

Drowning Statistics in Germany

Comparison of Different Reporting Systems

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Definition of Drowning:

„Drowning ist the process of experiencing respiratory impairment from submersion/immersion in liquid. Drowning outcomes are classified as death, morbidity and no morbidity.“*

*(Congress on Drowning, Amsterdam 2002)

One of the messages of the WWSC Porto 2007:

“Drowning needs more attention.”
Prevention needs better and more information
about the real reasons of drowning.

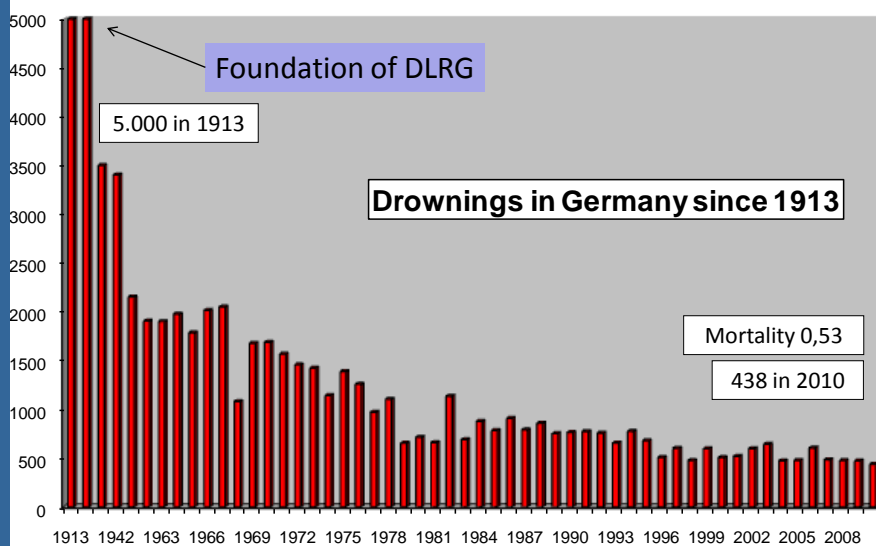


Facts on Drowning

- Drowning is one of the major causes for unnatural death in Europe especially for children as well as for elders.
- Nearly half a million people drown each year worldwide.
- The drowning figure of Europe was about more than 37.000 reported by WHO in year 2000.
- Nearly 5.000 of the drowning victims were children.
- Children and elders with 50 years of age or older are in the focus of the prevention.



Decrease of Drowning in Germany



German Statistics of Drowning

- The absolute drowning figure of Germany is about 500 people per year.
- **every 20th victim in Germany is a toddler**
- **every 14th victim in Germany is a child**
- **every 2nd victim in Germany is a senior person (50+)**



International and National Statistics of Drowning

Drowning Reports are published on the base of:

- causes of death in the death certificates (ICD classification)
- hospital registers (ICD classification)
- police reports
- injury databases (like IDB of EU)
- scientific studies (local or regional) or qualified estimations (developing countries) or
- press cuttings.



Aim of my paper

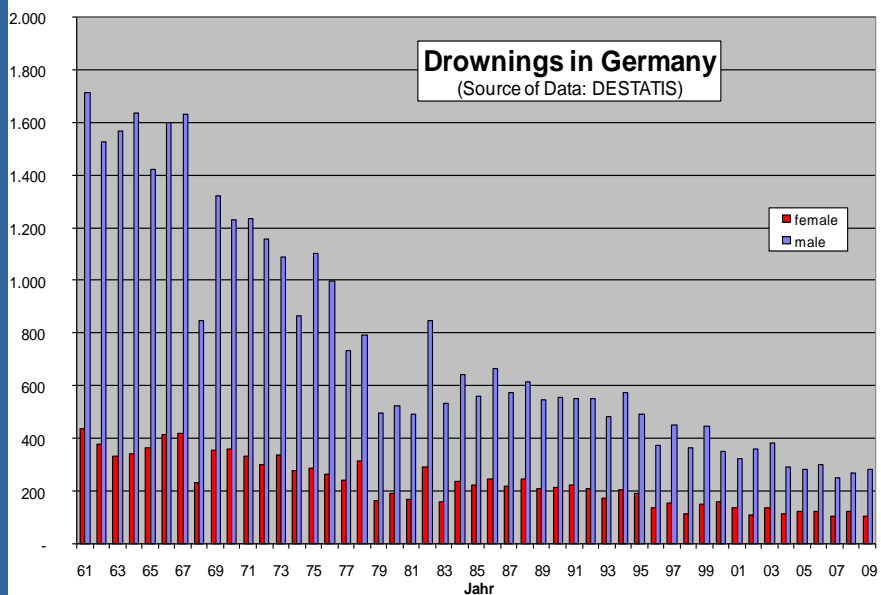
Estimation of the **real** German drowning figure by analysis, combination and comparison of the

