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TRACKING FATAL DROWNINGS IN PUBLIC SWIMMING POOLS : A RETROSPECTIVE MULTISCALE INVESTIGATION WITHIN FRANCE

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Introduction :

In France, currently we do not have sufficiently precise and comprehensive data to make a valid and reliable diagnosis on the prevalence of fatal drownings. The goal of this study is to clarify the situation by tracking the fatal drownings occurring in a sample of French public swimming pools (psp). The existence of fatal pool drownings seriously challenges the chain of supervision that is supposed to neutralize risk of drownings in these facilities (Soulé & Vignac, 2012). Knowledge about the number of accidents such as drownings occurring in a sports activity is the basis for preventing them (Bahr & Krosshaug, 2005). Based on an analysis of secondary sources, this study aims to provide a more accurate and reliable estimation of fatal drownings occurring in French psp.

Method :

The main goal of this study was to explore the current means of reporting drowning accidents occurring in French psp. We chose the WHO definition of drowning to address the question of drowning without ambiguity and to avoid confusing terminology.

Eight unique sources capable of providing information on the number of fatal drownings in French psp were identified and explored over a 10 year period using three geographic scales: (a) the country of France as a whole, (b) the département of Calvados (France being administratively divided in 101 départements), and (c) the "agglomeration community" of Caen la mer (metropolitan government structure grouping a commune—here, Caen and its suburbs).

In-depth understanding of the accident reporting mechanisms was facilitated by carrying out nine interviews who comprised *fire and rescue services department ; Caen Teaching Hospital ; urgent medical aid service ; Department Directorate for Social Cohesion*.

Results :

The various mobilised sources unveiled an intricate complexity. The table below offers a global overview of our gathered data. It discloses important gaps and shortcomings, resulting in an estimation of fatal drownings in psp.

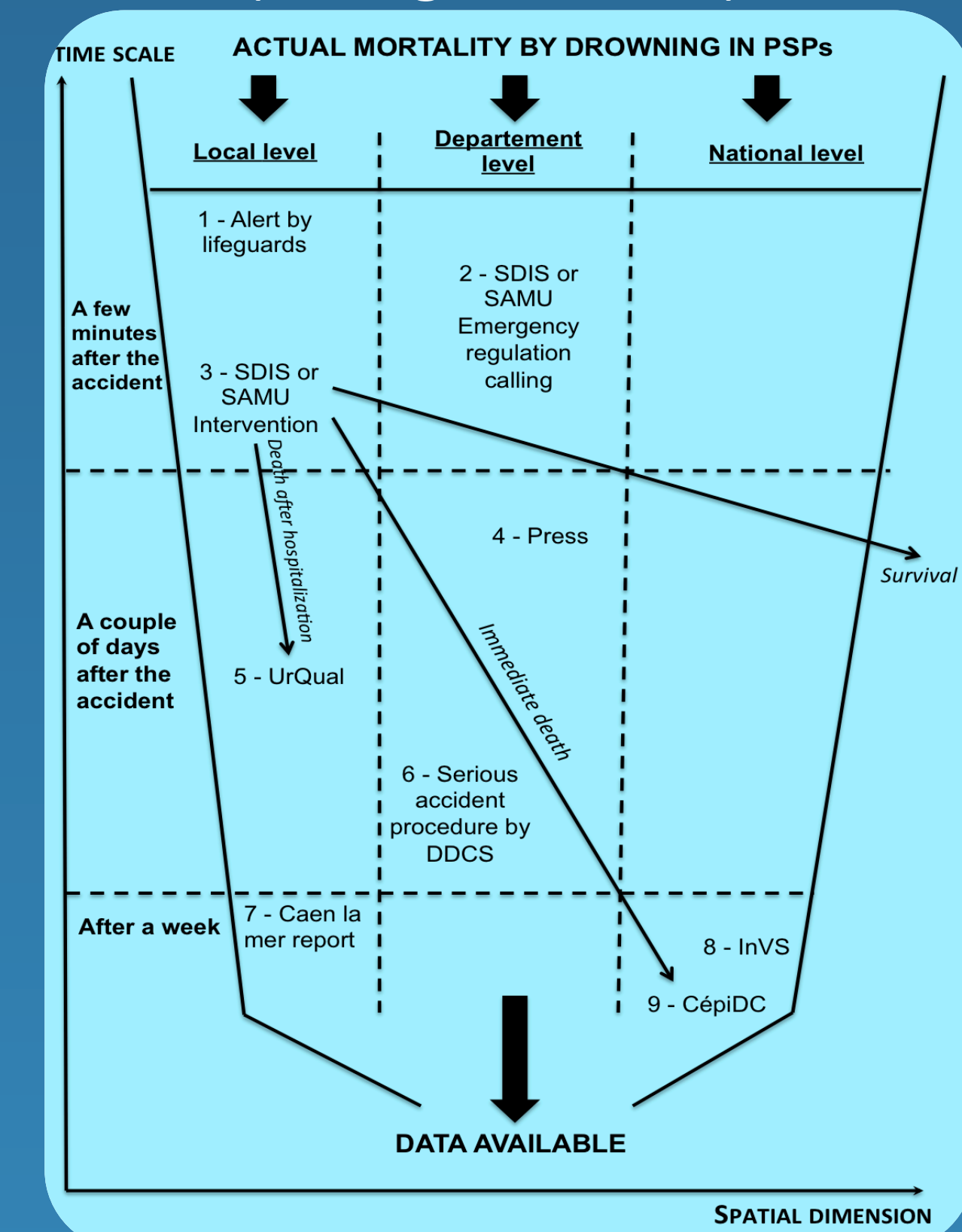
Geographic scale	Source	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
National	InVS	5	8		5			6			8		
	CépiDC ICD Codes W74.3 W67.3	3	1	0	1	3	1	3	3	0			
	Presse	1	1	0	0	0	0	1	3	2	4	5	2
	SAMU 14												
Départemental	SDIS 14												
	DDCS 14												
	UrQual												
Local	Caen la mer									1			

