

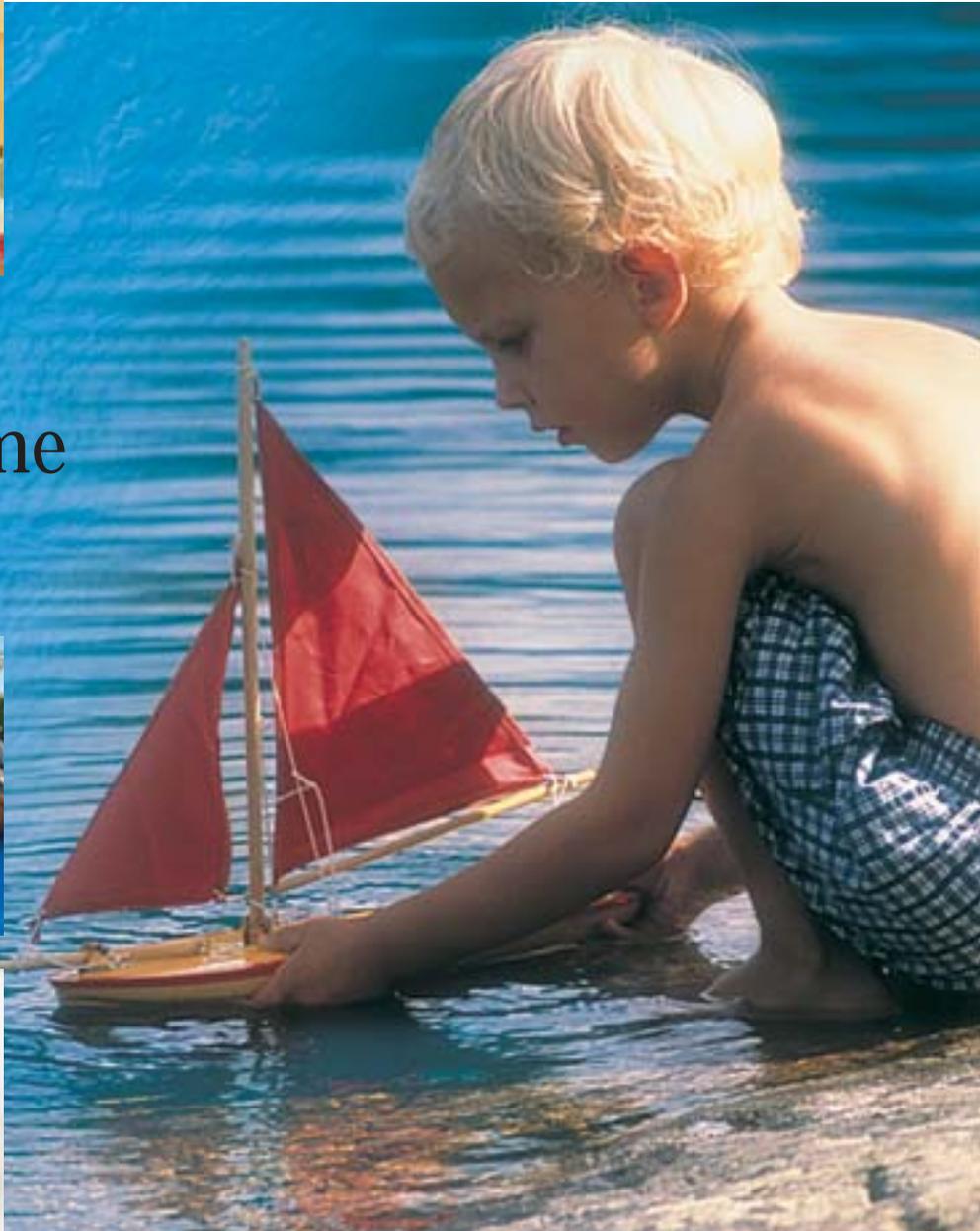
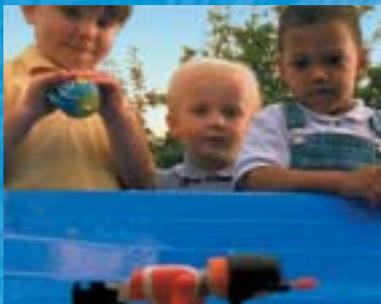


Consumer Affairs Directorate

STRENGTHENING CONSUMERS AND BUSINESS



Drownings in the Home & Garden



dti

Department of Trade and Industry

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The objectives, background & method of this project

The DTI wishes to reduce the number of drowning incidents occurring in dwellings wherever practical. A study was commissioned to establish the facts behind the fatal incidents and the factors that increase the risk of an incident occurring.

Objectives

For some time the DTI has been concerned about the number of drowning incidents that take place within the domestic environment, particularly as initial indications point to the fact that a large number of young children are involved. Drowning is the third largest cause of accidental death in the home in under fives.

The DTI commissioned the Business Strategy Group to carry out a full investigation of drowning incidents in the home and garden. The brief was to provide a comprehensive picture of the type of incident, the profile of those affected and the behavioural factors that increase the risk of a fatal incident. The resultant profile of the incidents will then be used to put appropriate programmes in place to reduce the numbers of fatal drowning incidents in dwellings.

There was to be a focus on incidents involving children. The findings for a survey of drowning incidents involving children of five and under in the garden and swimming pools have been published as a separate report (DTI Ref. URN 00/906 July 2000).

Background

There are 24,000 households in the UK (source: DETR).

Around 82% of households (19.7 million) have a garden. The number of gardens with some form of water feature is estimated at approximately 13%, representing around 2.5 million water features in UK gardens.

Approach and the Method for this Project

A complete analysis was made of the ONS (Office of National Statistics) drowning data and domestic drowning incidents identified. Individual Coroners were then contacted so that access could be gained to their notes relating to domestic drowning incidents.

These findings were then cross referenced with newspaper reports held on file by RoSPA (Royal Society for the Prevention of Accidents). This approach provides more comprehensive coverage than is possible using any one data source in isolation. RoSPA data for incidents in Scotland, Northern Ireland & the Channel Islands were added to the ONS data, which cover England & Wales.

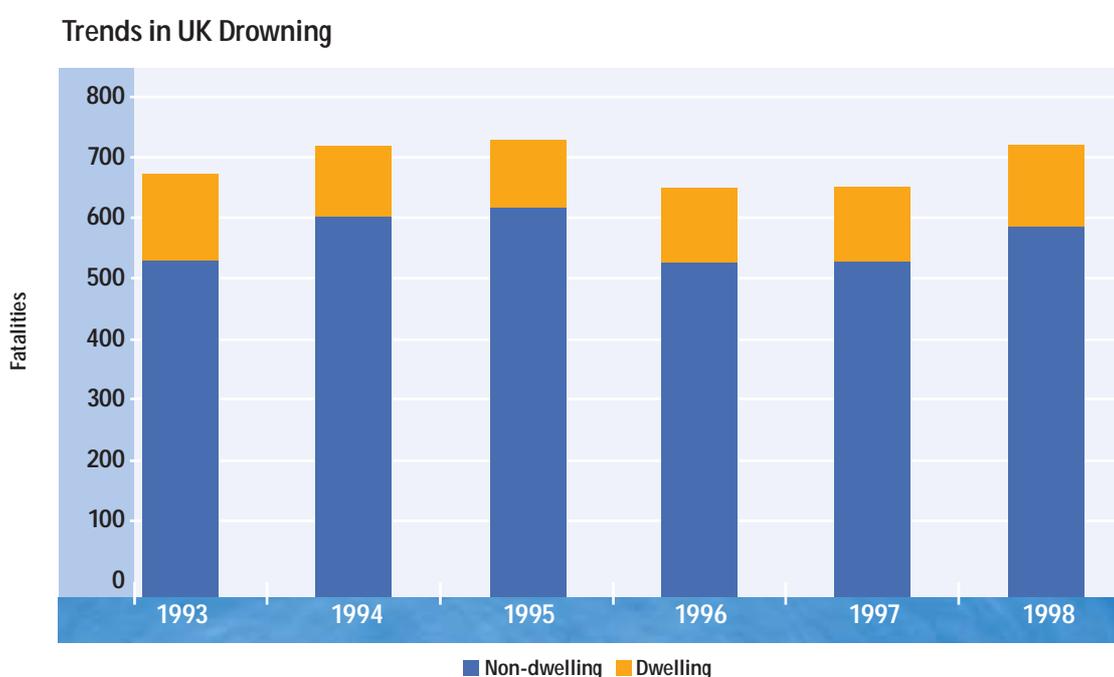
A detailed analysis of the incidents identified was then undertaken in order to build a picture of the common scenarios and behavioural factors involved in fatal incidents.

In order to place domestic drowning in context, BSG analysed all ONS and RoSPA drowning data and undertook a survey of a sample of the incidents where the place of death in ONS was unknown or unclear. 33% of such incidents were sampled and the findings used to apply to the remainder.

Drowning incidents in the UK

There were 4,151 UK drowning incidents recorded for the years 1993 to 1998, an average of 691 per annum. A further 319 incidents were analysed for 1999, though this does not represent a complete year. In all, 4,470 UK drowning incidents were analysed. 1996 & 1997 were below the average, but no trend is apparent. Rivers account for 31% of all drowning incidents, followed by dwellings at 17%, sea 15% and canals 10%. Dwellings account for 31% of female incidents but only 12% of male. Dwellings account for 70% of all incidents involving children under 5 years old. The data for England & Wales includes suicide by drowning - this accounts for 15% of incidents.

TRENDS IN UK DROWNING BY DWELLING & NON-DWELLING



UK Drowning - Trend by Dwelling & Non-dwelling, 1993 - 1999

Incidents	1993	1994	1995	1996	1997	1998	1999	Total	%	Av/yr**
Dwelling	129	108	106	118	104	139	78	782	17%	117
% Dwelling	19%	15%	15%	18%	16%	19%	n/a			
Non-dwelling	546	606	623	538	551	582	242	3688	83%	574
% Non-dwelling	81%	85%	85%	82%	84%	81%	n/a			
Total	675	714	729	656	655	721	320*	4470	100%	691

Source: Business Strategy Group by analysis of ONS & RoSPA data & survey of Coroners.

*1999 data does not represent a full year.

**Average based on 1993 - 1998

The Office of National Statistics (ONS) database includes 3,970 recorded deaths attributed to drowning from January 1993 to September 1999 (the latest data available for analysis) covering England & Wales.

The Royal Society for the Prevention of Accidents (RoSPA) publishes data based on press cuttings and provided Business Strategy Group (BSG) with data for 1992 to 1998 (the latest published data). These data included 443 drowning incidents in Scotland, Wales and the Channel Islands over the period 1993 to 1998.

RoSPA provided access to their press cuttings and allowed BSG to analyse a further 57 incidents relating to drowning incidents in dwellings to the end of 1999 (data as yet unpublished by RoSPA).

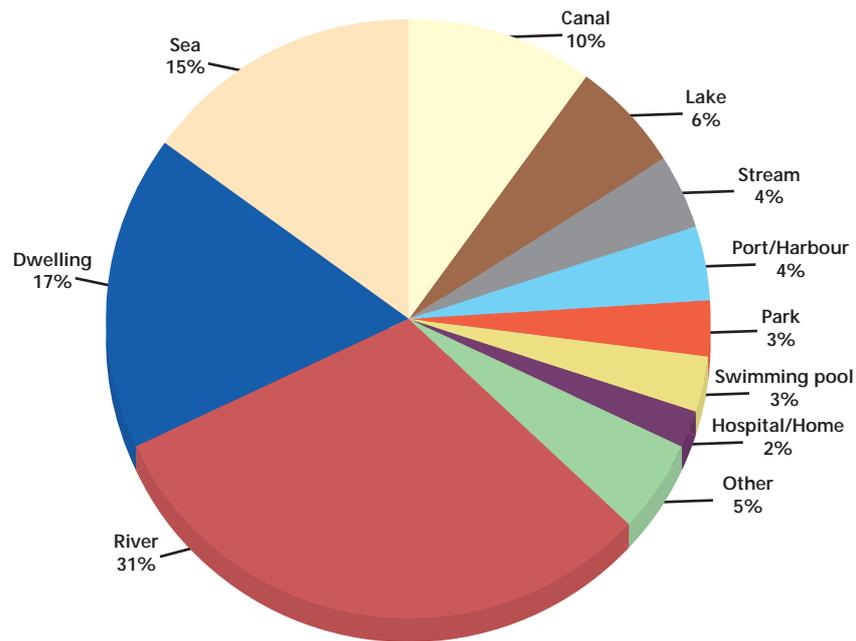
In total, therefore, BSG was able to analyse 4,470 drowning incidents over the period 1993 to 1999.