Drowning Reports on the base of:

- causes of death in the death certificates (ICD classification)
- hospital registers (ICD classification)
- press cuttings.



Official German Statistics of Drowning



What the official statistics of drowning doesn't tell :

- Drowning in the official statistics are only those cases of W65...W74 (ICD-10)

W65-W74	accidents with drowning and submersion
W65	drowning and submersion in a bathtub
W66	drowning and submersion after a fall into the bathtub
W67	drowning and submersion in a swimming pool
W68	drowning and submersion after a fall into a swimming pool
W69	drowning and submersion in natural waters
W70	drowning and submersion after a fall into natural waters
W73	other specified drowning and submersion
W74	not specified drowning and submersion

in 2009: W65...W74 383 cases



- Each physician is allowed to certify the death of a person.
- Problems to choose the right ICD-10 code(s) for the diagnosis.

Characteristics of the DESTATIS Statistics

based on death certificates

- **Pro**
 - classification according to ICD-10
 - sex
 - age
 - free of costs
- **Con**
 - two years later
 - not all cases according to the definition of drowning
 - causes of death are sometimes not correct
 - not enough information for prevention
 - based on the victim's place of residence

DLRG Statistics of Drowning

1. Data Collection

- Started in the year 2000
as an additional part of a regular press analysis of DLRG on the basis of an evaluation of:
 - original press reports regarding cases on drowning in Germany,
 - internet research on drowning in Germany,
 - information from 2,000 local and regional DLRG organisations/clubs,
 - additional case related research to confirm the facts.



DLRG Statistics of Drowning

2. Press Clipping

- The clipping is realised by an agency called „AUSSCHNITT - Deutsche Medienbeobachtungsagentur“.
- Coverage: whole Germany (2,500 newspapers, 2,500 other publications, 44 regional and subject-specific services of 11 agencies).
- Keywords: drowning, death in the water.
- More than 4,389 reports have been evaluated statistically in 2009.
- There is a minimum of 2 up to 50 clippings per case.
- Costs per clipping: 2,37 € (incl. fee per keyword, handling of the clippings, documentation and postage).



DLRG Statistics of Drowning

16-jähriger Paddler, Tod im Holtsee
Drama bei Eckernförde: Der auf dem Holtsee verunglückte 16-jährige ist tot. Taucher bargen gestern die Leiche des Jungen. Es war mit zwei Freunden auf den See hinausgefahren. Dabei war das Boot gekippt, die Mitfahrer konnten sich retten.

Jungfer Mann im See ertrunken
Tragisches Unglück am Schwetzer-Lager - Verzweifelte Suche der DLRG

Beim Baden in der W... UNGLÜCK 46-jähriger aus Rodenkirchen geht plötzlich...

Nachrichtengenturen-Auswertung	
Datum:	15.07.2005
Uhrzeit:	07:17 Uhr
Mediennummer:	7819
Thema-Nr.:	740.006
Zielen:	500

AUSSCHNITT MEDIENBEACHTUNG
790

DLRG Statistics of Drowning

3. Data Analysis and Classification

The parameters are

- sex
- age
- date of the accident
- place of the accident (ocean, lake, private or public pool, etc.)
- assignment to regions
- what has happened and
- contributing factors (boats, surf boards, inflatable toys, alcohol, ...).

