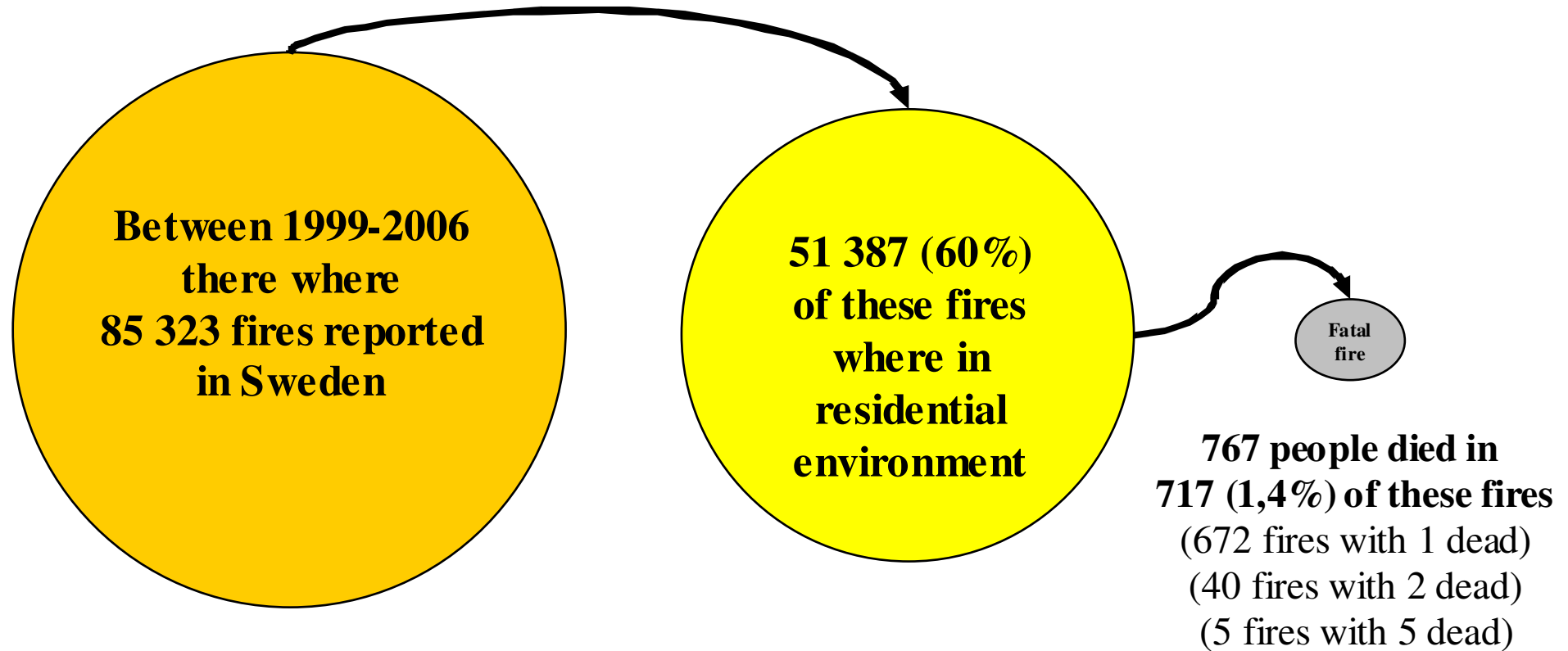
What caused the LPG-leakage?