Conclusion :

The collection of quantitative data on fatal drowning in psp was held back by a number of methodological barriers. The relative rarity of fatal drownings in psp, the existence of multiple definitions of the accident known as "drowning," the diversity of the available emergency services, and the underuse of the statistical software and nomenclatures made available to the emergency services make it impossible, to evaluate precisely, how many people have drowned in french psp. The absences of such a registry prevents learning from experience that has clearly proved effective in other areas of risk prevention and management. The ultimate aim of gathering information to be contributed to a national database or clearinghouse on drowning that would include local branches.

Results analysis :

To clarify the analysis, we have modelled the different channels of accident reporting. The X-axis is time-related, while the Y-axis relates to the geographical dimension (see figure below).



We summarize the results of our investigation into five categories of shortcomings leading to substantial approximation as to the actual number of fatal drownings that may occur each year in French psp.

- Availability of some data (e.g., Caen la mer) mostly depend on stakeholders' good will, since the corresponding procedures are not mandatory, but only discretionary.
- The CépiDC and SDIS data set suffered from subjective and/or poorly described categories. Because such codes entail quite a bit of interpretation, they are not reliable.
- Some data (like those of SAMU 14) were not computerized. Despite its potential relevance, lack of digitization and computerization makes this information impossible to exploit especially since the number of reports is considerable.
- Some sources (e.g., InVS, press, Urqual) clearly lack comprehensiveness.
- Noncompliance with the requirements to report serious accidents (e.g., in the case of the DDCS) creates a serious problem with data gathering, availability, and accuracy.

Practical application :

Taking into account these analysis, we have made several recommendations. We limited ourselves to the most feasible possibilities. Out of the eight sources, six were particularly likely to benefit from this analysis.

Source	Recommendations
CHU Caen	<ul style="list-style-type: none">Raise awareness of the different ICD 10 codes among medicsPoint out the importance of producing epidemiological data regarding drownings, and especially the victims' futureShare the same thesaurus for the different services within the CHU
InVS	<ul style="list-style-type: none">In spite of its approximation, the most relevant source in FranceDraw attention of public authorities on the necessity to launch a really comprehensive survey, on a regular and consistent basisInclude systematically the different rescuers organizations, as well as psp managersBroaden the scope of the survey to secondary mortality
SDIS	<ul style="list-style-type: none">Convince firemen to gather precise data regarding their rescue activity in psp, especially while writing accident reports (root cause)
DDCS	<ul style="list-style-type: none">Call to order the managers of aquatic facilities regarding the mandatory declaration of serious accidents
SAMU	<ul style="list-style-type: none">Raise awareness of the different ICD 10 codes among medicsPoint out the importance of producing epidemiological data regarding drowningsPrompt physicians to fill out the death certificates accuratelyEquip each SAMU in France with a software for the purpose of inventorying medical operations through ICD 10The computerized interface between firemen and SAMU should be effective on the whole French territory
Managers /Caen la mer / Lifeguards	<ul style="list-style-type: none">Raise awareness of the importance of producing « close to the field » data regarding drownings among lifeguards and managersAdopt the InVS' drowning declaration formComply with the DDCS procedure consisting of declaring serious accidents

Glossary :

CépiDC: Center for epidemiology on the causes of death; DDCS: Departmental directorate of social cohesion (and sport); InVS: French Institute for public health surveillance; SAMU/SMUR 14: Calvados Mobile medical emergency service and resuscitation; SDIS14: Calvados fire and rescue service; UrQual: Caen teaching hospital (CHU) database.