Further criteria details (with a chance of still more specification):

- drowning in rivers, public swimming pools, private pools, garden ponds, ditches, port facilities
- drowning during sports and leisure activities or occupation, e.g. surfing, sailing, diving, canoeing, fishing, ice skating
- backgrounds like accident, illness, alcohol, suicide
- weather and water conditions, bystanders etc.

All different criteria can be analysed in combination with each other.

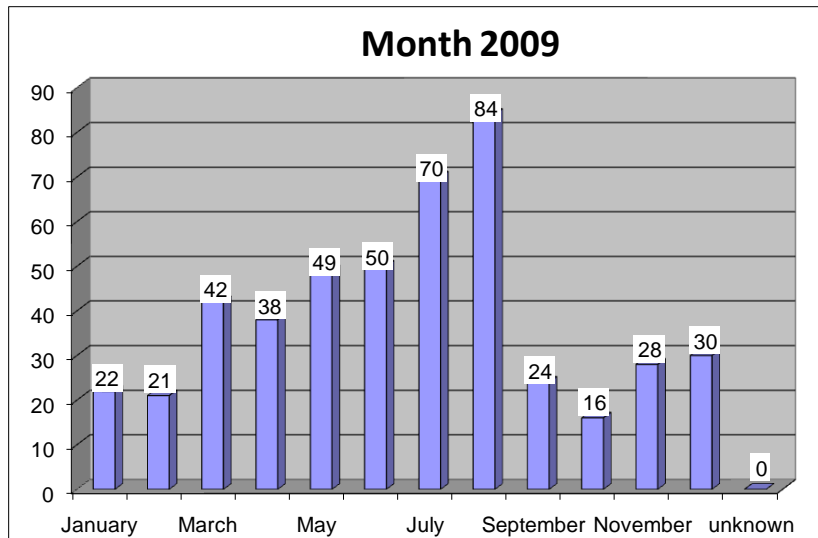


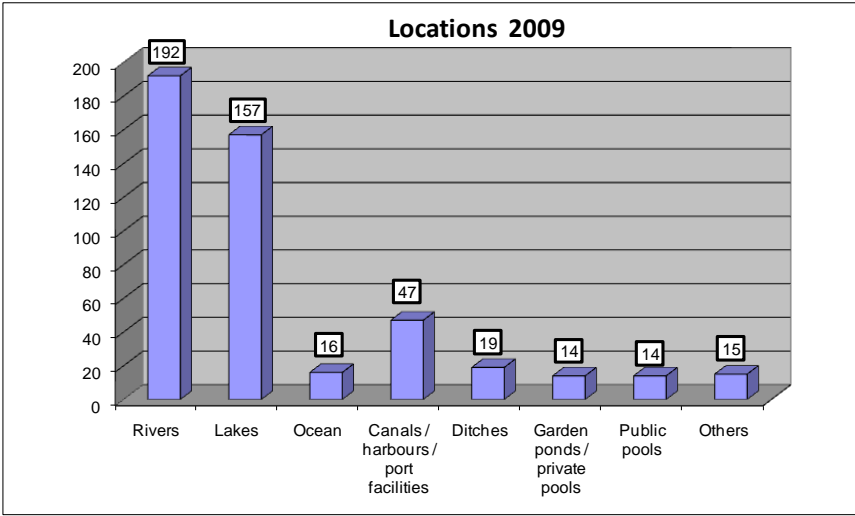
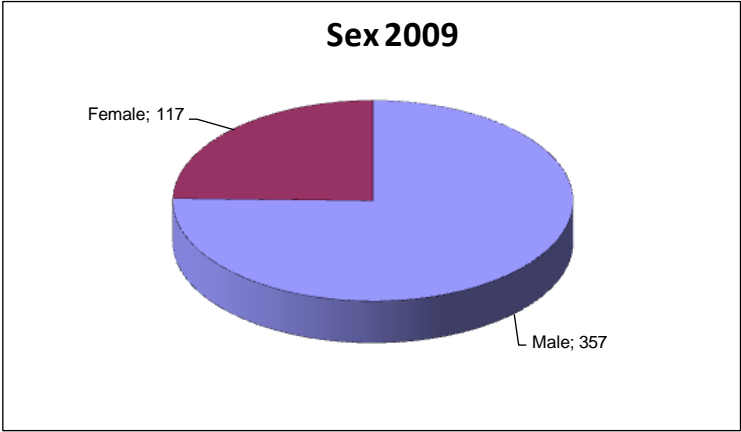
DLRG Statistics of Drowning