Complete data was available from 1993 to 1998 and indicates an average of 691 drowning incidents per annum in the UK.

Dwellings account for 782 of these fatalities, with non-dwellings accounting for 3,688. Over the six complete years 1993 to 1998, this represents an average of 117 fatal drownings in dwellings and 574 in non-dwellings per annum. Dwellings accounted for 17% of incidents over the period 1993 to 1998. 1999 data included RoSPA data for the whole of 1999, but incomplete data for non-dwellings (non-dwelling data for England & Wales covered the period January to September, while no data was available for Scotland, Northern Ireland and the Channel Islands).

There is no apparent trend in these data, though 1994 & 1995 were above average years in non-dwelling drowning, while 1993 & 1998 were above average in dwelling drowning.

LOCATION OF DROWNING INCIDENTS IN THE UK



UK Drowning - Location of Incidents, 1993 - 1999

	Total*	%
River	1,368	31%
Dwelling (home & garden)	782	17%
Sea	651	15%
Canal	469	10%
Lake/Reservoir	267	6%
Port/Harbour/Marina	187	4%
Stream/Ghyll/Drainage channel etc.	158	4%
Town/Country parks - pond/lake	137	3%
Public/Private swimming pool	116	3%
Hospital/Nursing Home etc.	106	2%
Other locations	229	5%
Total	4,470	100%

Source: Business Strategy Group by analysis of ONS & RoSPA data & survey of Coroners.

* The ONS data frequently gives no clue as to where an incident occurred, e.g. if death occurs in hospital, the hospital is the place of death. BSG surveyed 33% of other/unknown locations from ONS data and reallocated the balance in proportion to the sample.

UK drowning incidents occur most frequently in rivers, which account for 31% of all incidents 1993 - 1999.

Dwellings (homes & gardens) account for 17% of all incidents 1993 - 1999 and are the second largest location.

The sea (15%), canals (10%) and lakes (6%) are the other main locations.

Other locations (5%) include quarries, farms, works, angling pools, roadways (including puddles) and underground (caving).

GENDER & AGE RANGE AFFECTED BY UK DROWNING INCIDENTS

UK Drowning - Location of Incidents, 1993 - 1999

Gender/ Age range	Dwelling	% of that age group	Non-dwell	% of that age group	Total	% of grand total
Female						
0+	46	74%	16	26%	62	1%
5+	5	38%	8	62%	13	*%
10+	21	35%	39	65%	60	1%
20+	38	36%	68	64%	106	2%
30+	48	33%	97	67%	145	3%
40+	46	26%	132	74%	178	4%
50+	29	18%	134	82%	163	4%
60+	32	18%	142	82%	174	4%
70+	54	27%	144	73%	198	4%
80+	67	49%	71	51%	138	3%
Age n/k	-	-	9	-	9	*%
Sub-total Female	386	31%	860	69%	1,246	28%⁺
Male						
0+	105	69%	48	31%	153	3%
5+	8	14%	48	86%	56	1%
10+	6	2%	234	98%	240	5%
20+	41	7%	541	93%	582	13%
30+	45	9%	447	91%	492	11%
40+	35	8%	431	92%	466	10%
50+	36	8%	419	92%	455	10%
60+	33	10%	289	90%	322	7%
70+	41	18%	192	82%	233	5%
80+	45	24%	139	76%	184	4%
Age n/k	-	-	40	-	40	1%
Sub-total Male	395	12%	2,828	88%	3,223	72%⁺
Gender n/k	1	-	-	-	1	*%
Total	782	17%	3,688	83%	4,470	100%

Source: Business Strategy Group by analysis of ONS & RoSPA data & survey of Coroners.

*% indicates rounding to less than 1%.

+ indicates rounded percentages do not add up to total.

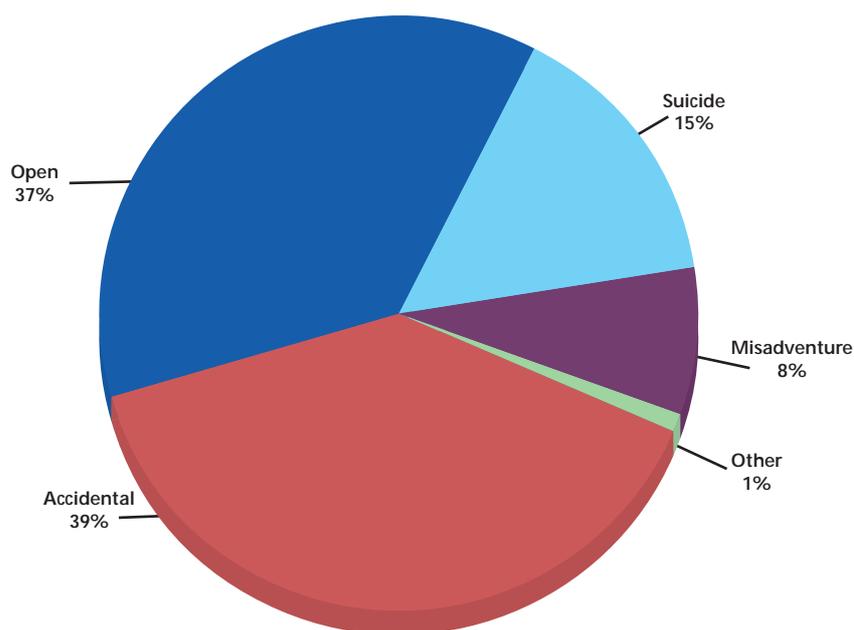
Overall, drowning incidents in the UK, involve males significantly more than females. 72% of all incidents involve males and 28% females.

Incidents in dwellings, however, are fairly evenly split between genders at 51% male, 49% female. Other locations are far more likely to involve males, at 77%, than females, at 23%. This means that only 12% of male drownings occur in dwellings, while 88% are outside the home. Almost a third of female drowning occurs in the home.

Overall, it is the 20 to 59-year-old males who are at greatest risk of drowning. They account for 44% of all drowning deaths and these deaths occur largely outside the home and garden. Over 40% of drowning incidents involving this group occur in rivers, with a further 30% split evenly between the sea and canals.

What is very noticeable is the proportion of 'under 5s' that drown in the home or garden. With 105 deaths over the seven years, there are more than double the number of 'under 5' boys drowning in or around dwellings than any other age group, male or female. These child drowning incidents in the home and garden are analysed in depth in separate reports.

VERDICT REACHED ON DROWNING INCIDENTS



UK Drowning - Verdict Reached, 1993 - 1999pt

Verdict	Dwelling	%	Non-dwelling	%	Total	%
Accidental	433	60%	1116	34%	1,549	39%
Misadventure	65	9%	254	8%	319	8%
Open	118	16%	1,335	41%	1,453	37%
Suicide	93	13%	514	16%	607	15%
Other verdicts	17	2%	25	1%	20	1%
Total	726	100%	3,244	100%	3,948	100%

Source: Business Strategy Group by analysis of ONS data

ONS data include the verdict reached in the drowning inquest. Drowning is treated as an unnatural cause of death and is always subject to an inquest. RoSPA data do not record the verdict in most incidents and so the verdict data is available for England and Wales only (1999 data do not represent a full year).

39% of drowning incidents are recorded as being 'accidental death'; 37% as an 'open verdict'; 15% as 'suicide'; 8% as 'misadventure' and 1% as other verdicts. Other verdicts include 'unlawful killing', 'natural causes', 'neglect/lack of care' and 'drug dependency'

Coroners advised that the definitions of 'suicide', 'open', 'accidental' and 'misadventure' verdicts as follows:

"To be a suicide verdict, the coroner has to be satisfied on the evidence before him that there

was no other cause of death, no other reason, remote or otherwise, which may have given rise to the death and that the intention of the deceased was there to cause his own death. Intention must be demonstrated and proved conclusively (to the criminal standard), usually by means of a note or clear statement to someone of their intention.

If there is any doubt, then an 'open verdict' is recorded.

An 'open verdict' indicates that the evidence does not further or fully reveal the means by which the cause of death arose. If it was not clear that the cause of death was accidental, then an open verdict would also be found."

Therefore, in over 50% of drowning incidents, there was evidence of suicide or there was uncertainty as to whether the fatal drowning was the result of an accident or was purposely inflicted.

"The findings of 'accidental verdict' and 'misadventure' have been described in a recent judicial review by a high court judge as "raising a distinction without a difference". Coroners themselves are not agreed on the distinction and the Home Office returns make no distinction. The two figures should therefore be taken together."

Less than 50% of drowning fatalities are, therefore, found to have been accidents or misadventures, 'without doubt'.

Drowning verdicts in dwelling incidents have a much higher percentage of 'accidental' verdicts than in non-dwellings (60% against 34%).

Conversely, there are more than double the 'open' verdicts in non-dwellings than in dwellings (41% against 16%).

UK Drowning incidents occurring in homes and gardens

There were 782 fatal drowning incidents in UK homes and gardens, an average of 111.7 per year. Most incidents occur in the bath. Incidents involving children under 10 are more likely to occur outdoors and especially in garden ponds. The South East has the highest incidence of domestic drowning overall and twice as many child drowning incidents as the next highest region.

Trends in UK drowning in dwellings



UK Drowning in Dwellings - Trend by Category, 1993 - 1999

	1993	1994	1995	1996	1997	1998	1999*	Total	%	Av/yr ⁺
Adult (10 & over)										
Adult - indoors	38	36	50	62	51	75	34	347	44%	52
Adult - outdoors	10	12	10	7	4	13	6	62	8%	9
Adult - location n/k	32	27	15	12	16	6	7	115	15%	18
Sub-total adult	80	75	75	81	71	94	47	524	67%	79
Child (under 10)										
Child - indoors	9	10	12	13	6	14	8	72	9%	11
Child - outdoors	16	8	10	10	16	8	15	83 ⁺⁺	11%	11
Child - location n/k	2	1	-	3	2	2	-	10	1%	2
Sub-total child	27	19	22	26	24	24	23	165	21%	24
Suicide										
Suicide (all adult)**	22	14	9	11	9	20	8	93	12%	14
Total	129	108	106	118	104	139	78*	782	100%	111.7

Source: Business Strategy Group by analysis of survey of Coroners & RoSPA press cuttings *1999 adult data does not represent a full year for England & Wales (data Jan to Sept). **Suicide data is for England & Wales only and 1999 does not represent a full year. + Average based on 1993 - 1998
 ++This total includes some items excluded from the child drowning in the garden report.

There were 782 drowning incidents in homes and gardens identified in the UK over the 7 years 1993 to 1999. This averages 111.7 incidents per annum. No clear trend is apparent, though 1993 and 1998 were higher than the average.

Adults (excluding suicide) and children aged 10 and over represent 67% of incidents (an average of 80 p.a.); children under 10 years of age account for 21% (an average of 24 p.a.); and suicides (who were all adult) 12% (an average of 14 p.a.).

ONS data covers England and Wales only. Data was provided complete for 1993 to 1998, but the latest data available for this analysis covered the period January 1999 to September 1999 only.