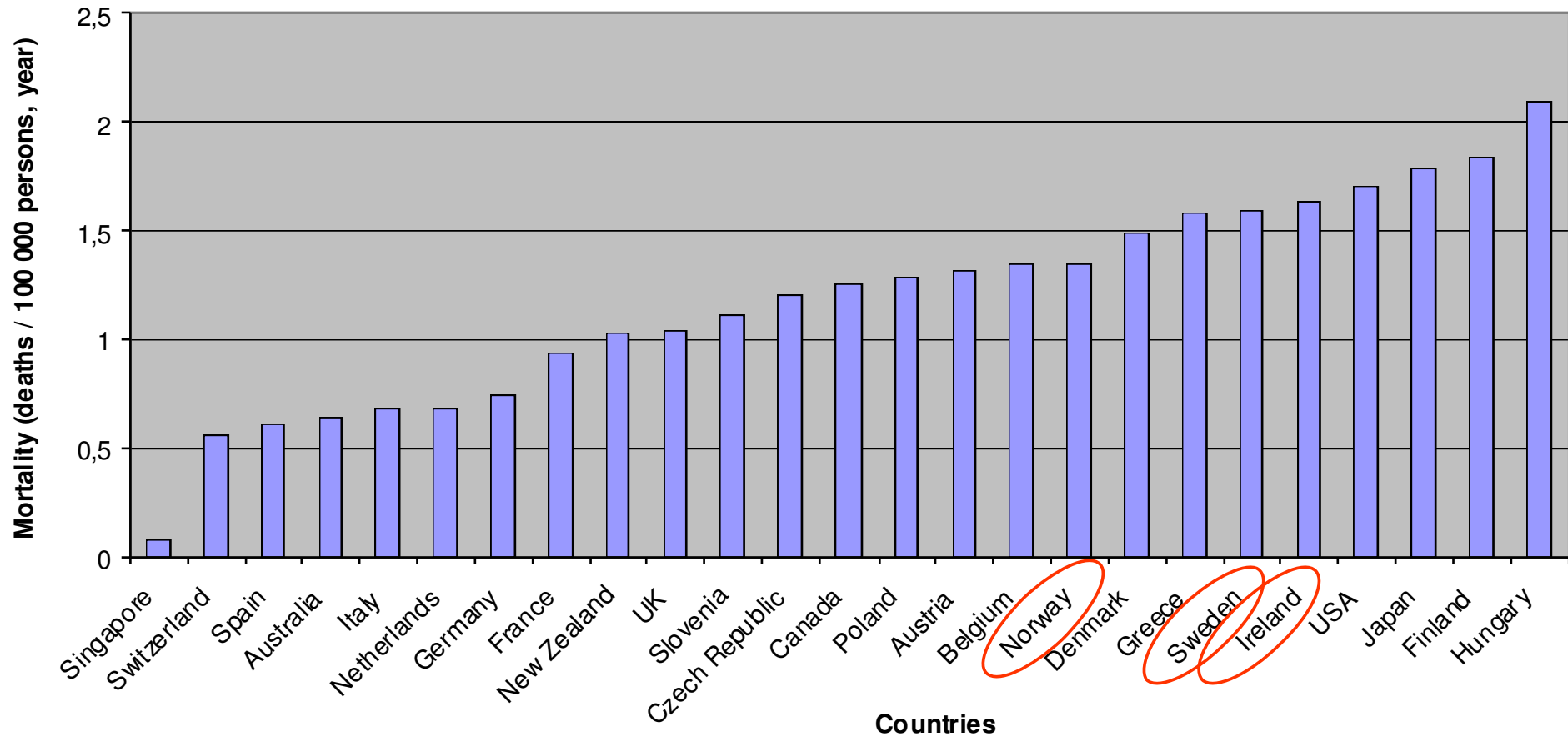


Fatal residential fires



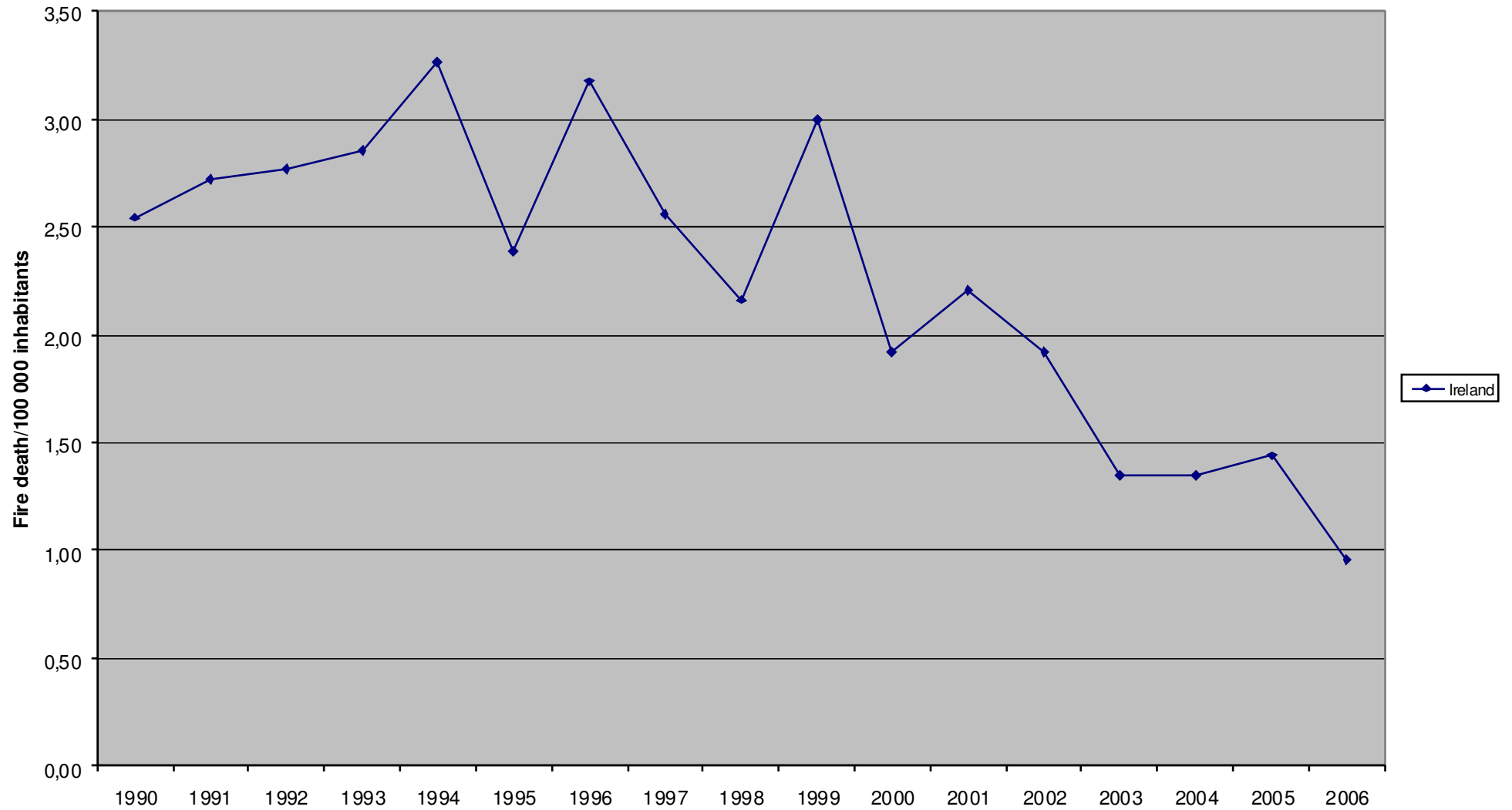


Variations between countries



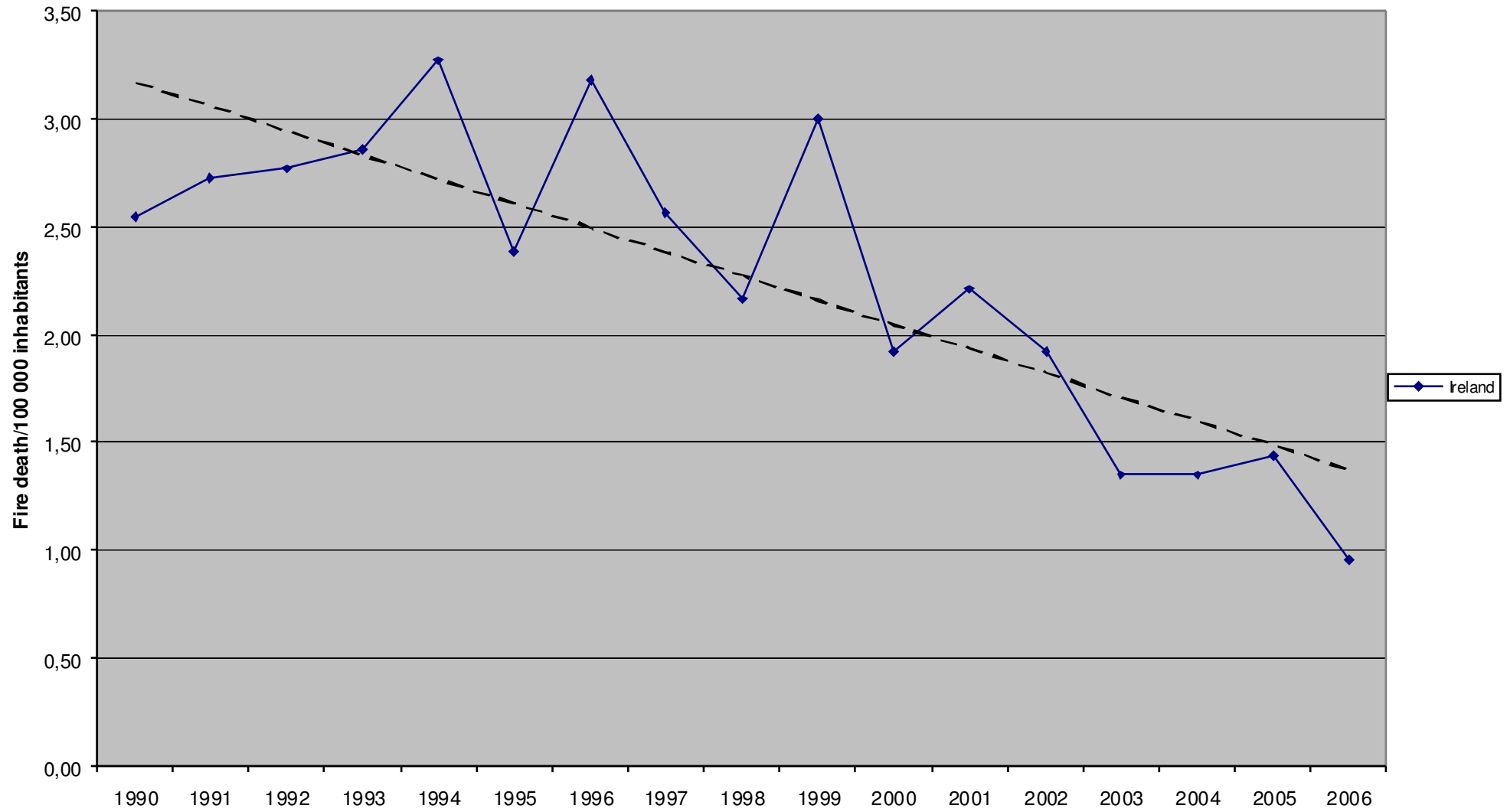


Mortality in fires



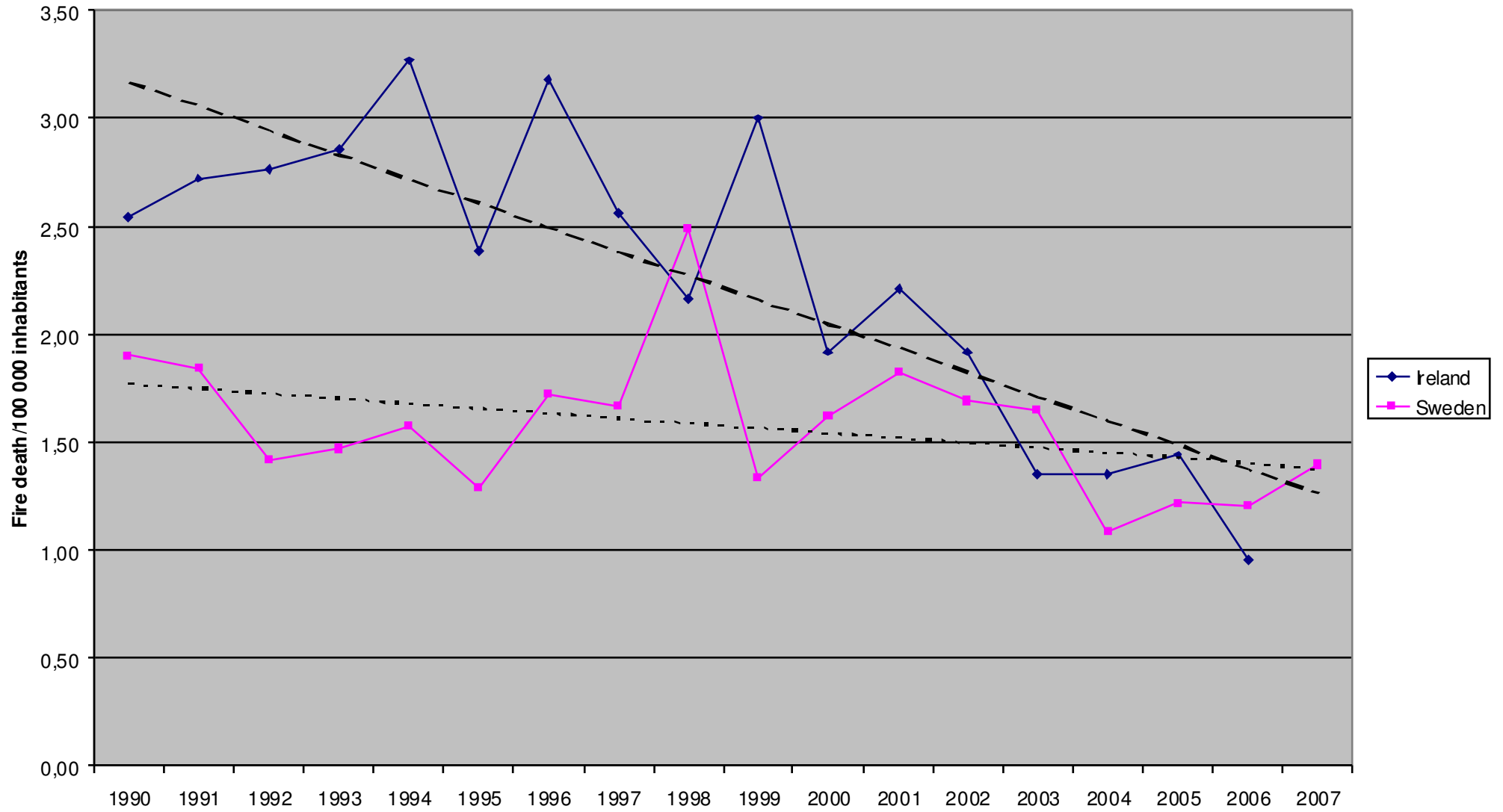


Mortality in fires