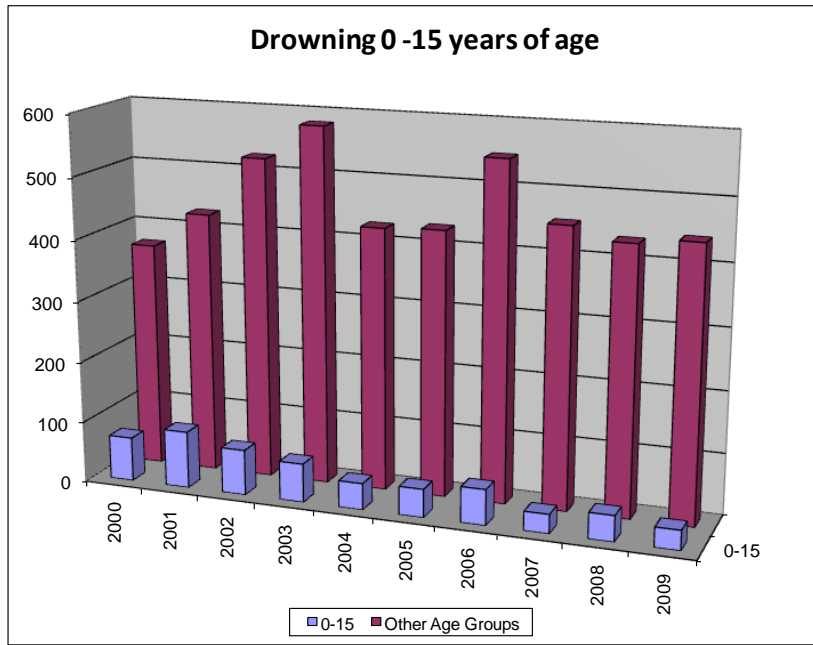
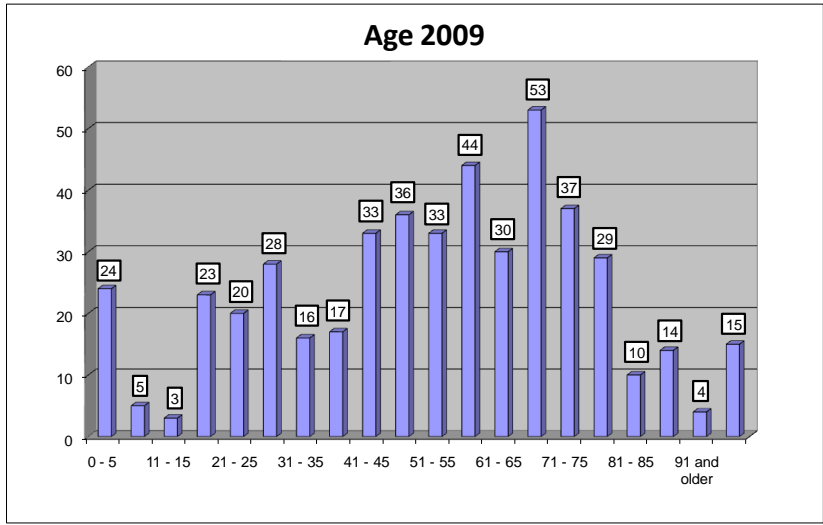
Analysis for 2009