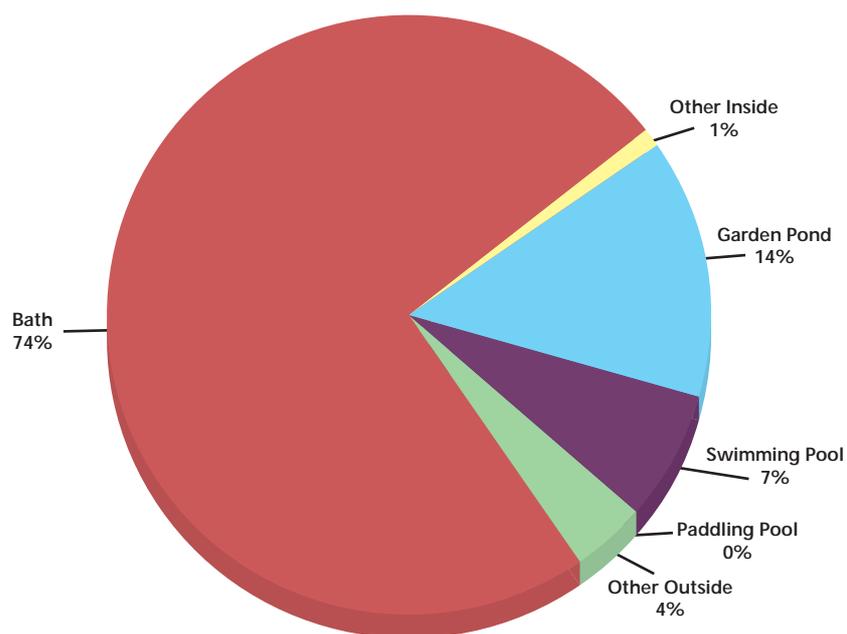
The data for England and Wales to the end of 1999, were supplemented by RoSPA data, which are based on press cuttings. These are believed to cover all child-drowning incidents for 1999.

Data for Scotland, Northern Ireland and the Channel Islands were provided by RoSPA. RoSPA collate data on accidents only. Data for these areas do not, therefore, include data on suicides.

The table above includes six additional incidents under 'Child - outdoors' that were not included in the report on 'Drowning accidents in the garden involving children aged 5 and under'. These incidents were not included in the earlier report because:

- in one incident the child was over the age of five (data above covers children under the age of 10)
- in another, the actual near-drowning incident occurred in 1991 but the child died in 1995 - 4 years later
- in the remaining four incidents, all of which occurred in swimming pools, it was not certain that the incident occurred in a dwelling - the incidents are included here for completeness against the full drowning data.

LOCATION WITHIN THE HOME & GARDEN OF UK DOMESTIC DROWNING INCIDENTS



UK Drowning in Dwellings - Location of Incidents, 1993 - 1999

	Adult	% Where known	Child	% Where known	Suicide	% Where known	Total	%Where known
Inside								
Bath	346	85%	68	44%	29	78%	443	74%
Other	1	*%	4	2%	1	3%	6	1%
Sub-total	347	85%	72	46%	30	81%	449	75%
Outside								
Garden Pond	33	8%	52	34%	2	5.5%	87	14%
Swimming PI	14	3%	23	15%	2	5.5%	39	7%
Paddling Pool	-	-	1	1%	-	-	1	*%
Other	15	4%	7	4%	3	8%	25	4%
Sub-total	62	15%	83	54%	7	19%	152	25%
Location n/k	115	-	10	-	56	-	181	-
Total	524	100%	165	100%	93	100%	782	100%

Source: Business Strategy Group by analysis of survey of Coroners & RoSPA press cuttings

*% indicates rounding to less than 1%.

The bath is the most common location for domestic drowning, accounting for 74% of all the incidents where the location was known.

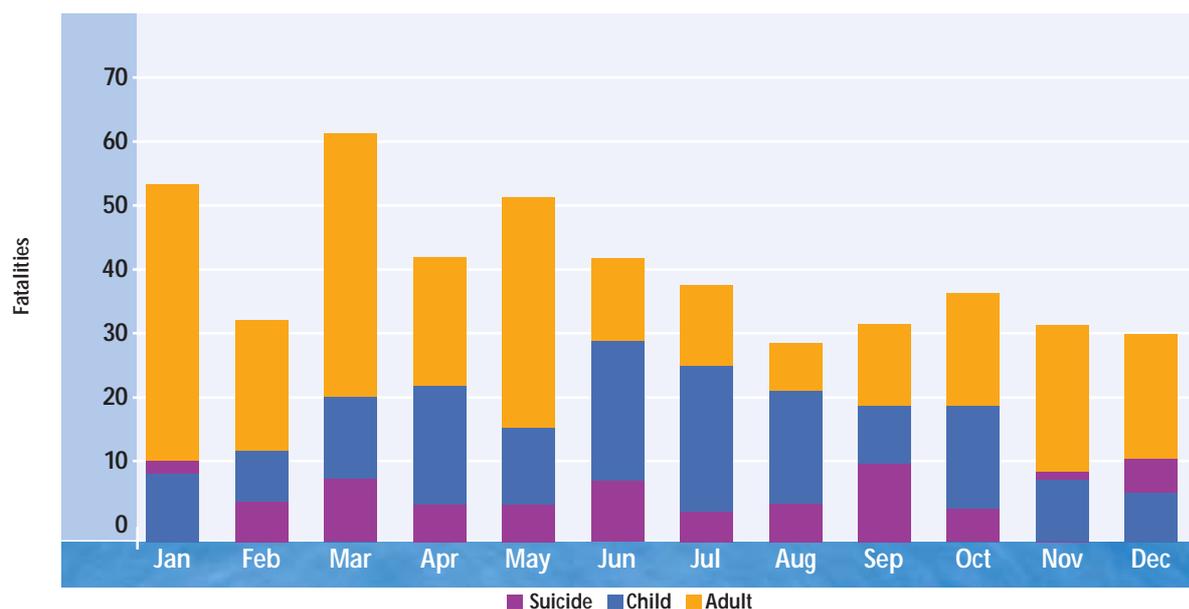
Garden ponds are the second most common location, accounting for 14% overall. Swimming pools account for a further 7% of incidents overall.

For adults (excluding suicide), the bath accounts for 85% of all incidents where the location is known, with only 15% of adult incidents occurring outside.

For children, 54% of incidents occur outside the home and 46% indoors, though the bath is the largest single location (44%) followed by garden ponds (34%) and swimming pools (15%).

In many cases, the ONS database coding and text gave insufficient detail to allow BSG to analyse the location. BSG undertook a survey of the Coroners' records to determine the location, and other details, in as many cases as was possible. In total, additional details were obtained on 549 of the 738 dwelling related incidents identified in the ONS database (74%).

SEASONALITY OF UK DROWNING INCIDENTS OCCURRING IN HOMES & GARDENS



UK Drowning in Dwellings - Seasonality of Incidents, 1993 - 1999

	Adult	% where known	Child	% where known	Suicide	% where known	Total	% where known
January	55	11%	8	5%	11	12%	74	9%
February	44	8%	9	5%	7	8%	60	8%
March	61	12%	16	10%	8	9%	85	11%
April	43	8%	18	11%	6	6%	67	9%
May	55	11%	12	7%	6	6%	73	9%
June	44	8%	24	15%	8	9%	76	10%
July	42	8%	20	12%	5	5%	67	9%
August	31	6%	17	10%	6	6%	54	7%
September	36	7%	14	9%	11	12%	61	8%
October	39	7%	14	9%	5	5%	58	7%
November	35	7%	7	4%	9	10%	51	7%
December	34	7%	5	3%	11	12%	50	6%
Not known	5	-	1	-	-	-	6	-
Total	524	100%	165	100%	93	100%	782	100%

Source: Business Strategy Group by analysis of survey of ONS & RoSPA data

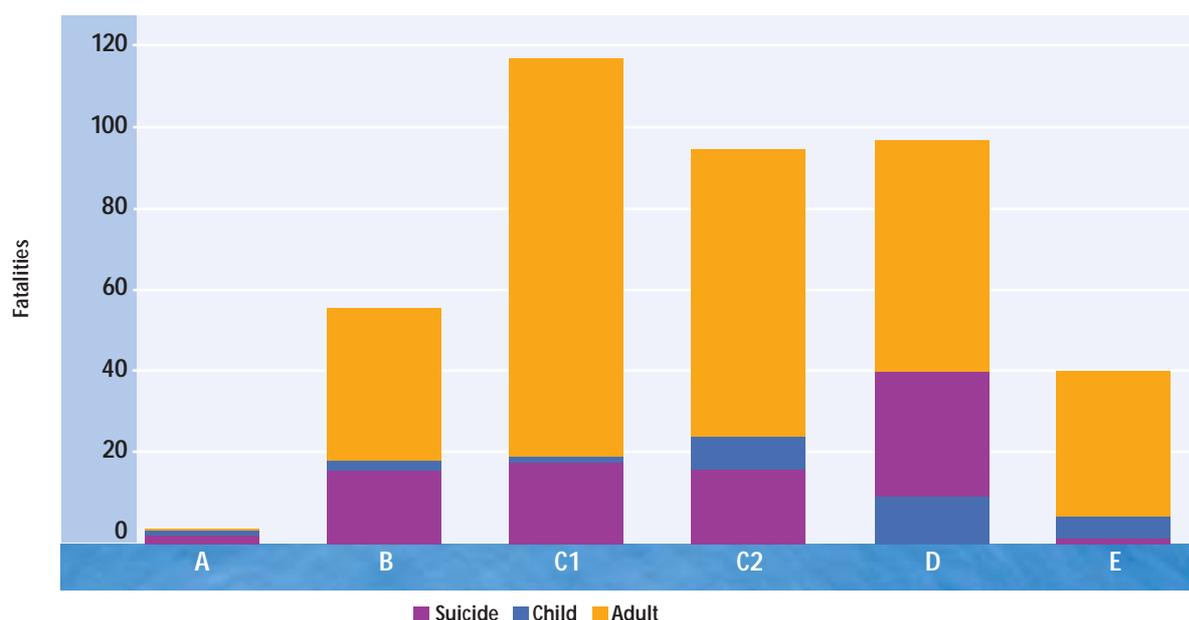
Adult drowning (excluding suicide) does not appear to be seasonal, though there are peaks in January, March and May.

Child drowning is more seasonal than adult drowning. The peak is in June, with a main season from March to October. There are two different seasonal pictures for inside and outside child drowning. Child drowning indoors peaks in March & June and is very low in August. Child drowning outdoors has a significant peak from June to August.

Suicides peak in winter, November to January, though with another high in September.

SOCIO-ECONOMIC GROUP AFFECTED BY UK DROWNING INCIDENTS IN DWELLINGS

Socio-economic group - UK drowning in Dwellings



UK Drowning in Dwellings - Socio-economic Group Affected, 1993 - 1999

Socio-economic Grouping	Adult	% Where known	Child	% Where known	Suicide	% Where known	Total	%Where known
A	1	*%	1	1%	-	-	2	*%
B	55	14%	17	20%	17	20%	89	16%
C1	115	29%	18	20%	19	22%	152	27%
C2	92	23%	21	24%	28	33%	141	25%
D	96	24%	30	34%	11	13%	137	24%
E	40	10%	-	-	10	12%	50	9%
Not known	125	-	78	-	8	-	211	-
Total	524	100%	165	100%	93	100%	782	100%

Source: Business Strategy Group by analysis of ONS database & survey of Coroners

*% indicates rounding to less than 1%.