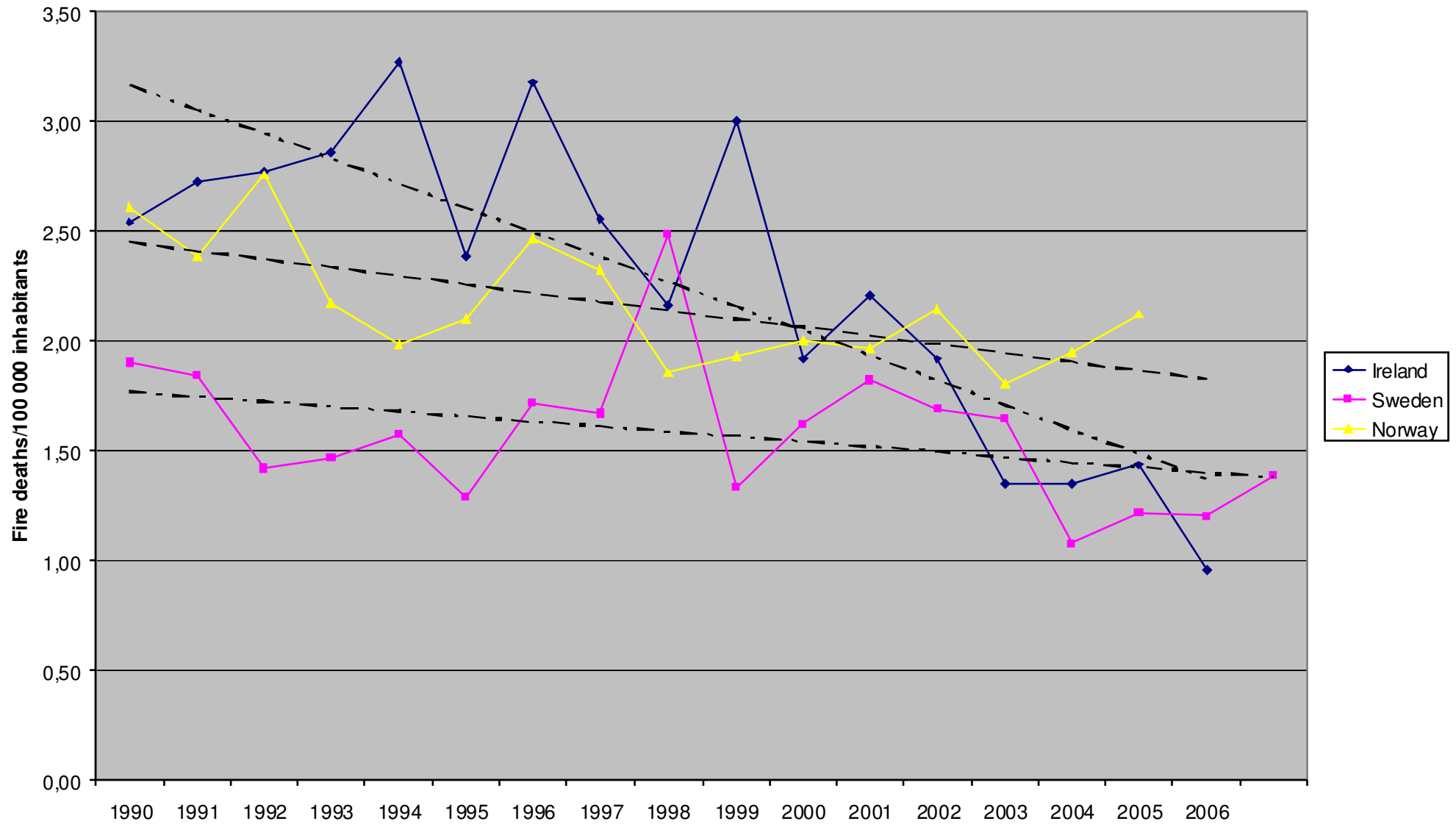


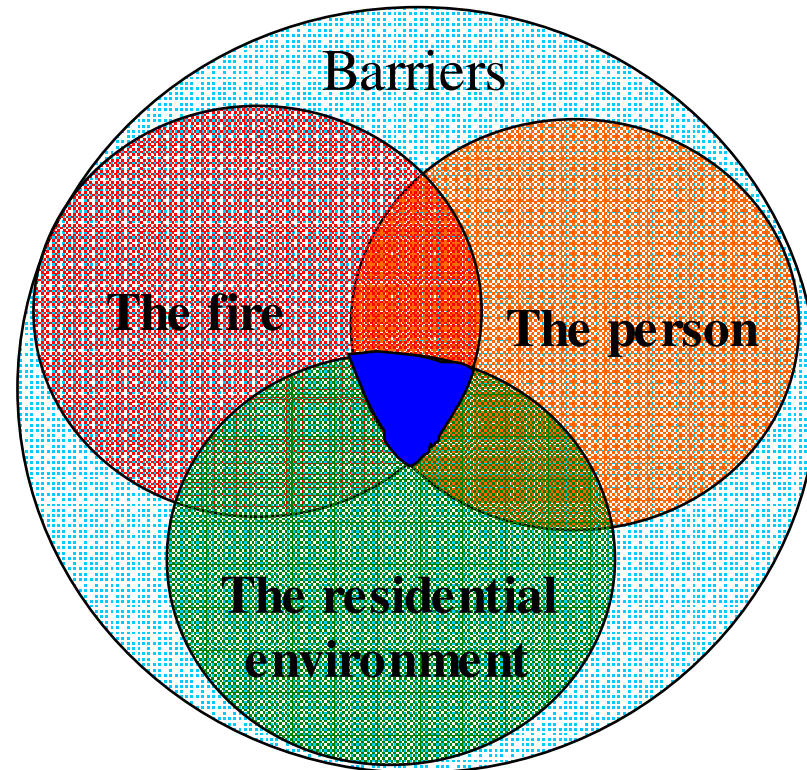
Mortality in fires



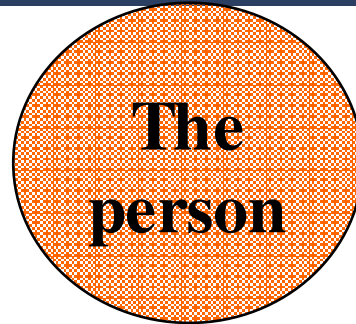


Mortality in fires

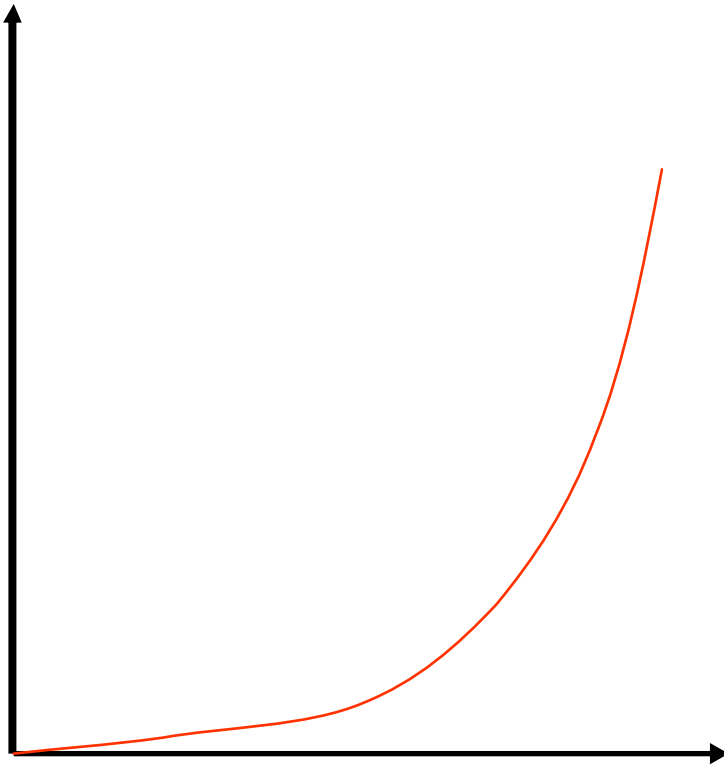




Fire + evacuation obstructed + no fire suppression = Fatal fire