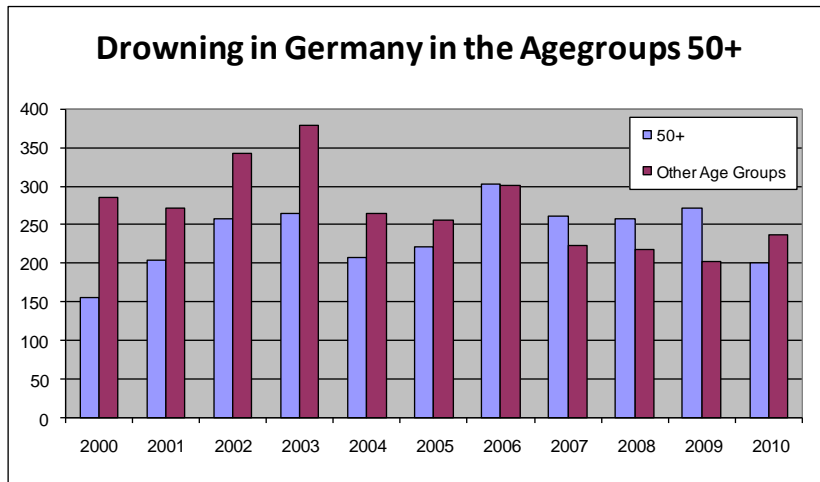
In 2009 at least **474** people drowned in Germany.
but only **383** cases in the DESTATIS Statistics

The selection of the 2009 statistics on month, locations, sex and age describes the situation as follows :









Drowning of persons 50+ in Germany

Rising of absolute figures: 155 to 271 (max. 303)
 and relative figures 35,2% to 57,1% of the drowning

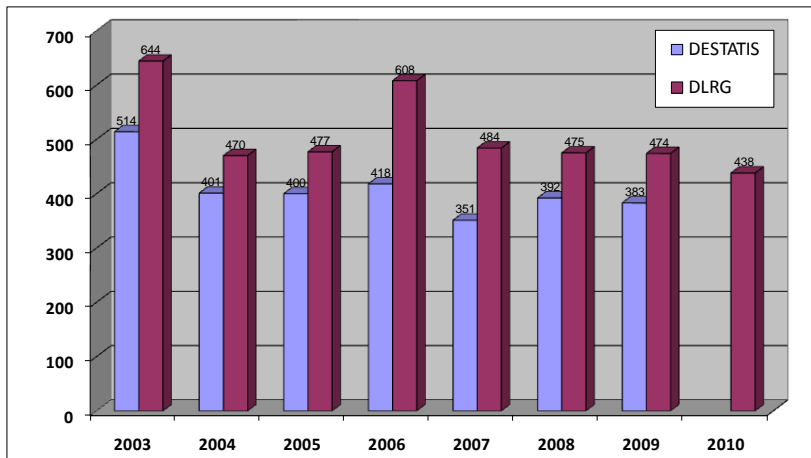
The relative amount of this age group in the population is 37,4% (but e.g. the different relation of the sex under all aspects has to be mentioned additionally).

The reasons for drowning in this age group are mainly:

- thoughtlessness often combined with alcohol,
- overestimation of strength and ability,
- state of health (heart and circulation system),
- ability to swim.