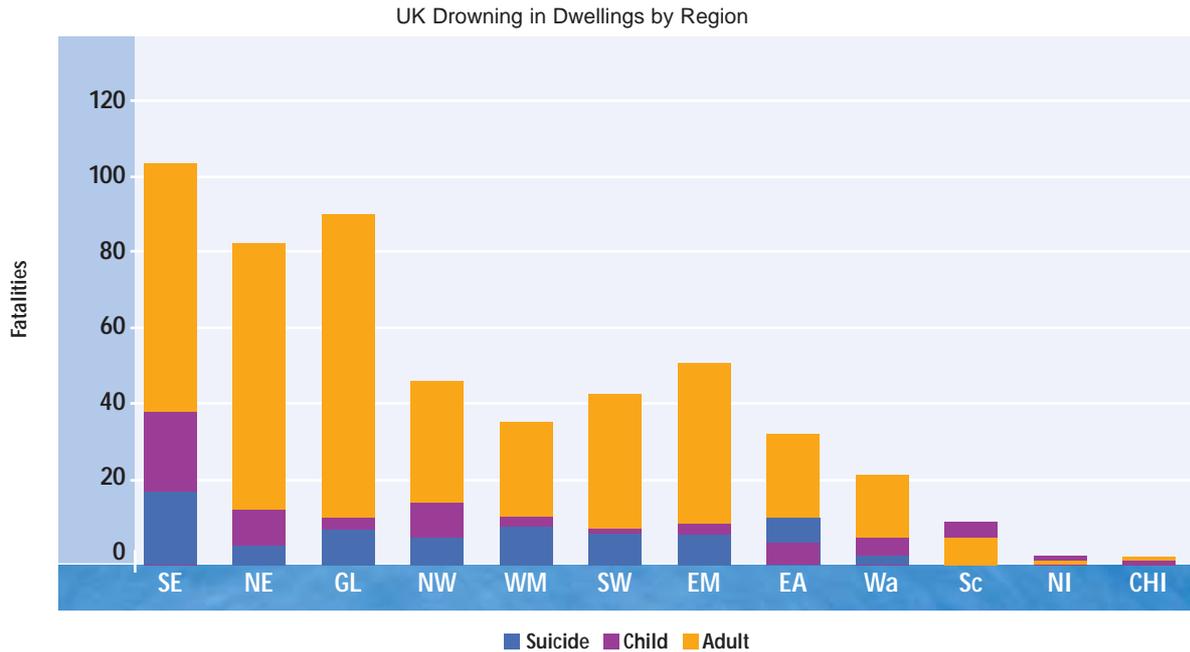
The socio-economic group to which the victim of drowning in dwellings belonged was determined from the detail available in the ONS database or Coroner's notes. In many cases, there was insufficient detail, under the occupation of the deceased, their partner or their parent, to allocate a socio-economic code.

The pattern seen for the three categories of drowning are different. Most notable is the emphasis on the socio-economic group 'D' within child drowning in dwellings. This accounted

for 34% of the known fatalities. However, this figure should be treated with caution as only 48% of child incidents could be coded for socio-economic group from the data available.

For Adults (excluding suicide), it was the 'C1s' who were the largest group (at 29% of the known fatalities) and for Suicides, 'C2s' (at 33%).

INCIDENCE OF UK DROWNINGS IN HOMES & GARDENS BY REGION



UK Drowning in Dwellings - Regions where incidents occur, 1993 - 1999

UK Region	% popIn	Adult	%	Child	%	Suicide	%	Total	%
South East	21%	108	21%	41	27%	19	20%	168	22%
North East	15%	84	16%	16	10%	5	5%	105	14%
Greater London	14%	92	18%	15	10%	11	12%	118	16%
North West	13%	48	9%	20	13%	9	10%	77	10%
West Midlands	10%	33	6%	16	10%	11	12%	60	8%
South West	9%	42	8%	12	8%	10	11%	64	8%
East Midlands	8%	52	10%	13	9%	10	11%	75	10%
East Anglia	4%	34	7%	10	7%	14	15%	58	8%
Wales	6%	21	4%	9	6%	4	4%	34	4%
England & Wales	100%	514	100%	152	100%	93	100%	759	100%
Scotland	9%	7	1%	10	6%				
Northern Ireland	3%	2	*%	0	-				
Channel Isles	-	1	*%	3	2%				
Total UK	100%	524	100%	165	100%				

Source: Business Strategy Group by analysis of survey of ONS & RoSPA data

*% indicates rounding to less than 1%.

Overall, East Anglia has the highest incidence of drownings in proportion to its population – 8% of drowning incidents in England and Wales as against their 4% of the total population.

Drowning rates in the South East, Greater London and the East Midlands are also higher relative to population, whilst rates in the North East, West Midlands, East Midlands, South West and Wales are lower.

In respect of adult drowning (excluding suicide) Greater London has the highest rate in proportion to its population, with the North East, East Midlands and East Anglia following it. The North West and West Midlands' rates are four points lower than their population share would suggest.

In respect of child drowning, the South East has the highest rate relative to its population – by 6 percentage points, while the East Midlands also have higher than expected rates. The North East and London have lower rates than their populations might indicate.

RoSPA does not record suicide rates for Northern Ireland, Scotland or the Channel Islands.

Data for Scotland and Northern Ireland show a much lower incidence of adult drownings than would be expected for their population levels – the percentages here are calculated against the total UK population.

Child drowning rates in Scotland are closer to the level that its population might suggest but are still significantly lower.

UK drowning of children aged 5 and under in the garden

The findings of the research into drowning incidents involving children aged 5 and under in the garden or swimming pools of dwellings were published in a separate report "Drowning accidents in the garden involving children of five and under" (July 2000) - URN00/906. The key findings of this report are summarised below:

KEY FINDINGS RELATING TO CHILD DROWNING INCIDENTS IN THE GARDEN

90 fatal drowning incidents involved children of 5 or under in UK domestic gardens 1992 to 1999. Of these only 24% occurred at the child's home. Children are most at risk from drowning in the gardens of neighbours, relatives or friends. 69% of the incidents involved garden ponds.

SUMMARY – GARDEN PONDS

- Over the last eight years 62 children, aged 5 and under, have drowned in garden ponds. This is an average of eight a year. This is relatively constant.
- Over 85% of the incidents involved one or two year old children.
- Boys were involved in 79% of these incidents. Boys would appear to be more adventurous or more attracted to ponds than girls.
- Only 18% of the children drowned in their own gardens. 29% drowned while visiting, or being cared for, at a relative's home and 10% drowned while their parents were visiting a friend's home.
- The largest percentage (39%) drowned in a neighbour's pond after wandering away from their own home or the home of the people they were visiting.
- Boys are more likely to wander into neighbour's property than girls. Neighbours account for 45% of all garden pond incidents involving boys. For girls the figure was 13%.

SUMMARY – SWIMMING POOLS

- Over the last eight years 18 children have drowned in domestic swimming pools. An average of two a year, with peaks in 1993 and 1997.
- There is a broader age range involved in swimming pool incidents, but two thirds involved one and two year olds.
- As with garden ponds, boys are more likely to be involved in these incidents than girls. Of the 18 drowned, 61% were boys.
- Swimming pools account for a greater proportion of incidents involving girls at 32% than they do for boys at 16%.
- 33% drowned in swimming pools located in their own home. 16% drowned in swimming pools at relatives' homes and 28% while visiting friends.

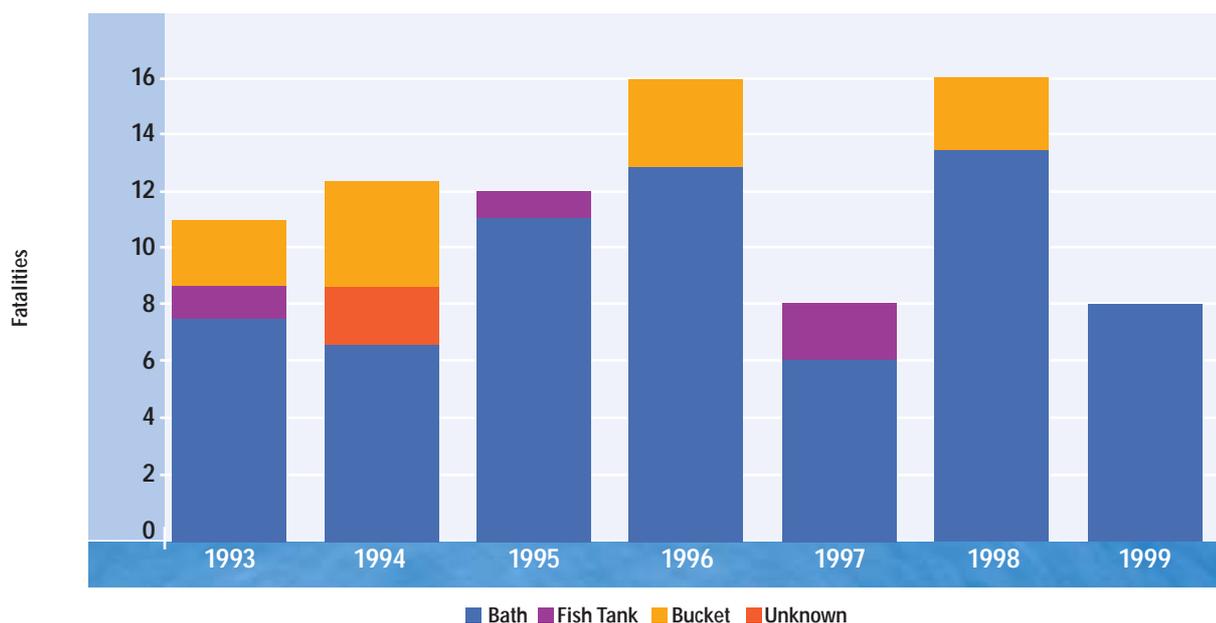
SUMMARY – OTHER

- Over the last eight years 10 children have drowned within the domestic environment in a wide range of containers.
- The most frequent incidents occurred with buckets, water butts and bins; these account for half the total number.
- Boys account for nearly 80% of these incidents.
- Again one and two year olds were most at risk, accounting for 90%.

UK drowning of children under 10 in the home

From 1993 to 1999 there were 82 fatal drowning incidents in UK homes involving children under the age of 10 - an average of 12 per year. 83% of these incidents occurred in the bath. 2% involved fish tanks and 2% involved buckets. No clear trends are apparent.

Trends in Child Drownings in the Home



Child Drowning in the home by Location 1993 – 1999

Location	1993	1994	1995	1996	1997	1998	1999	Total	%	Av/yr
Bath	8	7	11	14	6	14	8	68	83%	10
Fish tanks	1	-	1	-	-	-	-	2	2%	*
Buckets	-	2	-	-	-	-	-	2	2%	*
Other/Unknown	2	2	-	2	2	2	-	10	12%	1
Total	11	11	12	16	8	16	8	82	100%	12

Source: Business Strategy Group by analysis of survey of Coroners & RoSPA press cutting

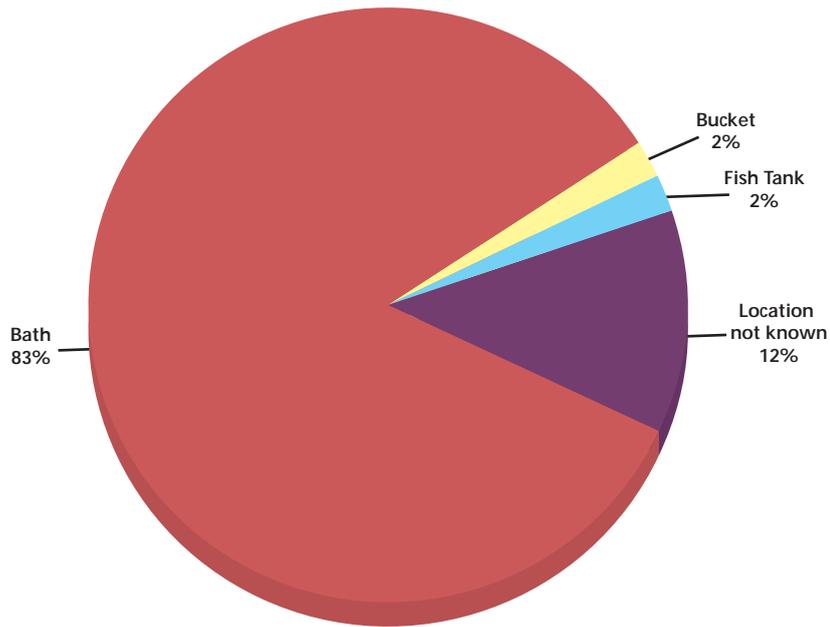
* indicates rounding to less than 1.

