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# Resuscitation

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## Letter to the Editor

### Cardiac arrest at the workplace: Results from an international survey about First Aid on Red Cross and Red Crescent Societies and International Companies Network<sup>☆</sup>



Sir,

Nowadays implementing an effective First Aid system at the workplace is a major challenge. However, there is little available data on specific regulations and training in these locations.<sup>1</sup> A previous survey has shown heterogeneity of practice in emergency care across the world, but without detailed answers to questions about First Aid regulations and training.<sup>2</sup> We aimed to conduct an online survey about world-wide First Aid regulation and cardiac arrest training, using International Red Cross and Red Crescent Societies and International Company Networks, and to describe inequalities correlating with country income.

In December 2015 and January 2016, 109 questionnaires were analyzed from 64 countries, divided into three groups, according to Gross Domestic Product per capita, and purchasing power parity (current international US dollar, \$27,000 and more for group A, 9000–26,999 for group B, and 0–8999 for group C).<sup>3</sup>

We found that legal regulations for assessing workplace health risks exist in most countries (Table 1), with an impact on First Aid equipment and number of trained First Aiders in 60% of the cases. Most of the countries (3/4) have a law making it mandatory for some or all companies to have someone who is trained in First Aid with basic life support and cardiac arrest training. Often, there is no legal obligation, or official guidelines, to provide an Automated External Defibrillator at the workplace or to perform regular medical emergency drills. Handling an Automated External Defibrillator is included in First Aid training in only 1/3 of the countries. These results did not differ according to Gross Domestic Product per capita.

Despite limitations due to the sampling methodology and number of answers used, this sample provides additional information about First Aid around the world. Compared with a previous survey using National Secretaries of the International Commission on Occupational Health,<sup>2</sup> we observed similar proportions of First Aid implementation, but with a broader picture (64 countries described versus 35) and more details.

In conclusion, improvement in First Aid and cardiac arrest training at the workplace is needed and can be accomplished by establishing workplace First Aid guidelines in each country, with

<sup>☆</sup> All authors have participated to the conception and design of the study, or acquisition of data, or analysis and interpretation of data, drafting the article or revising it critically for important intellectual content, and final approval of the version submitted.

**Table 1**  
Key answers in the survey, for the three groups of Gross Domestic Product per capita (group A: \$27,000 and more, group B: 9000–26,999, group C: 0–8999, current international US dollar).

	Answers	Groupe A n (%)	Groupe B n (%)	Groupe C n (%)	Total	P (chi <sup>2</sup> /exact tests)
Is there a legal regulation in your country to assess the health risks at the workplace?	Don't know/missing data	1 (4.55%)	1 (4.76%)	0 (0%)	2 (3.13%)	0,208
	No	1 (4.55%)	2 (9.52%)	5 (23.81%)	8 (12.50%)	
	Yes	20 (90.91%)	18 (85.71%)	16 (76.19%)	54 (84.38%)	
If yes, do the results of these assessments have to have an impact on the First Aid equipment and number of trained First Aider?	Don't know/missing data	2 (9.09%)	4 (19.05%)	8 (38.10%)	14 (21.88%)	0,9615
	No	4 (18.18%)	4 (19.05%)	3 (14.29%)	11 (17.19%)	
	Yes	16 (72.73%)	13 (61.90%)	10 (47.62%)	39 (60.94%)	
To provide an AED at workplaces is there a legal obligation, an official guideline or a social political incitation?	Don't know/missing data	2 (9.09%)	1 (4.76%)	6 (28.57%)	9 (14.06%)	0,2529
	No	10 (45.45%)	13 (61.90%)	13 (61.90%)	36 (56.25%)	
	Official guidelines	1 (4.55%)	3 (14.29%)	0 (0%)	4 (6.25%)	
	Social political incitation	8 (36.36%)	2 (9.52%)	1 (4.76%)	11 (17.19%)	
Is there a law that makes it mandatory for all companies, or for some, to have someone who is trained in First Aid?	Don't know/missing data	1 (4.55%)	1 (4.76%)	0 (0%)	2 (3.13%)	0,8896
	Not	4 (18.18%)	5 (23.81%)	5 (23.81%)	14 (21.88%)	
	Yes for some	17 (77.27%)	15 (71.43%)	16 (76.19%)	48 (75.00%)	
If yes, is handling an AED included in First Aid Training?	Don't know/missing data	7 (31.82%)	8 (38.10%)	5 (23.81%)	20 (31.25%)	0,556
	No	6 (27.27%)	5 (23.81%)	9 (42.86%)	20 (31.25%)	
	Yes	9 (40.91%)	8 (38.10%)	7 (33.33%)	24 (37.50%)	
If yes, is basic life support included in First Aid Training?	Don't know/missing data	5 (22.73%)	8 (38.10%)	6 (28.57%)	19 (29.69%)	0,4356
	No	1 (4.55%)	1 (4.76%)	3 (14.29%)	5 (7.81%)	
	Yes	16 (72.73%)	12 (57.14%)	12 (57.14%)	40 (62.50%)	
Is there a legal obligation to carry out medical emergency drills at the workplace regularly?	No	11 (50.00%)	8 (38.10%)	11 (52.38%)	30 (46.88%)	0,8495
	Official guidelines	2 (9.09%)	4 (19.05%)	1 (4.76%)	7 (10.94%)	
	Legal obligation	5 (22.73%)	5 (23.81%)	4 (19.05%)	14 (21.88%)	
	Practices	4 (18.18%)	4 (19.05%)	5 (23.81%)	13 (20.31%)	
Does your country have a register for out of hospital cardiac arrests?	Don't know/missing data	6 (27.27%)	8 (38.10%)	6 (28.57%)	20 (31.25%)	0,2753
	No	6 (27.27%)	7 (33.33%)	10 (47.62%)	23 (35.94%)	
	Yes	10 (45.46%)	6 (28.57%)	5 (23.81%)	21 (32.81%)	
If yes, could cardiac arrest at workplaces be filtered out?	Don't know/missing data	16 (72.73%)	18 (85.71%)	18 (85.71%)	52 (81.25%)	0,7259
	No	3 (13.64%)	1 (4.76%)	2 (9.52%)	6 (9.38%)	
	Yes	3 (13.64%)	2 (9.52%)	1 (4.76%)	6 (9.38%)	
Do employees/citizens have to attend special training to use an AED?	Don't know/missing data	2 (9.09%)	1 (4.76%)	4 (19.05%)	7 (10.94%)	0,2046
	No	12 (54.55%)	7 (33.33%)	6 (28.57%)	25 (39.06%)	
	Yes	8 (36.36%)	13 (61.90%)	11 (52.38%)	32 (50.00%)	
Total		22	21	21	64	

a higher number of employees trained, and specific drills at the workplace regardless of the country's GDP per capita.

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### References

- Dagrenat C, Cassan P, Issard D, Loeb T, Baer M, Descatha A. Secourisme sur le lieu de travail dans le monde: revue systématique de la littérature. Arch Mal Prof Environ 2015;76:568–78. <http://dx.doi.org/10.1016/j.admp.2015.06.010>.
- Descatha A, Schunder-Tatzber S, Hamel TL, Wognin B, Rotthier S, ECOH Working Group, et al. Are there standards of care for cardiac arrest existing in the workplace? Results from a worldwide survey. Resuscitation 2014;85:e145–6. <http://dx.doi.org/10.1016/j.resuscitation.2014.05.026>.
- GDP per capita growth (annual %). Data n.d. <http://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG> [accessed 08.08.16].

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