Comparison of the two Statistics of Drowning



DLRG: drownings in Germany
DESTATIS: drownings of German citizens



Characteristics of the DLRG Statistics

based on press clippings

- **Pro**
 - quick (just after the accident, available at milestones)
 - sex
 - age
 - location
 - circumstances
 - contributing factors
- **Con**
 - not free of costs
 - better information for prevention
 - based on the place of the accident

Comparison of the two Drowning Statistics

Jahr	Statistik	Alle Altersgruppen	<1	1-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	>=90
2009	DESTATIS	383	3	27	7	2	10	12	13	10	12	22	21	28	27	23	41	44	41	21	17	2
	DLRG	474		24	5	3	23	20	28	16	17	33	36	33	44	30	53	37	29	10	14	4
	DLRG/DESTATIS	124%		80%	71%	150%	230%	167%	215%	160%	142%	150%	171%	118%	163%	130%	129%	84%	71%	48%	82%	200%

Vergleich der DESTATIS-Todesursachenstatistik mit dem DLRG-Press-Clipping

DESTATIS		ICD 10: W65-W74 Unfälle durch Ertrinken und Untergehen																			
		Beide Geschlechter																			
Jahr	Statistik	Alle Altersgruppen	0-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81-85	86-90	>90
2001	DLRG/DESTATIS	114%	90%	113%	129%	250%	119%	225%	125%	165%	100%	148%	119%	111%	89%	79%	74%	71%	79%	13%	25%
2002	DLRG/DESTATIS	128%	90%	95%	90%	180%	158%	207%	145%	158%	141%	153%	130%	150%	128%	98%	67%	92%	70%	64%	67%
2003	DLRG/DESTATIS	125%	74%	66%	110%	267%	242%	229%	190%	162%	204%	126%	173%	175%	110%	96%	94%	46%	65%	73%	33%
2004	DLRG/DESTATIS	117%	71%	83%	267%	164%	227%	171%	121%	144%	114%	104%	154%	91%	137%	128%	83%	33%	69%	33%	29%
2005	DLRG/DESTATIS	119%	76%	88%	113%	195%	200%	180%	200%	169%	171%	131%	121%	86%	162%	130%	62%	51%	90%	100%	30%
2006	DLRG/DESTATIS	145%	116%	78%	200%	486%	180%	225%	190%	142%	162%	178%	136%	143%	175%	119%	106%	68%	158%	42%	17%
2007	DLRG/DESTATIS	138%	82%	57%	100%	140%	236%	189%	320%	215%	233%	148%	89%	129%	162%	141%	86%	124%	125%	75%	43%
2008	DLRG/DESTATIS	121%	50%	100%	163%	83%	244%	140%	138%	186%	156%	164%	103%	168%	87%	169%	95%	83%	54%	65%	100%
2009	DLRG/DESTATIS	124%	80%	71%	150%	230%	167%	215%	160%	142%	150%	171%	118%	163%	130%	129%	84%	71%	48%	82%	200%

Statistics of Death on the Basis of ICD-10 :

other water related death in the statistics:

- W16** wounded by under water sport and diving into the water without drowning and submersion
- V90** watersport accident with drowning and submersion
- V92** drowning and submersion in water traffic without an accident of a watercraft
- V93** accident on board of a watercraft without an accident of the watercraft and without drowning and submersion
- X71** suicide by drowning and submersion
- Y21** drowning and submersion, circumstances unknown

in 2009: W65...W74

W16, V90, V92, V93, X71, Y21

Total

383 cases

739 cases

1,122 cases



Deutsche Lebens-Rettungs-Gesellschaft e.V.

What the official statistic of drowning doesn't tell :

- Not all drownings per definition of Amsterdam are fatal drownings

Special results of a spot research by the Therapy Center Vogtareuth:

- every 4th drowned child, which was resuscitated, died within the 1st year after the accident,
- 18% haven't yet waken up after a years time,
- 37% kept heavy neurologic damages,
- 13% kept medium neurologic damages,
- just 7% of the cases kept no or less neurologic damages,
- every 2nd child suffers from epilepsy.