The numbers of drowning incidents show considerable variation from one year to the next, with 1996 and 1998 the highest years and 1997 and 1999 the lowest. No clear trend is apparent.

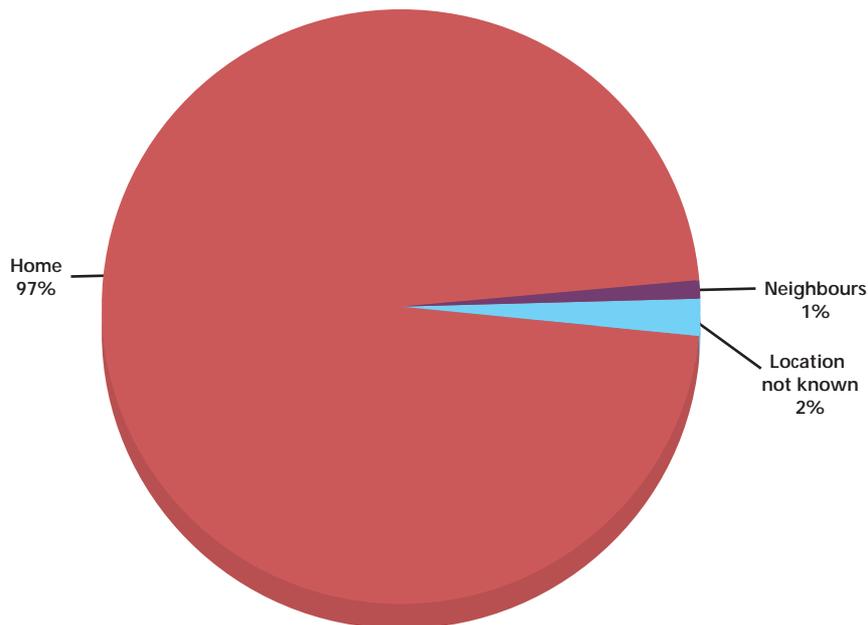
Incidents involving containers, such as buckets or tanks, occurred from 1993 to 1995, with no subsequent incidents recorded.

No details were available as to the location of 10 incidents, one of these involved a water-birth delivery where the new-born child is reported to have drowned.

WHERE CHILD DROWNING OCCURS



83% of drowning incidents occur in the bath, 2% in buckets and 2% in fish tanks. In 12% of incidents the location is not known. Of those incidents where the location was known, 94% occurred in the bath.



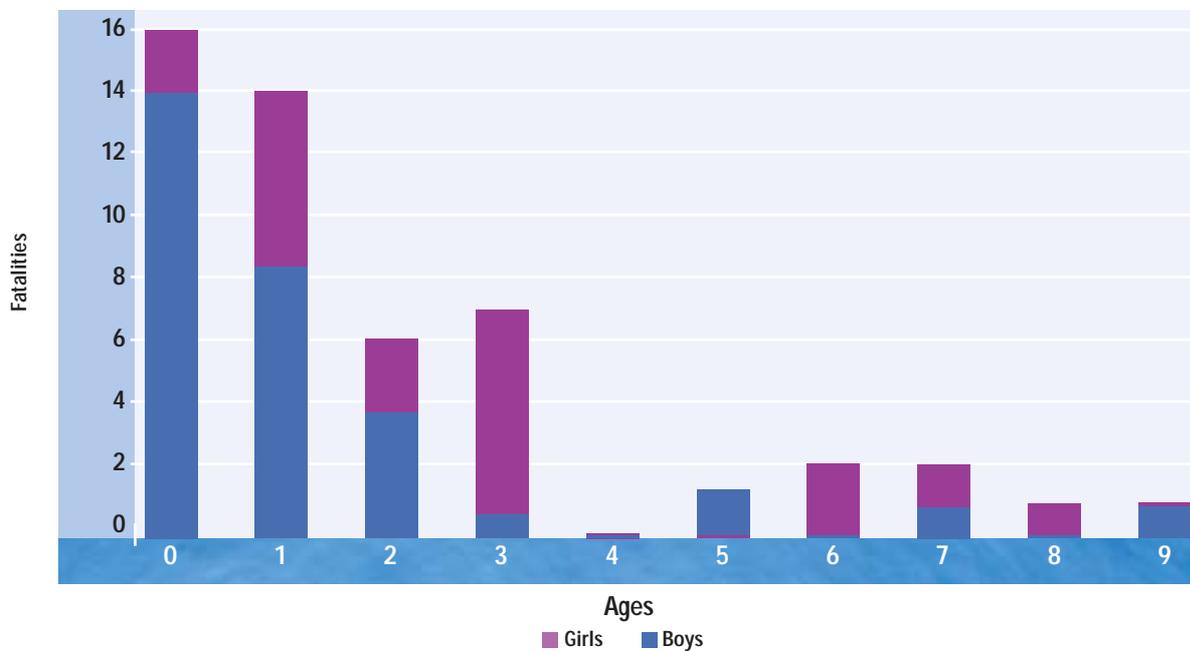
Child drowning in the home occurs overwhelmingly in the child's own home (97%). In one incident the child drowned at a neighbour's house. In two incidents the type of dwelling was unknown.

This pattern contrasts with child drowning in the garden, where less than a quarter of incidents occurred in the child's own home.

UK CHILD DROWNING IN THE HOME - BY AGE AND GENDER

88% of child drowning incidents in the home occur amongst children under the age of four. Children aged one and under are at greatest risk, accounting for two thirds of the total. The risk decreases with age. 60% of incidents involved boys. Boys are at greater risk than girls up to the age of three. Almost half of the incidents involving girls occur up to the age of 12 months. The risk for girls reduces more quickly with age than it does for boys. Boys aged between one and three are twice as likely to drown than girls. This suggests that boys are more adventurous and more physically active.

CHILDREN DROWNING BY AGE AND GENDER



UK CHILD DROWNING IN THE HOME BY AGE AND GENDER, 1993 - 1999

Gender/Age	1993	1994	1995	1996	1997	1998	1999	Total	%	Av/yr
Male										
0	2	2	4	4	1	2	1	16	33%	2
1	3	4	1	1	1	2	2	14	29%	2
2	1	-	-	1	2	1	1	6	12%	1
3	-	2	1	-	2	2	-	7	14%	1
6	1	-	-	1	-	-	-	2	4%	-
7	-	-	1	-	-	1	-	2	4%	-
8	-	-	-	-	-	1	-	1	2%	-
9	-	-	1	-	-	-	-	1	2%	-
Male Total	7	8	8	7	6	9	4	49	100%	7
Female										
0	3	1	3	3	1	3	-	14	44%	2
1	-	1	1	3	1	1	2	9	28%	1
2	1	-	-	2	-	1	-	4	12%	1
3	-	-	-	-	-	-	1	1	3%	-
5	-	-	-	1	-	1	-	2	6%	-
7	-	-	-	-	-	-	1	1	3%	-
9	-	-	-	-	-	1	-	1	3%	-
Female Total	4	2	4	9	2	7	4	32	100%	4
Gender unknown/Age 0			1						1	

88% of child drowning incidents in the home occur amongst children under the age of four. Children aged one and under are at greatest risk, accounting for two thirds of the total. The risk decreases with age.

Overall, 60% of incidents involved boys.

At ages up to 12 months, both boys and girls are almost equally at risk, probably due to the fact that parents control the babies' movements up to this age.

After 12 months and up to the age of three, boys are at greater risk than girls. Boys aged one to three are twice as likely to drown than are girls. This suggests that boys are more adventurous and more physically active.

Almost half of the incidents involving girls occur up to the age of 12 months. The risk for girls reduces more quickly with age than it does for boys.

UK CHILD DROWNING IN THE HOME - BY LOCATION, AGE & GENDER

Boys were involved in 60% of bath incidents. The four incidents involving buckets and fish tanks were split equally between the genders.

UK Drowning - Location of Incident by Age & Gender, 1992 - 1999

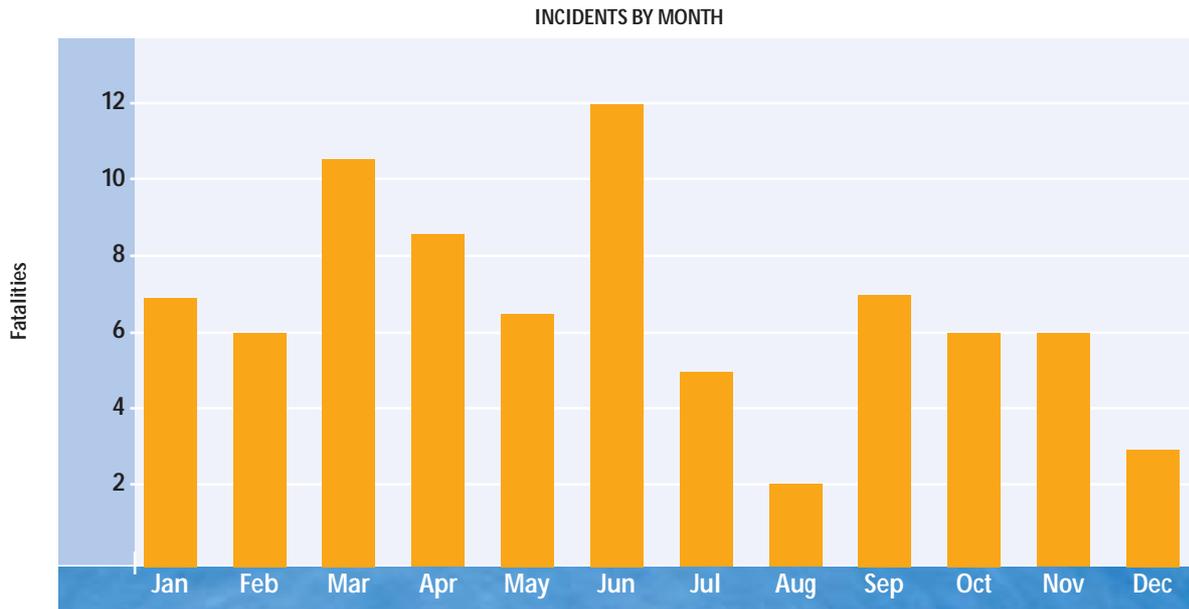
Gender/Age	Bath	Bucket	Fish Tank	Other/ Not Known	Total	% of Gender
Male						
0	14	-	1	1	16	33%
1	9	1	-	4	14	29%
2	5	-	-	1	6	12%
3	7	-	-	-	7	14%
6	2	-	-	-	2	4%
7	2	-	-	-	2	4%
8	1	-	-	-	1	2%
9	1	-	-	-	1	2%
Male Total	41	1	1	6	49	100%
% Location Total	60%	50%	50%	60%	60%	
Female						
0	14	-	-	-	14	44%
1	6	1	1	1	9	28%
2	2	-	-	2	4	12%
3	1	-	-	-	2	6%
5	2	-	-	-	2	6%
7	1	-	-	-	1	3%
9	1	-	-	-	1	3%
Female Total	27	1	1	3	32	100%
% Location Total	40%	50%	50%	30%	39%	
Gender unknown				1	1	
Both Genders (incl. Unknown)						
0	28	-	1	2	31	38%
1	15	2	1	5	23	28%
2	7	-	-	3	10	12%
3	8	-	-	-	8	10%
5	2	-	-	-	2	2%
6	2	-	-	-	2	2%
7	3	-	-	-	3	4%
8	1	-	-	-	1	1%
9	2	-	-	-	2	2%
Grand Total	68	2	2	10	82	100% ⁺
Location as % Total	83%	2%	2%	12%	100%	

Source: Business Strategy Group by analysis of survey of Coroners & RoSPA press cuttings

+ indicates rounded percentages do not add up to total.