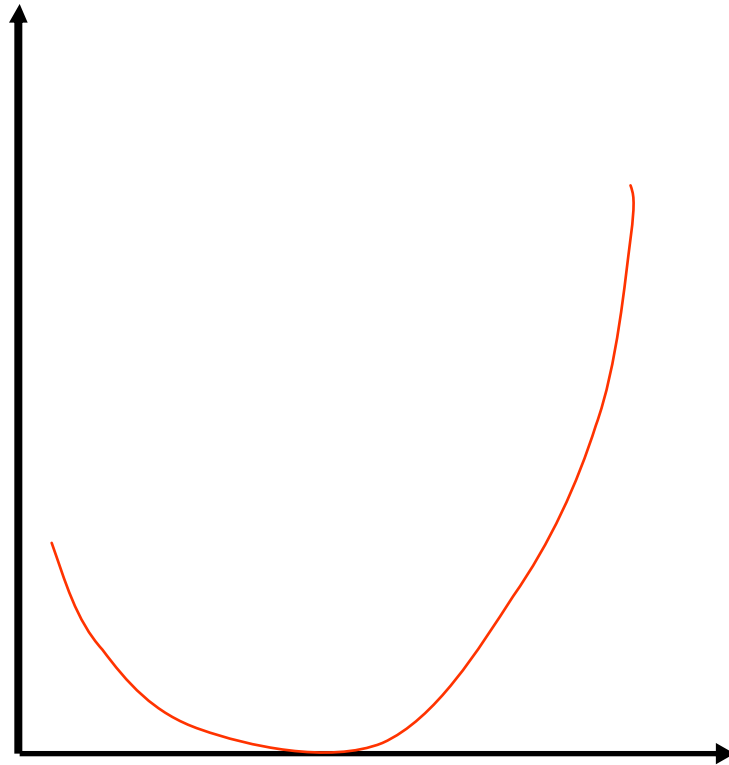


Incidence



Europe (not all) Age

Incidence



USA Age



Barriers

DiGuisseppi, C, et. al., **Incidence of fires and related injuries after giving out free smoke alarms: Cluster randomized controlled trial**