- cases of late death are often not registered as drownings
- cases of near drowning are not registered



Hospital Statistics for Drowning and Nonfatal Submersion

Duration in Hospital	2009	10 Years	Average
cases of hours	58	689	69
1 day	188	2255	226
2 days	119	1611	161
3 days	35	673	67
4 days	25	365	37
5 days	15	253	25
6 days	4	185	19
7 days	12	178	18
8-9 days	14	227	23
10-12 days	20	244	24
13-14 days	13	107	11
15-21 days	26	235	24
22-28 days	12	148	15
29-35 days	7	73	7
36-42 days	4	27	3
43-70 days	5	59	6
71-182 days	1	35	4
183-365 days	1	12	1
over 365 days	2	5	1
Total	561	7381	738

in 2009:

ICD-10 code T75.1

561 cases

82 persons died
479 persons survived



Hospital Statistics for Drowning and Nonfatal Submersion Fatal Cases

Duration in Hospital	2009	10 Years	Average
cases of hours	38	325	33
1 day	11	117	12
2 days	10	48	5
3 days	2	20	2
4 days	1	11	1
5 days	2	24	2
6 days	2	25	3
7 days	3	16	2
8-9 days	3	31	3
10-12 days	7	32	3
13-14 days	1	15	2
15-21 days	1	27	3
22-28 days	-	6	1
29-35 days	-	3	0
36-42 days	-	0	0
43-70 days	1	2	0
71-182 days	-	0	0
183-365 days	-	0	0
over 365 days	-	0	0
Total	82	702	70

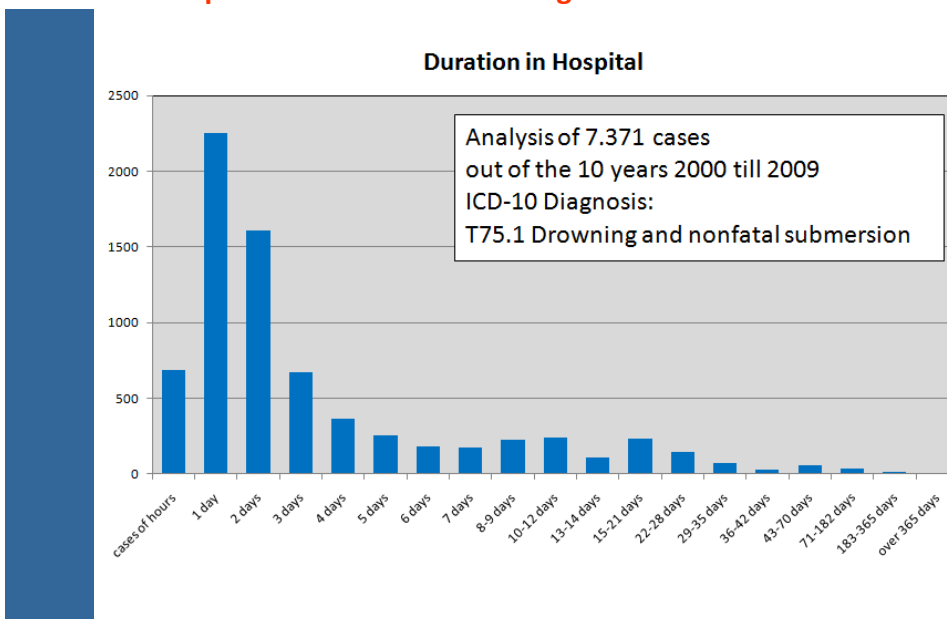


Hospital Statistics for Drowning and Nonfatal Submersion Nonfatal Cases

Duration in Hospital	2009	10 Years	Average
cases of hours	20	364	36
1 day	177	2138	214
2 days	109	1561	156
3 days	33	652	65
4 days	24	354	35
5 days	13	229	23
6 days	2	160	16
7 days	9	161	16
8-9 days	11	196	20
10-12 days	13	212	21
13-14 days	12	92	9
15-21 days	25	208	21
22-28 days	12	63	6
29-35 days	7	70	7
36-42 days	4	25	3
43-70 days	4	57	6
71-182 days	1	35	4
183-365 days	1	12	1
over 365 days	2	5	1
Total	479	6594	659