UK CHILD DROWNING IN THE HOME - SEASONALITY

No clear seasonal pattern emerges although most drowning incidents occur between March and June with the peak in June. The lowest occurrence is in August.



CHILD DROWNINGS BY MONTH, 1993 - 1999

Month/Location	Bath	Bucket	Fish Tank	Other/Not known	Total	% Where known
January	6	1	-	-	7	9%
February	5	-	-	1	6	7%
March	9	1	-	1	11	14%
April	8	-	-	1	9	11%
May	7	-	-	-	7	9%
June	11	-	-	1	12	15%
July	4	-	1	-	5	6%
August	1	-	-	1	2	2%
September	4	-	1	2	7	9%
October	3	-	-	3	6	7%
November	6	-	-	-	6	7%
December	3	-	-	-	3	%
Month not known	1	-	-	-	1	-
Total	68	2	2	10	82	100%

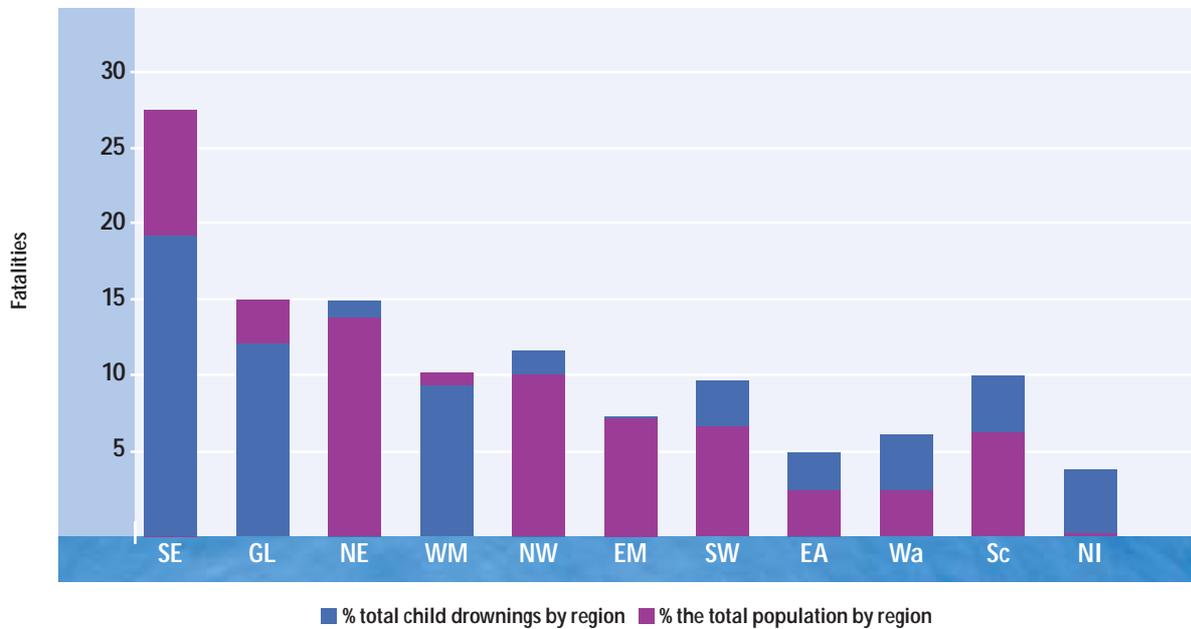
Source: Business Strategy Group by analysis of survey of Coroners & RoSPA press cutting

Child drowning incidents occur all year round. Most incidents occur from March to June, the peak month being June. The lowest months for incidents are August and December. There does not appear to be any clear reason why particular months are high or low.

UK CHILD DROWNING IN THE HOME - BY REGION

When analysed by region, there are significant variations in the proportion of child drowning incidents in the home against the proportion of the population by region. The South East and Greater London have a higher proportion than expected, while Northern Ireland, Wales, East Anglia, Scotland and the South West have a lower proportion

UK Drowning in Dwellings by Region



UK CHILD DROWNING IN THE HOME - BY REGION & AGAINST POPULATION

Region	Child Drowning in the home	% of Drowning Gt. Britain & N. Ireland	% of Total Population by region (all ages)	% Comparison Drowning vs. Population by region + or -
South East	22	27.2%	18.9%	+ 44%
Greater London	12	14.8%	12.1%	+ 22%
North East	11	13.6%	13.7%	- 1%
West Midlands	8	9.9%	9.0%	+ 10%
North West	8	9.9%	10.8%	- 8%
East Midlands	6	7.4%	7.0%	+ 6%
South West	5	6.2%	8.3%	- 25%
East Anglia	2	2.5%	3.7%	- 32%
Wales	2	2.5%	5.0%	- 50%
Scotland	5	6.2%	8.6%	- 28%
Northern Ireland	0	0%	2.9%	-
Total Gt. Britain/NI	81	100%	100%	
Channel Islands	1			
Grand Total	82			

Source: Business Strategy Group by analysis of survey of Coroners & RoSPA press cutting

The regional variations in the number of incidents are extremely difficult to explain. When child drowning is analysed by region, there are some significant variations in the proportion of child drowning incidents in the home against the proportion of the population by region. The South East has over 40% more incidents than its share of the population (all ages) would indicate and Greater London has over 20% more. Conversely, Northern Ireland had no incidents reported, Wales, East Anglia, Scotland and the South West were all well below the share of incidents suggested in relation to their total population.

UK Child Drowning in the Home - by Socio-economic Group

It was not possible to assess accurately the socio-economic grouping of the child in the majority of incidents. Social class, therefore, could not be analysed in detail. From the limited information available it appears that the incidents were spread across a broad spectrum of socio-economic groups. If the trends produced by the regions are broadly considered it would also appear that it is not a problem impacting upon the less affluent regions of the UK.

COMMON SCENARIOS INVOLVED IN CHILD DROWNING IN THE HOME

Below is a list of the common scenarios involved in the drowning of children under 10 in the home. Most occurred in the bath.

It should be noted that in some incidents more than one behavioural factor was present and it was the combination of a number of these factors that turned a 'near miss' into a fatality.

In other incidents, the behaviour behind the fatality is not known and the incidents are not represented below.

Children drown in the bath because-

- Children left unsupervised - 33 incidents:
- To answer the telephone/door (6 incidents)
- To get towel or clean clothes (6 incidents)
- To attend to another child (2 incidents)
- To prepare food/drink (1 incident)
- Mother fell asleep (1 incident)
- Mother fell asleep leaving child with 9 year old who left child unattended (1 incident)
- To tidy up (1 incident)
- Babysitter left child unsupervised - reasons not known (2 incidents)
- Reasons unknown (13 incidents)

Child drowned in the bath where two children were in the bath together and were left unsupervised - 13 fatalities:-

- Supervisor left to collect towels/clean clothes (2 incidents)
 - Supervisor left to attend to another child. (2 incidents)
 - Supervisor left to do other household tasks/prepare food. (2 incidents)
 - Supervisor left to answer phone (1 incident)
 - Supervisor distracted by traumatic event in the house (1 incident)
 - Left unsupervised for unknown reasons (3 incidents)
 - In one incident both children drowned - mother may have blacked out. It is believed that one child fell on top of the other. - (2 fatalities).
-
- **Child suffered an epileptic fit (5 incidents)**
 - **Child got into the bath (3 incidents)**
 - **Baby placed in bath by slightly older child (1 incident)**
 - **Child suffered a febrile convulsion (1 incident)**
 - **Child suffered from Hurlers syndrome (1 incident)**

- **Baby fell from a small ledge into scalding bath water (1 incident)**
- **Child playing game – choked having inhaled small amount of water (1 incident)**
- **Mother suffered an epileptic fit (1 incident)**
- **Mother banged head and fell unconscious dropping the baby into the bath (1 incident)**
- **Unlawfully killed by parent (4 incidents)**

In three of the incidents the child suffered from some form of handicap. In two of these incidents, a flotation aid or specialist equipment for handicapped children was being used:

- Inflatable collar on a handicapped child slipped off
- Handicapped child was in a specialist chair – possibly pulled the Velcro straps apart.

In five incidents bath seats were being used:

- Floating bath seat tipped forward
- Child slipped down the bath chair so its body was out of the chair but the head remained in the chair but under the water.
- Child fell out of the chair – the seat displayed a clear warning not to leave the child unattended.
- Floaties swim seat recommended for outdoor swimming when a child is not out of its depth was being used and the child slipped out of it.
- Child fell off or out of baby bath seat on which had been left unattended - 4 incidents

Child drowned in the nappy bucket because -

- The bucket was on the kitchen floor and despite being told several times not to go near it, the child went into the kitchen and fell in the bucket (1 incident)
- Bucket used as a step for older child to reach the light switch outside the bathroom. Children filled the bucket themselves with water, younger child fell in (1 incident)

Child drowned in the fish tank because-

- Fish tank with 5" of water left on floor, child fell in (1 incident)
- Child climbed on chair to see the fish and fell into the tank (1 incident)

OVERALL SUMMARY OF UK CHILD DROWNING INCIDENTS IN THE HOME

82 fatal drowning incidents involved children under 10 in the home between 1993 to 1999, most occurring in the bath when children are left unattended.

- Between 1993 and 1999 there were 82 drowning incidents involving children in the home, an average of 12 per year. The numbers involved each year do not indicate any clear trend.
- 83% of the total incidents occurred in the bath but this figure rises to 94% of incidents where the location was known. Between 1993 and 1999, two incidents involved buckets and two involved fish tanks. 88% of incidents involved children under four, 78% under three, 66% under two and 38% under one. Overall boys were involved in 60% of incidents.
- Under one year old, both boys and girls are almost equally at risk, probably because parents control the babies' movements up to this age.
- Between the ages of one and three, boys are at greater risk than girls. Boys aged one to three are twice as likely to drown than are girls. This suggests that boys may be more adventurous and more physically active.
- There is no seasonal pattern in terms of time of the year although most drowning incidents occurred between March and June, the lowest months are August and December.
- Significant variations appear when the proportion of child drowning incidents in the home is compared against the proportion of the population by region. The South East has over 40% more incidents than its share of the total population would indicate and Greater London has over 20% more. Conversely, Northern Ireland, Wales, Scotland, East Anglia and the South West had far fewer incidents than would be expected from their population.
- In almost 50% of incidents where the child drowned in the bath the child had been left alone and unsupervised. The most common reasons were to answer the telephone or door, or to get a towel or clean clothes.
- In almost 20% of incidents the child had been left unattended in the bath with a slightly older sibling, who the carer may have expected to raise the alarm.

RECOMMENDATIONS TO REDUCE CHILD DROWNING IN THE HOME

It only takes a minute or two and a few centimetres of water for a child to drown. Some children have a fascination with water.