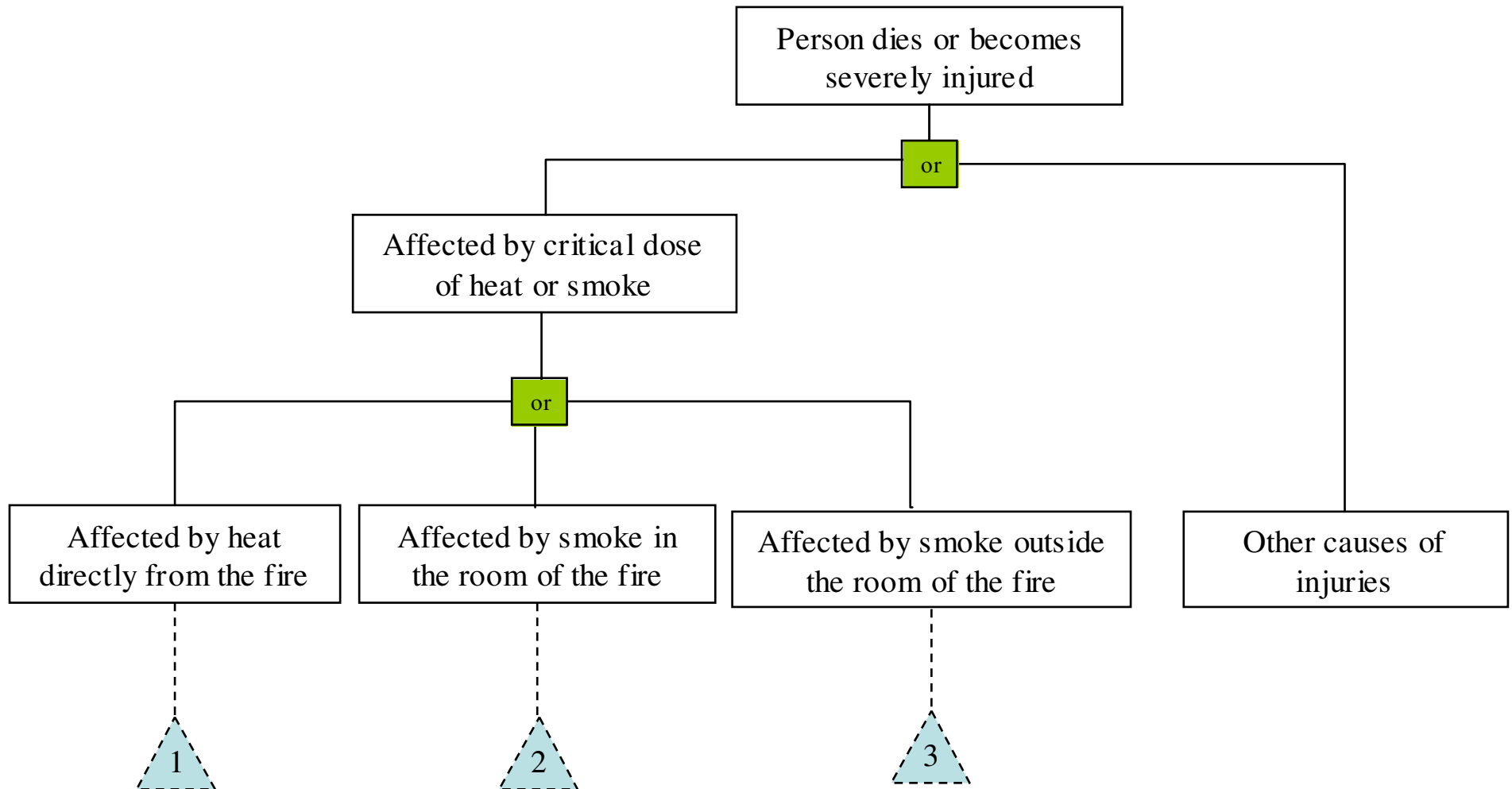
“Widespread implementation of programmes giving away smoke alarms waste resources and be of little benefit unless alarm installation and maintenance is assured.”

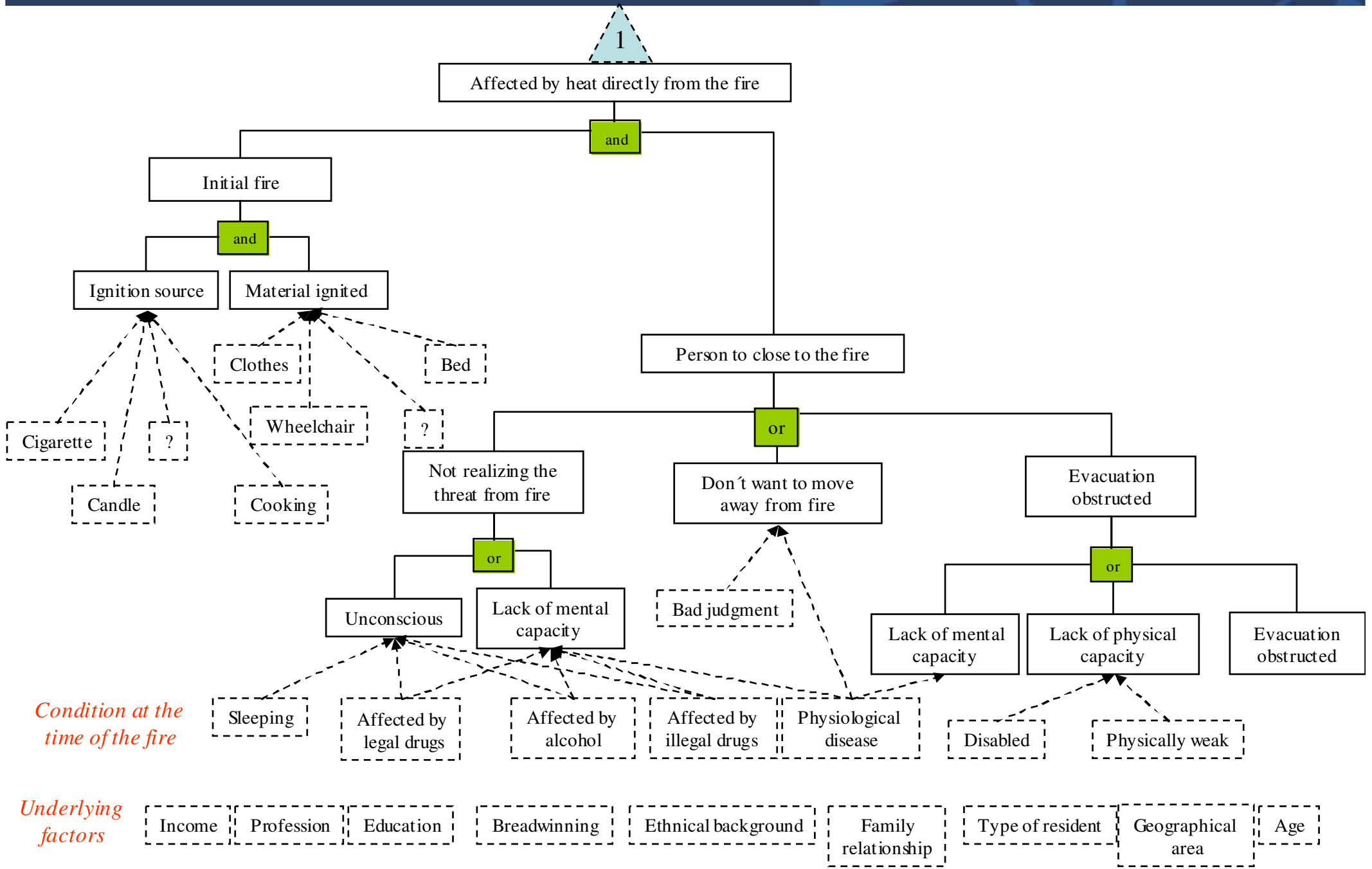
Runyan, C, W, et. al., **Risk factors for fatal residential fires**

“Although numerous factors are associated with the likelihood that a fire will prove fatal, our results demonstrates that smoke detectors are beneficial in almost every instance. They are especially beneficial when no one in the house has a disability, is impaired by alcohol, or is more than 64 years old.”



Fatal fires!