Hospital Statistics for Drowning and Nonfatal Submersion



Characteristics of the Hospital Statistics

based on hospital records

Pro

- classification according to a reduced ICD-10 list
- sex
- age
- free of costs

Con

- two years later
- not all cases of drowning come to hospital
- not enough information for prevention
- only the main cause of death is recorded
- based on the victim's place of residence

Result of the combination of the statistics for 2009

Fatal Drownings:

W65...W74	383 cases
W16, V90, V92, V93, X71, Y21	739 cases
T75.1 (death in hospital)	82 cases
Total	1,204 cases

Nonfatal Submersions:

T75.1 (survived in hospital)	479 cases
Recorded Rescues of DLRG	723 cases
Recorded Rescues of others	≈ 500 cases
Total	≈ 1,700 cases

Result: ca. 2.900 Drownings according to the definition of Amsterdam without the dark figure



Summary

- The national drowning statistics based on death certificates can't give answer to the questions where and how to prevent.
- Death in the water has more causes than those of drowning according to ICD classification W69...W74.
- The real drowning figures are higher as in the official national statistics of death.
- A statistics on the base of collecting press cuttings gives a lifesaving federation information for strategic decisions and activities in prevention.
- Fatal accidents are reflected in media reports to a particularly great extent.



Summary

- The objective of any drowning statistics is to gain knowledge about what preventive measures must be taken and where they must be taken in order to significantly reduce the number of fatal water accidents in the future.
- Therefore, reports generated from such press cuttings offer an abundance of information about causes and circumstances of deaths by drowning as well as background information about the people concerned.
- The method is not expensive.
- The national death statistics should be completed with data from a press analysis.



Summary

- The data can give information about drowning during different activities (swimming, surfing, sailing, diving, etc.) and dangerous locations.
- Thus, the evaluation and presentation of the results in the standard categories is carried out to a large extent on the base of the IDB (injury data base) code as well.
- The hospital statistics delivers a certain number of cases of nonfatal submersions.
- About nonfatal submersions (or non lethal drownings according to the definition of Amsterdam) in Germany does not exist any comprehensive statistics.

Only the combination of all statistical reports allows a well qualified estimation of the real drowning figure and an effective prevention.



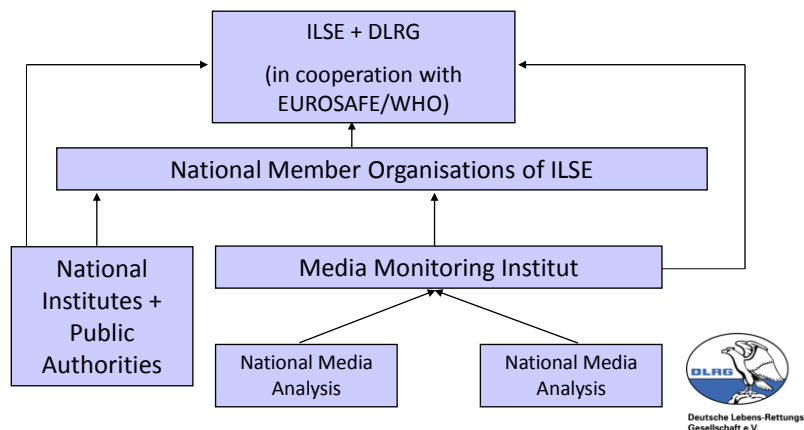
The Vision of an International Statistics of Drowning

- We need further information about the individual cases from all places, to fight death by drowning all over the world
- We cannot rely only on public statistics because they are not available everywhere and they don't tell all important aspects of the circumstances of drowning
- We need to figure out more detailed information on a common basis to be able to get results compared for all different risks
- We should get the data early (in a following year) to act in time
- ILS member organisations should play a more and more active role to provide the specific data
- We must cooperate between private and public organisations and institutes with the support of structures like WHO and the European Union



The Vision of an European Statistics of Drowning

National Lifesaving Societies under the guidance of International Lifesaving of Europe (ILSE) and with the experience of DLRG try to build up an European drowning statistics.



Thank you for your attention

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