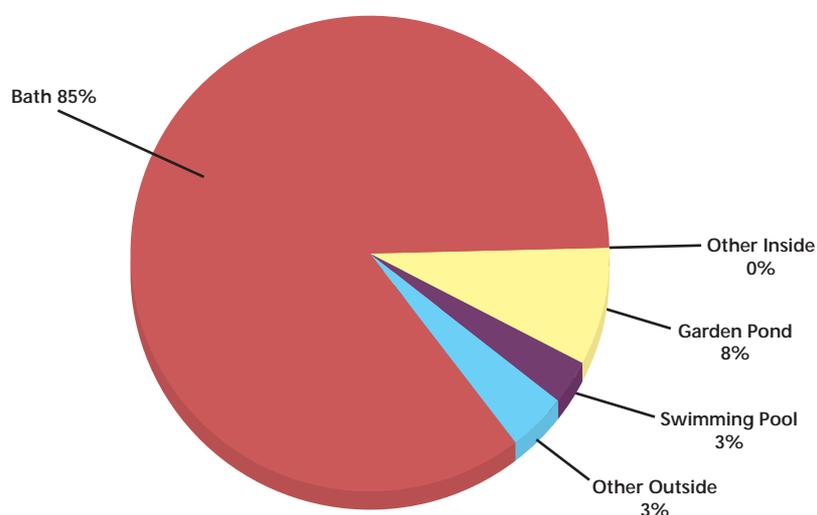
- Children under four should never be left unattended in a bath for whatever reason.
- A baby or toddler should never be left unsupervised in the care of an older child in the bath. The older child may easily be distracted and not realise the danger or that the younger child is in difficulties.
- It is important that parents check that there are no containers, which hold, or could hold, water into which a child may fall, e.g. plastic buckets, fish tanks, water butts or dustbins. Containers should be stored away safely as the child or older siblings may fill them with water themselves.
- Parents and carers should consider learning how to resuscitate a young child or baby in case the worst should happen - every second counts.

UK older child & adult drowning incidents in dwellings

INCLUDING CHILDREN OVER THE AGE OF 10 AND EXCLUDING SUICIDE

There were 525 adult drowning fatalities '93 - '99, an average of 79 pa. (including children over the age of 10 and excluding suicide verdicts). 85% of the incidents occurred indoors and almost all in the bath. 26% of all incidents were caused by epilepsy, 13% by alcohol, 12% by heart/circulation problems & 7% by drugs/medication. Epilepsy affects females more than males and the age group 10 - 49 in particular. The most common cause is being inconsistent with medication.

LOCATION OF OLDER CHILD & ADULT DROWNING INCIDENTS IN HOMES & GARDENS



UK Older Child & Adult Drowning in Dwellings - Trend by Location

	1993	1994	1995	1996	1997	1998	1999*	Total	%**	Av/yr***
Indoors										
Bath	38	36	50	62	51	75	34	346	85%	52
Other	-	-	-	-	-	1	-	1	*%	-
Sub-total indoors	38	36	50	62	51	76	34	347	85%	52
Outdoors										
Garden Pond	7	6	7	3	1	6	3	33	8%	5
Swimming Pool	1	1	3	2	3	3	1	14	3%	2
Other	2	5	-	2	-	4	2	15	4%	2
Sub-total outdoors	10	12	10	7	4	13	6	62	15%	9
Location unknown	32	27	15	12	16	6	7	115	-	18
Total	80	75	75	81	71	95	47	524	100%	79

Source: Business Strategy Group by analysis of ONS/RoSPA data & survey of Coroners *1999 adult data does not represent a full year for England & Wales (data Jan to Sept). **Percentage where known ***Average based on 1993 - 1998

85% of all adult (non-suicide) drowning fatalities occur indoors and 15% outdoors.

No detail was available as to the location of 115 incidents.

All but one of the indoor drowning incidents occurred in the bath or shower. The only remaining incident occurred in rising floodwater.

Outdoors, 33 incidents occurred in garden ponds and 14 in swimming pools.

15 incidents occurred in other locations, which included 5 in containers of water, 5 in a river, stream or moat at their home, 2 in a houseboat explosion and 3 in a drain sump, well and cesspit.

There is no discernible trend in the data, but there is a very high incidence of indoor adult drowning in 1998, mainly in the bath. No reason is apparent for this.

There were a high number of incidents where no detail as to the location is available (115). These include a high proportion (41%) of 'open' verdicts, where the coding used by ONS gives no clue as to the location. BSG were unable to obtain further details from the individual Coroners regarding these 115 incidents. It is assumed that a high proportion of these incidents will have occurred in the bath, in line with the overall split (85% in the bath:15% elsewhere).

GENDER & AGE OF UK OLDER CHILD & ADULT DOMESTIC DROWNING INCIDENTS

OLDER CHILD & ADULT UK DROWNING - GENDER & AGE, 1993 - 1999

Gender/Age	Indoor	%	Outdoor	%	Location n/k	%	Total	%
Female								
10+	19	5%	-	-	2	2%	21	4%
20+	33	10%	-	-	4	3%	37	7%
30+	35	10%	1	2%	7	6%	43	8%
40+	33	10%	4	7%	4	3%	41	8%
50+	16	5%	2	3%	7	6%	25	5%
60+	25	7%	2	3%	2	2%	29	5%
70+	24	7%	7	11%	14	12%	45	8%
80+	29	8%	4	7%	17	14%	50	10%
Sub-total female	214	62%	20	33%	57	48%	291	55%
Male								
10+	5	1%	-	-	1	1%	6	1%
20+	26	8%	3	5%	8	7%	37	7%
30+	27	8%	3	5%	11	9%	41	8%
40+	19	6%	2	3%	13	11%	34	7%
50+	21	6%	8	13%	5	4%	34	7%
60+	7	2%	11	18%	8	7%	26	5%
70+	12	3%	5	8%	7	6%	24	4%
80+	14	4%	9	15%	8	7%	31	6%
Sub-total male	131	38%	41	67%	61	52%	233	45%
Total	345	100%	61	100%	118	100%	524	100%

Source: Business Strategy Group by analysis of ONS/RoSPA data & survey of Coroners

Overall, adult domestic drowning is split fairly evenly between the genders, with female just ahead at 55% and male at 45%. There are more females in the 80+ age grouping, as would be expected, as the population of females over 80 is greater than for males.

However, there is a significantly different gender split between drowning indoors and outdoors. Indoors, drowning is biased more to female (62% to 38%). Outdoors, drowning is more biased to male (67% to 33%). The split for location unknown is between the two, as might be expected (52% male to 48% female).

Indoors, females aged 20 to 49 are more at risk than other age bands. Outside, it is the 70-79 group.

Females over 70 are the most at risk where the location is unknown. This pattern matches that of

suicides in dwellings and, in fact, half of these incidents were 'open' verdicts.

Indoors, males aged 20 to 39 are slightly more at risk than other age bands. Outside, those over 50 are at most risk. The pattern for location unknown is closer to the age spread seen for indoors.

FACTORS INVOLVED IN OLDER CHILD AND ADULT DOMESTIC DROWNING

Analysis of older child & adult domestic drowning indicates that eight key factors are involved in causing the majority of the drowning incidents.

Key Factors Identified

Older Child & Adult UK Drowning - Key Factors Involved, 1993 - 1999

Factor	Indoor	Outdoor	Location n/k	Total	%
Single Factors					
Epilepsy	118	5	11	134	26%
Alcohol	44	8	5	57	11%
Heart/Circulation	31	8	16	55	10%
Other health problems	25	9	10	44	8%
Drugs/Medication	21	-	8	29	6%
Mental illness	10	4	1	15	3%
Trauma/Injury	6	3	4	13	2%
Diabetes	3	1	-	4	1%
Combination of factors					
Alcohol & drugs	3	-	1	4	1%
Diabetes & heart	3	-	-	3	1%
Epilepsy & other health	2	-	-	2	*%
Alcohol & other health	-	2	-	2	*%
Heart & drugs	1	1	-	2	*%
Heart & mental illness	1	1	-	2	*%
Epilepsy & alcohol	1	-	-	1	*%
Epilepsy & drugs	1	-	-	1	*%
Heart & alcohol	1	-	-	1	*%
Diabetes & alcohol	1	-	-	1	*%
Drugs & mental illness	1	-	-	1	*%
Other or no detail	74	20	59	153	29%
Total	347	62	115	524	100%

Source: Business Strategy Group by analysis of ONS/RoSPA data & survey of Coroners

*% indicates rounding to less than 1%.

There are 8 main factors involved: Epilepsy, Alcohol, Heart or Circulation, Drugs/Medication, Mental illness, Trauma, Diabetes and 'Other Health Problems'.

These 8 factors, alone or in combinations, are attributed as the cause of 69% of the adult domestic drowning incidents.

Epilepsy is the largest cause overall, but is less involved outdoors.

If the table on the previous page is simplified by combining all the mentions of the 8 main factors:

Older Child & Adult UK Drowning - Mentions by Key Factors Involved

Factor	Indoor	Outdoor	Location n/k	Total	% of Incidents
Epilepsy	122	5	11	138	26%
Alcohol	50	10	6	66	13%
Heart/Circulation	37	10	16	63	12%
Other health problems	27	11	10	48	9%
Drugs/Medication	27	1	9	37	7%
Mental illness	12	5	1	18	3%
Trauma/Injury	6	3	4	13	2%
Diabetes	7	1	-	8	1%
Total mentions	288	46	57	391	73%

Source: Business Strategy Group by analysis of ONS/RoSPA data & survey of Coroners

GENDER AFFECTED BY THE KEY FACTORS

Gender Affected by Key Factors, 1993 - 1999

Factor	Female	% Female	Male	% Male
Epilepsy	80	58%	58	42%
Alcohol	40	61%	26	39%
Heart/circulation	28	44%	35	56%
Other health problems	22	46%	26	54%
Drugs/medication	20	54%	17	46%
Mental illness	9	50%	9	50%
Trauma/injury	9	69%	4	31%
Diabetes	4	50%	4	50%

Source: Business Strategy Group by analysis of ONS/RoSPA data & survey of Coroners

Epilepsy, Alcohol, Drugs/medication and Trauma/injury affect females more than males.

Heart/circulation and 'Other Health Problems' affect males more than females.

AGE AFFECTED BY THE KEY FACTORS

Age Group Affected by Key Factors, 1993 - 1999

Factor	10+	20+	30+	40+	50+	60+	70+	80+
Epilepsy	20	46	40	22	3	3	1	3
Alcohol	-	2	11	16	19	10	7	1
Heart/circulation	-	-	1	3	3	9	17	30
Other health problems	2	2	7	9	4	5	12	7
Drugs/medication	2	9	8	4	6	-	3	5
Mental illness	-	2	2	1	5	5	3	-
Trauma/injury	-	2	2	2	2	1	1	3
Diabetes	-	-	-	2	1	3	-	2

Source: Business Strategy Group by analysis of ONS/RoSPA data & survey of Coroners

Epilepsy mainly affects the age group 10 to 49.

Alcohol causes drowning mainly in the age group 30 to 69.

Heart problems cause drowning in the elderly, with the risk increasing with age.

Drugs/medication have a higher effect in the 20 to 39 age group, but affect all ages.

Mental illness appears to affect the age group 50 to 69 the most.

OTHER TRENDS OR REGIONAL DIFFERENCES IN THE KEY FACTORS

The number of incidents where **epilepsy** is mentioned is 60% greater in the North East than in the next largest regions (Greater London & North West). This is more than half as much again as would be expected relative to population.

The number of incidents where **alcohol** is mentioned in the South East is double that of the next highest region (Greater London). This is half as much again as would be expected relative to population.

Problems with **alcohol** appear to be increasing - 20 incidents 1993 - 1995; 38 incidents 1996 - 1998. This is the only factor showing such a significant trend over the years analysed.

Problems with **alcohol** are highest in January - mentions in January are almost 60% greater than for the second highest month (March)

Heart/circulation problems are highest in April - mentions in April are over 50% higher than the second highest month (May). April and May account for 37% of the total mentions over the year.

Problems with **drugs/medication** appear to affect the socio-economic group 'D' more than any other. The number of mentions is almost double that in the next highest group (C1).

SCENARIOS INVOLVED IN OLDER CHILD & ADULT DOMESTIC DROWNING

EPILEPSY

57 of the 138 incidents where epilepsy was part of the cause gave sufficient detail to put the incidents into a classification of the scenario.