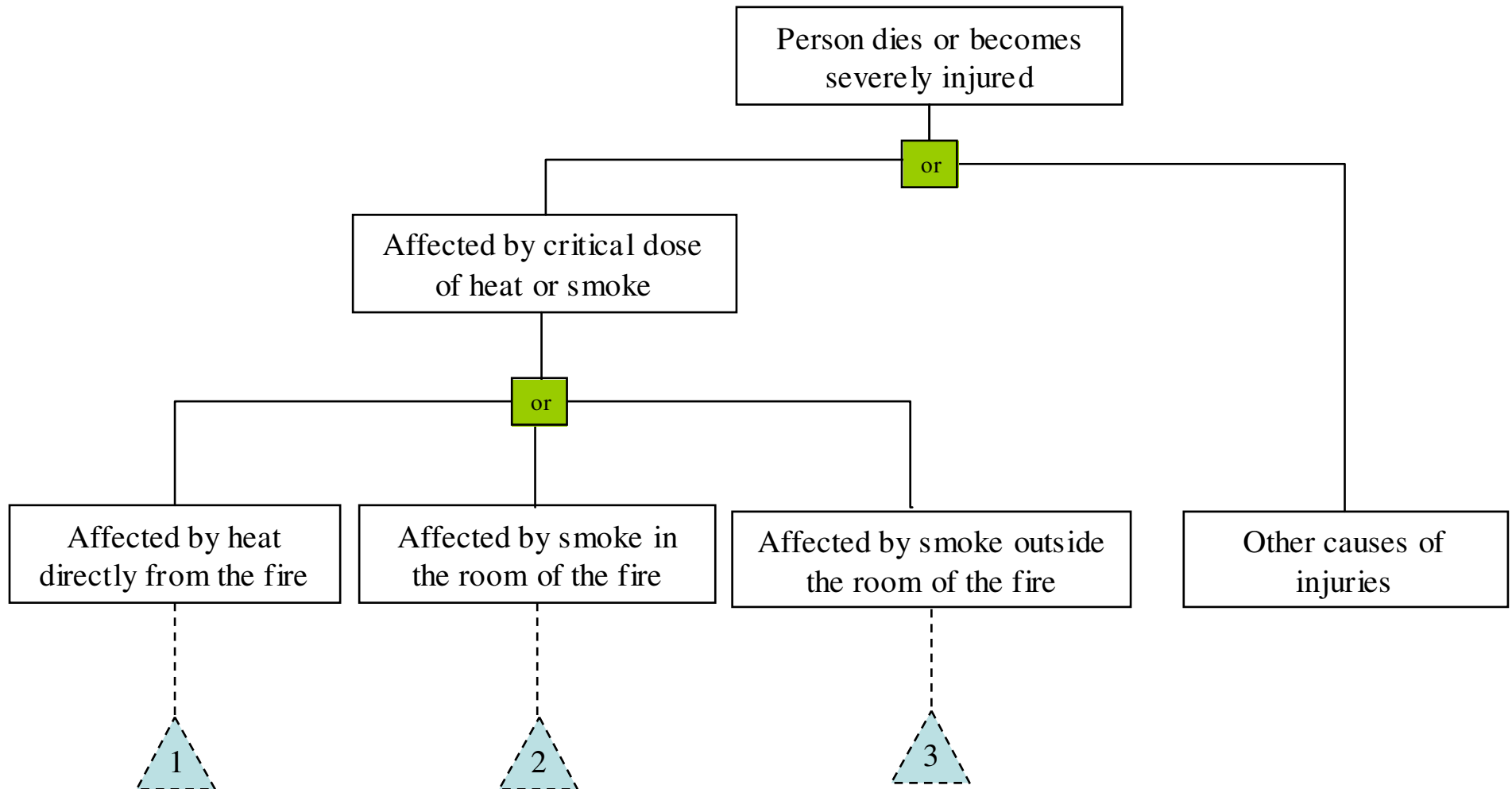


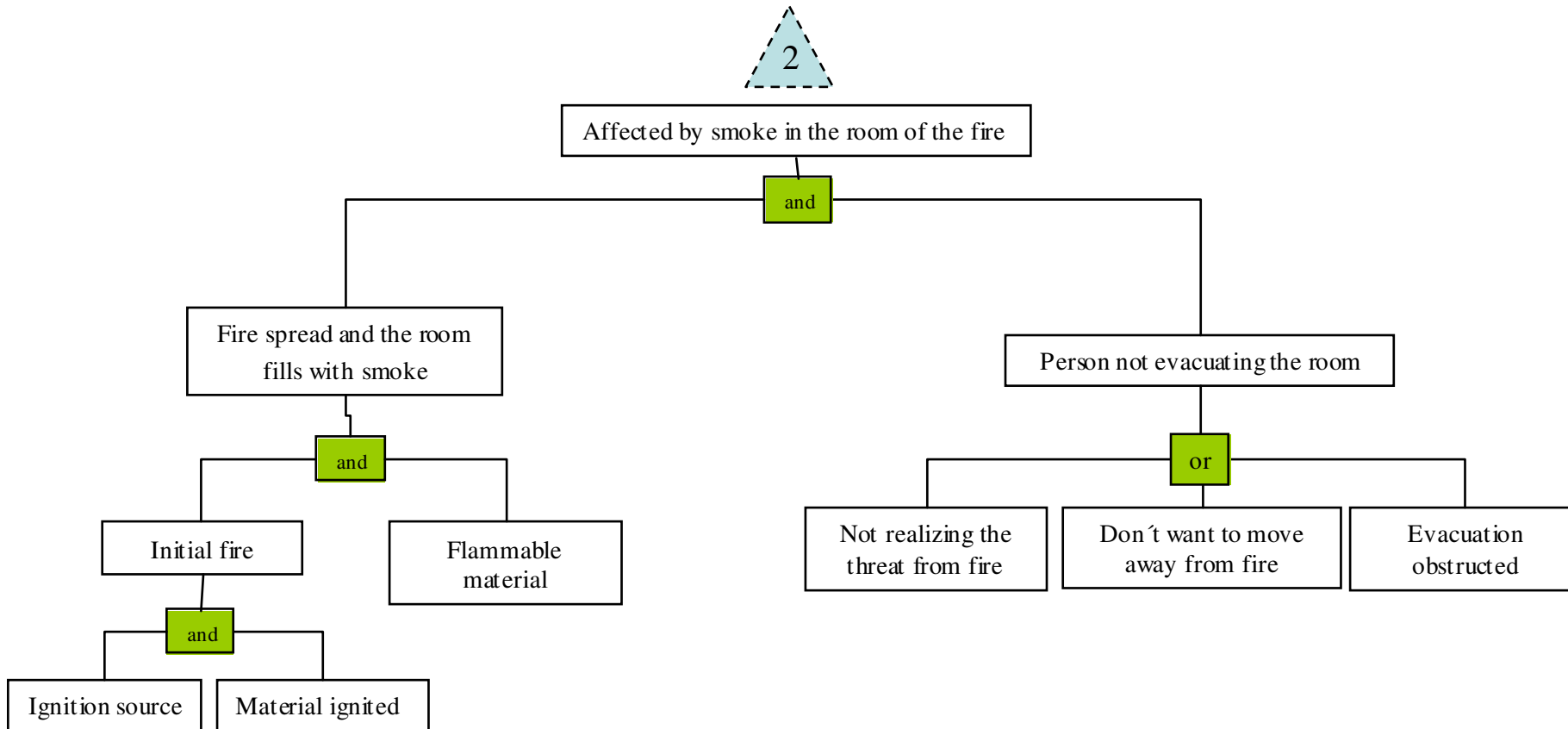
Condition at the time of the fire

Underlying factors



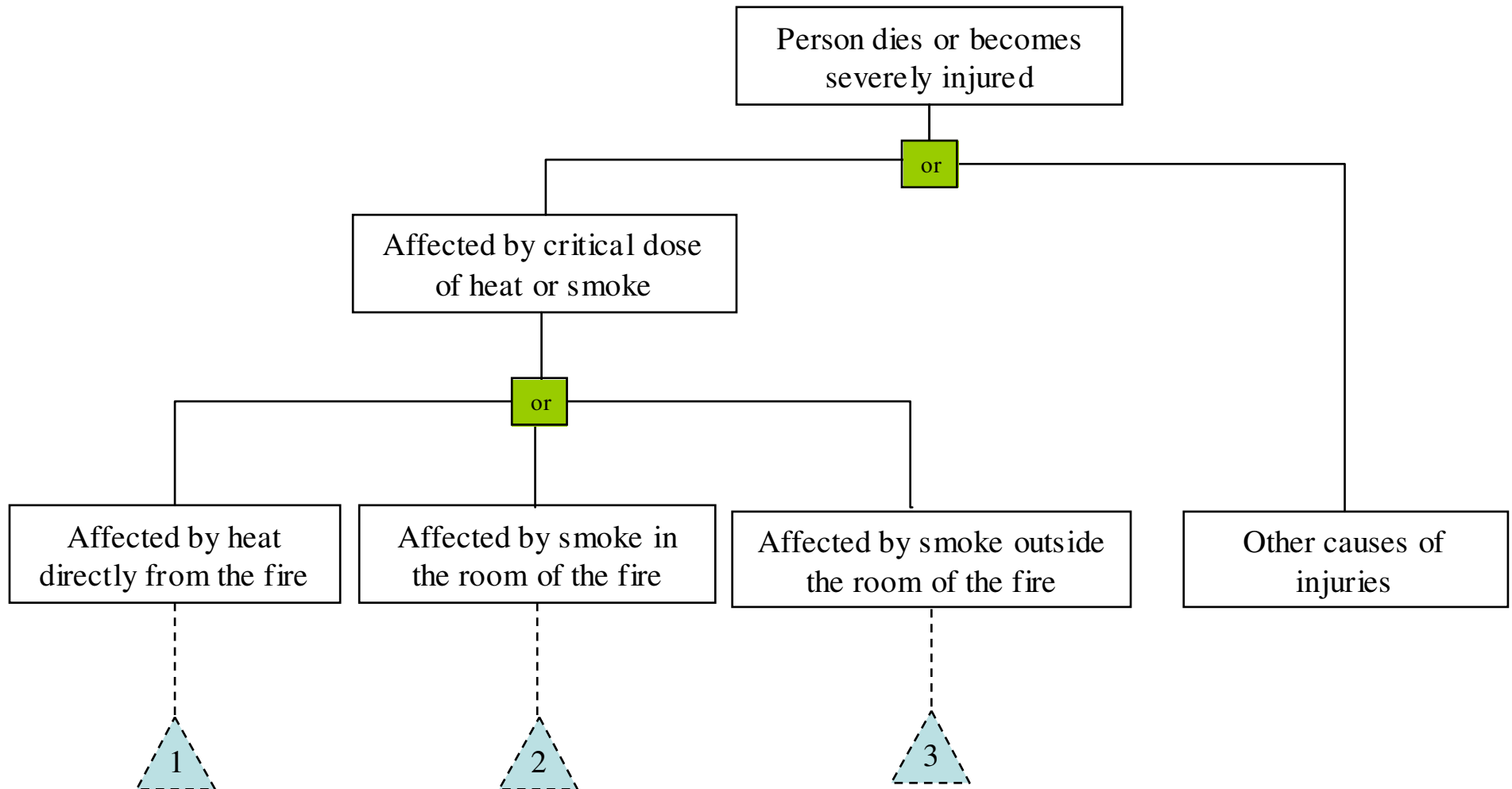
Fatal fires!