Adults suffer drowning from epilepsy because:

- They are not taking or are inconsistent with their medication (9 incidents) - these tend to involve younger ages - seven incidents involved those under 30:
- They have a history of epilepsy but are left unattended (9 incidents).
- Known epileptics living alone and taking a bath (6 incidents).
- People with a history of epilepsy taking a bath without supervision, though their circumstances are unknown and they may otherwise have fallen into one of the two previous classifications (7 incidents).
- Those who suffer a fit while undertaking associated activity in the bathroom, but not taking a full bath e.g. washing their hair in a small amount of water in the bath, or washing clothing in the bath (4 incidents).
- Those who drown in a garden pond due to a fit (4 incidents).
- Those who suffer an epileptic fit after an extended period without a fit or the seriousness of their fit increases unexpectedly (4 incidents).
- Epileptic fits associated with pregnancy or post natal problems (4 incidents).
- People who suffer a fit while running a bath - their circumstances are unknown and they might otherwise have fallen into the categories of living alone or bathing unattended (3 incidents).
- Those who take a shower rather than a bath, which might be considered to be a safer option but can still lead to death if they fall face down or fall and block the drain hole (2 incidents).
- Those who refuse to take any precautions or ignore advice (2 incidents).
- Other single examples (4 incidents) e.g. due to change in medication, associated with another condition, unclear whether due to fit or to medication that may have caused drowsiness, forced by circumstances to take a bath.

ALCOHOL

42 of the 57 incidents where alcohol was the sole cause included sufficient detail to classify the incident. Adults suffer drowning linked to alcohol because:

- Those who trip or fall outside into a garden pond or stream (8 incidents) while under the influence of alcohol. They may be returning home after drinking heavily and may not be found until morning.
- Those described as losing consciousness or falling asleep in the bath while intoxicated (8 incidents).
- Those who fall into, or slip in, the bath while under the influence of alcohol (7 incidents).

- Those who are known alcoholics who drown in the bath (6 incidents).
- Those described as having acute alcohol poisoning (4 incidents).
- Those with high alcohol levels specified (4 incidents).
- Other single examples (5 incidents) e.g. alcohol linked to medication, associated with another condition or injury, associated with hypothermia.

HEART/CIRCULATION PROBLEMS

54 of the 55 incidents caused by heart or circulatory problems are described in various medical terms. The main problems are:

- Ischaemic heart disease plus hypertension (14 incidents)
- Coronary or cerebral arteriosclerosis (11 incidents)
- Heart attack/Myocardial Ischaemia/Myocardial Infarction/Coronary artery disease (11 incidents)
- Cardiac dysrhythmias (5 incidents)

In most cases, these conditions are linked to the drowning, but it is not clear to what extent the heart/circulatory condition contributed to the immersion and drowning, were merely present at autopsy, or brought on by the shock of immersion.

In some cases the text gives a clearer picture of the likely scenario e.g. condition causes a blackout and they fall into a garden pond or swimming pool and may be unable to pull themselves out. A fall into hot or cold water can lead to cardiac arrest.

OTHER HEALTH PROBLEMS

In 44 incidents various 'Other Health Problems' caused or contributed to the drowning. The more common of these were:

- Multiple sclerosis (5 incidents)
- Cancer/carcinoma (5 incidents)
- Parkinson's disease (5 incidents)
- Alzheimer's disease (3 incidents)
- AIDS (2 incidents)
- Cerebral Ataxia (2 incidents)
- Brain tumour caused a fit (2 incidents)
- Chronic obstructive airways disease (2 incidents)

Such illnesses can result in drowning when, for example, they cause fainting, weakness or tiredness and the victim falls into the water, is too weak to get themselves out, or falls asleep in the bath.

DRUGS & MEDICATION

Most of the 37 incidents involving drugs or medication gave details as to the substances involved. For 13 of these incidents an 'open' verdict was found. The most common items were:

- Opiates (11 incidents)
- Overdose of various different medications (9 incidents), including Insulin, Fluoxetine, Moclobemide, Dothiepin, Amitriptyline and Dextropropoxyphene
- Paracetamol poisoning/overdose (4 cases)
- Chlormethiazole (4 incidents) - including one overdose, two with alcohol and a fourth with both alcohol and Diazepam. Coroners' notes contained the following comments on Chlormethiazole:

Alcohol has a strong potentiating effect with Chlormethiazole. Ingestion of Chlormethiazole with alcohol can be fatal. It would have made (the victim) very drowsy and could have caused (the victim) to collapse in the bath.

- Methadone & Diazepam (2 incidents) - Diazepam is a suppressant often prescribed with Methadone (used to cure heroin addiction) to help sleep.

MENTAL ILLNESS

18 incidents referred to some form of mental disorder. The most common were:

- Depression (8 incidents)
- Schizophrenia (6 incidents)

TRAUMA/INJURY

13 incidents involved some form of trauma/injury and only 7 of these were found to be accidental:

- Accidental head injury - fall and hit head (5 incidents) - open verdict on one.
- Accidental fall and fracture linked to osteoporosis resulting in immersion and hypothermia.
- Explosion on houseboat critically injuring the two occupants, who would have died from their injuries had they not drowned first.
- Self-inflicted injury (2 incidents)
- Injury caused by 3rd party (3 incidents).

DIABETES

8 incidents involved Diabetes:

- Drowned during hypoglycaemic coma (3 incidents).
- Diabetes linked to heart/circulation problems (3 incidents)
- Diabetes and alcohol (1 incident)

OTHER/NO DETAIL

156 incidents could not be classified within the main factors outlined above. Of these, 127 provided insufficient detail to classify - the entry in the ONS or RoSPA data states e.g. "drowning", "found in bath", "probably slipped underwater & drowned". The location of these incidents were:

- Bath	51
- Garden Pond	8
- Swimming Pool	7
- Cesspit	1
- No location stated	60
- Total	<u>127</u>

29 incidents gave details but did not fall within one of the main factors. The main factors involved in these were:

- Fall into bath - but no reason apparent (6 incidents)
- Found drowned in bath but no cause apparent (5 incidents)
- Fell asleep in bath (4 incidents)
- Miscellaneous (14 incidents)

SUMMARY OF UK OLDER CHILD & ADULT DOMESTIC DROWNING INCIDENTS

There were 525 drowning fatalities involving adults and children aged 10 and over in the home and garden between 1993 and 1999 (excluding suicide). This is an average of 79 incidents per annum. 85% of the incidents occurred indoors and almost all in the bath. 26% of all incidents involved Epilepsy and 13% alcohol.

- Between 1993 and 1999 there were 525 drowning incidents involving adults and children aged 10 and over in the home and garden, an average of 79 per year. The numbers involved each year do not indicate any clear trend.
- 85% of the incidents occurred in the home. All but one of the indoor incidents occurred in the bath.
- 8% of the incidents occurred in garden ponds, 3% in a swimming pool and 4% in other locations, mainly water containers, streams or drains in the grounds.
- Indoor incidents involve females more than males (62:38) and those aged 20 to 49 appear to be most at risk.
- Outdoor incidents involve males more than females (67:33) and those aged over 50 appear to be most at risk.
- Epilepsy was involved in 26% of all incidents where details were available. Epilepsy affected females more than males and the age group 10 to 49 in particular. The most common cause was being inconsistent with medication.
- Alcohol was involved in 13% of the incidents. Alcohol affected females more than males and the age range 40 to 59 in particular. The most common causes were tripping or falling outdoors, falling into or slipping in the bath, and losing consciousness or falling asleep in the bath while intoxicated.
- Heart or circulatory problems contributed to 12% of incidents, affecting males more than females and those aged over 70 in particular. Sometimes the heart/circulatory problem can cause the drowning, in others it can be brought on by the shock of immersion, or it may not have played a part but have been noted at autopsy.
- Drugs or medication are involved in 7% of incidents, sometimes in association with alcohol, which can increase the action of the drug and make an incident more likely.
- 'Other health problems' are involved in 9% of incidents, affecting those over 70 in particular. These illnesses can result in drowning if they cause fainting, weakness or tiredness so that the victim falls into the water, is too weak to get out, or falls asleep in the bath.
- The number of incidents involving alcohol appear to be increasing, almost doubling over the period analysed. The number of incidents in January is 60% greater than in the next highest month (March). The incidence of alcohol in the South East is half as much again as would be expected relative to the population.

- The incidence of Epilepsy related to drowning is especially high in the North East and more than half as much again as would be expected relative to population data.

RECOMMENDATIONS TO REDUCE OLDER CHILD & ADULT DOMESTIC DROWNING

The findings of this report suggest that many of the drownings affecting adults and children aged 10 and above might reasonably be avoided by a greater awareness of the potential risk factors involved. A campaign to increase awareness and address some of the specific issues raised by the key factors: epilepsy, alcohol, drugs/medication, extended bathing etc. might be considered.

There are 104 domestic drowning incidents per year, excluding suicide. Set against a population 51.4 million (UK aged 10 and above), this is a relatively low risk (2 per million). However, this incidence of fatality is, for example, three times greater than for Carbon Monoxide poisoning, which is an area that receives much greater emphasis on public awareness.

Some drowning incidents may genuinely be classified as unavoidable accidents, but many might reasonably be avoided by a greater awareness of the potential risk of drowning in the domestic environment. This is probably true of the more vulnerable groups such as epileptics.

Consideration should therefore be given to a campaign to increase the public's awareness of the risk of drowning at home. This campaign could address some of the specific issues raised by the key factors:

EPILEPSY

Liaison with bodies associated with the care and advice to epileptics may be able to increase awareness of the risks of drowning and promote greater care in the key areas highlighted by the findings above:

- A shower would appear to be a safer option, but care is still required.
- Epileptics should be consistent with their medication
- Epileptics, not living alone, should take care to bathe only when someone is there to check that they are all right.
- This care should also be taken when preparing a bath or undertaking other activities where a quantity of open water is used e.g. washing hair or clothing in the bath.
- Those epileptics living alone should be aware of the risks, take additional precautions and perhaps use neighbours as a check, where possible.
- Epileptics should avoid garden ponds or open water and consider an alternative if a water feature is considered essential.

DIABETES

Though less common, drowning is a risk for diabetics and the precautions listed for epileptics should also apply.

EXTENDED BATHING

A bath may often be used as a means of relaxation. Such relaxation sessions may also be linked to the use of alcohol and medication such as sleeping pills. It is apparent from the analysis, that there is a risk of drowning if one falls asleep in the bath and that that risk is increased if alcohol and medication/drugs are involved.

It may be that there is a lack of awareness of the risk of drowning and the possibility of immersion. It may be a common assumption that, should the nose or mouth be covered by water, a coughing reflex would immediately rouse you. This may not be the case, as the incident scenarios show.

Consideration should be given to making people more aware of the dangers associated with falling asleep in the bath and to the added risk posed by alcohol and medication, in particular, sleeping pills or other medication likely to cause drowsiness

ALCOHOL

Modifying the behaviour of those under the influence of alcohol is very difficult. If a pattern of behaviour, such as taking a bath before retiring, is established, it appears likely to be continued even when several drinks have been taken. There is already a risk of falling asleep in the bath, even when sober, and this risk appears to be significantly increased when under the influence.

Consideration should be given to increasing awareness of the danger posed by alcohol intoxication in the bath, which can result in drowsiness or becoming semi-comatose.

DRUGS/MEDICATION

Some incidents appear to be the result of accidental use of prescribed drugs, sometimes in combination with alcohol, which can have fatal consequences. It appears, from discussion with Coroners, that sleeping tablets work by reducing the rate of respiration and that they also have the effect of inhibiting the cough reflex. In such a circumstance, someone could slip below the water and never become aware.

Other drugs, especially in combination with alcohol, can make the person very drowsy. If the person takes a bath in such circumstances, the risk of drowning appears to be greatly increased.

Consideration should be given to increasing public awareness of this risk. Drugs, which can cause drowsiness, and sleeping tablets in particular, should include a caution against taking a bath after use.

HEART/CIRCULATION PROBLEMS AND OTHER ILLNESS

The people at risk from these factors may not even be aware that they have the problem and may be taken unaware. If people are aware of their problem, then advice could be made available to set out the risk they run and the precautions they should take. These would be broadly similar to those recommended for epileptics.

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