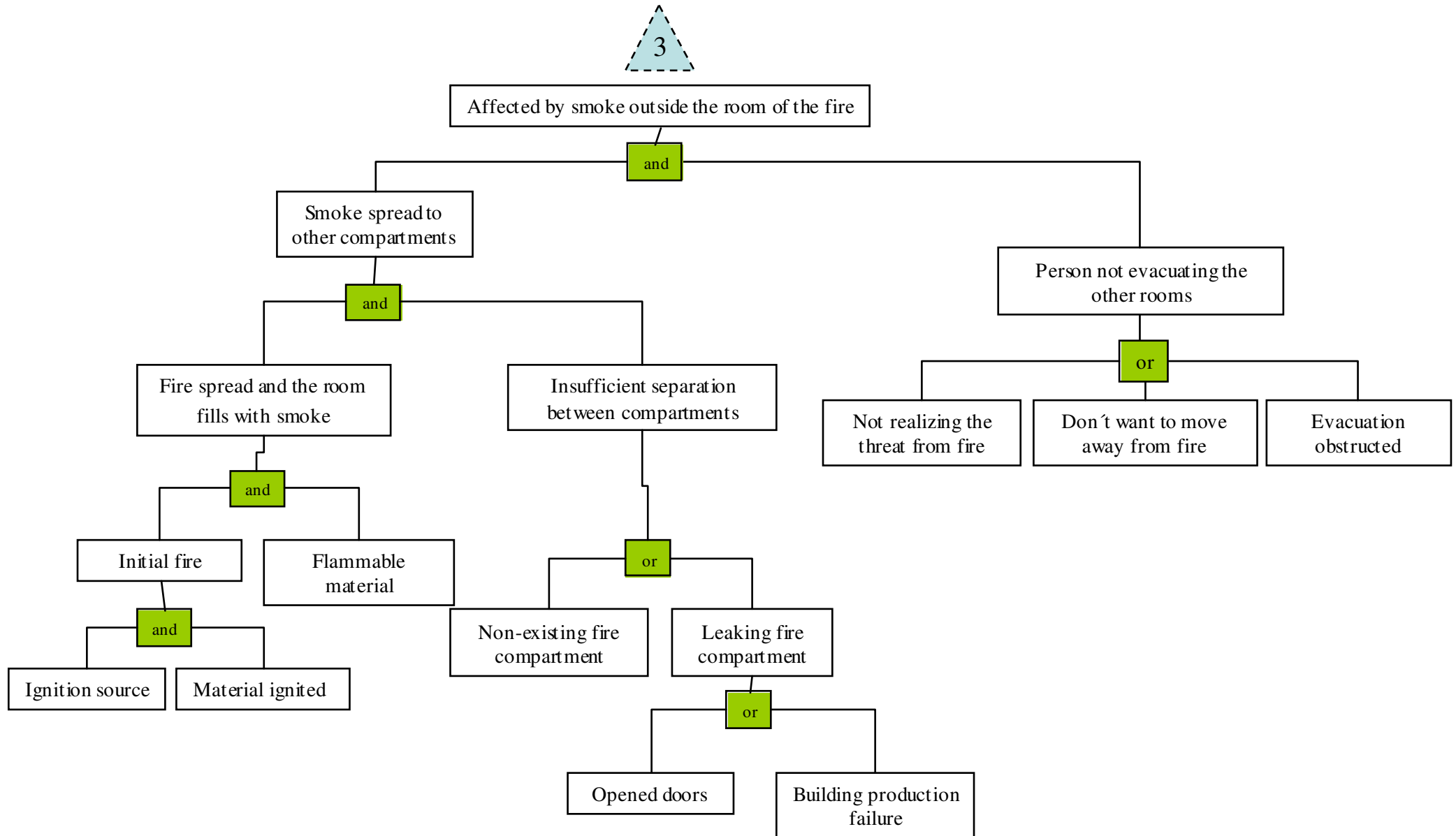




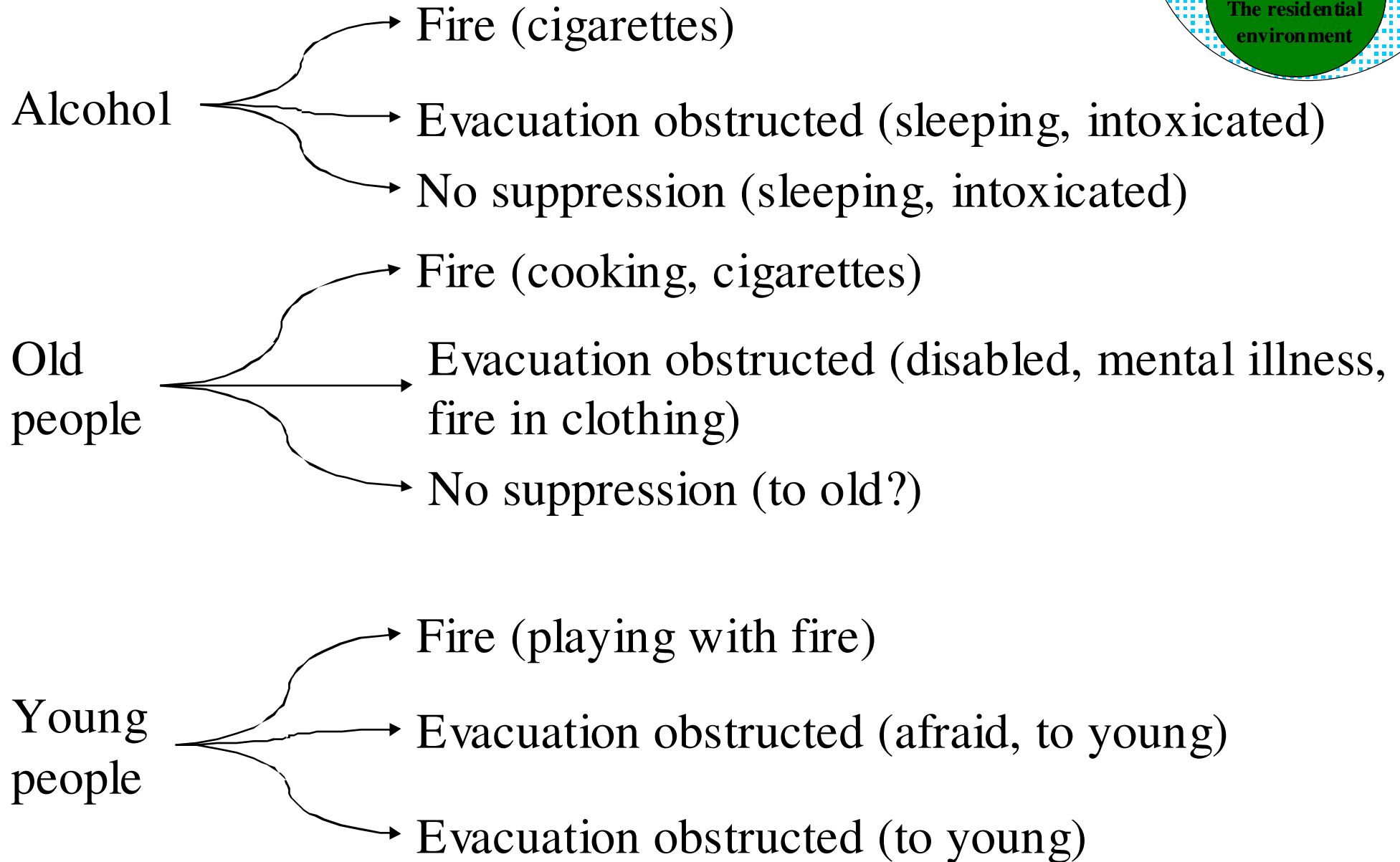
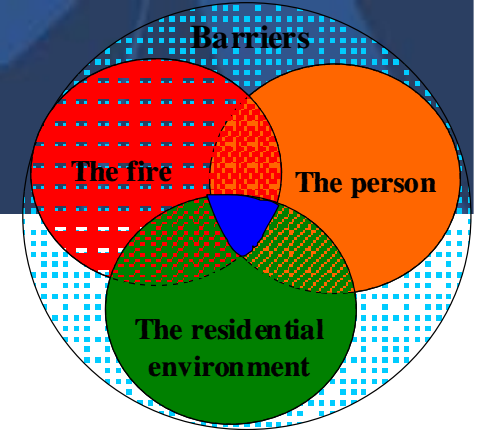


Fatal fires!



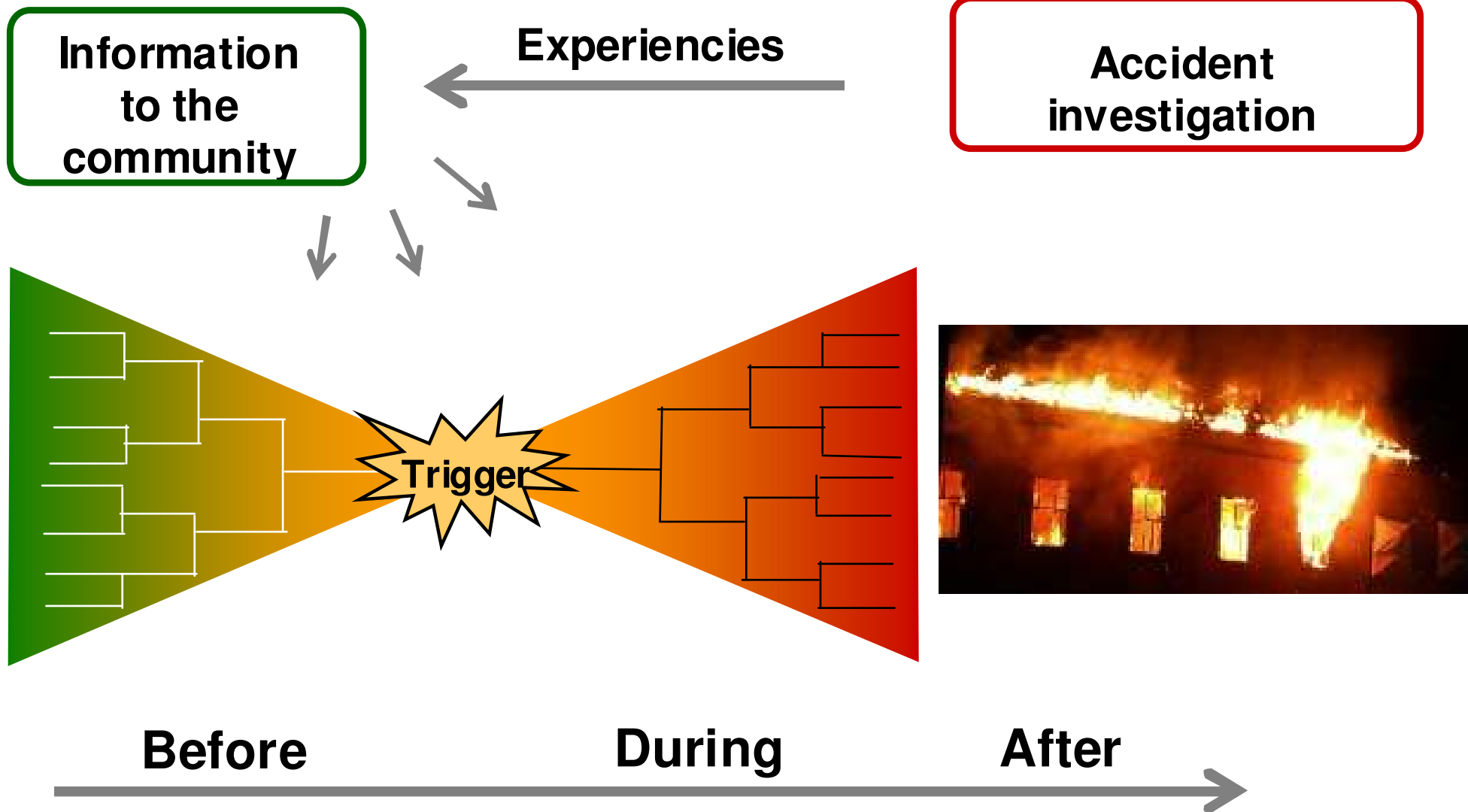


Fire + evacuation
obstructed + no fire
suppression = Fatal fire





Learning from accidents – a part of the community safety strategy





Storstockholms
brandförsvär



Thank you!

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