

HEALTH AND SAFETY STRATEGY FOR FIREFIGHTERS IN THE EUROPEAN MEDITERRANEAN AREA

Questionnaire on health and safety at work for fire fighters:

Results

Steering Committee final meeting

Ljubljana, 2009, July 7

Stefano Supino



Outline

- ✓ On the firefighter job: a quick refresh
- ✓ Introduction
- ✓ Methodological indication
- ✓ Results
- ✓ Conclusions and further steps

Who is a fire-fighter?

✓ Ilo explanation

“A **worker** whose **main job** is respond to **emergencies** in many **different kinds of locations** with a view to saving life, performing rescue and minimizing damage to property. Preparation for responding and prevention are also important aspects of this work”.

In International Hazard Datasheets on Occupation

✓ Wikipedia explanation

“ **Firefighters** are **rescuers** extensively trained primarily to put out hazardous fires that threaten civilian populations and property, to rescue people from car accidents, collapsed and burning buildings and other such situations. The increasing complexity of modern industrialized life with an increase in the scale of hazards has stimulated both advances in firefighting technology and a broadening of the firefighter-rescuer's remit. They sometimes provide emergency medical services. The **fire service**, or **fire and rescue service** also known in some countries as the **fire brigade** or **fire department**, are some of the emergency services.”

Performing this job

- ✓ Tasks, knowledge, skills, abilities required to perform this job are impressive for numerousness and complexity. This is a very demanding job ...
- ✓ Working environment during emergencies is hostile and unpredictable ...
- ✓ Fire-fighter cannot be prepared for every eventuality
- ✓ Fire-fighting is a very high risk occupation
- ✓ Occupational injuries and occupational diseases could occur with high probabilities
- ✓ Protect the fire fighters from the hazard of their job require a growing level of sophistication in training, an appropriate education, the development of personal protective equipment, modern vehicles and an adequate level of mental and physical health and an appropriate level of fitness.

The multidimensional nature of H&S in the firefighting job

- ✓ How manage and minimize the risks?
- ✓ Risk management plan
- ✓ Guidelines, procedures, norms and standard to respect – the enforcement problem
- ✓ Information about the effect of several hazard typologies ... – the statistical problem
- ✓ Personal equipment and protective clothing
- ✓ Physical fitness
- ✓ Health Surveillance (ex ante and ex post – yearly)
- ✓ Professional Development
- ✓ Training, Training, Training [learning by doing, using and interacting]
- ✓ Knowledge, Knowledge, Knowledge [Knowledge ≠ information]
- ✓ To find an equilibrium between a “Saint Florian approach” and a “Only the paranoid survive approach”

Introduction to analysis

- ✓ **Main target:** The definition of an European standard on health and safety for firefighters by means of the development, the elaboration and the implementation of a common strategy to improve – amongst other contractual conditions – occupational safety and health of firefighters
- ✓ **The analysis goal:** Increase our knowledge of cross countries differences on practices related to health and safety and Individuate priority areas for an effective strategy aimed to preventive action
- ✓ **The chosen tool:** Ask directly to firefighters: a survey based on questionnaire

Methodological indication

- ✓ Sample description [countries with available and robust data: Croatia, Malta, Spain, Slovenia, Italy, Israel]: cross section; lack of robust and sufficient data about Portugal and Greece – contradictory response – necessary of a second explorative analysis to implement these countries also, by mail]
- ✓ Period [2008]
- ✓ Data [obtained by e-mail survey]
- ✓ Instruments used for data analysis [statistical test, descriptive statistics]
- ✓ Instruments used for data presentation [graph, table, means]
- ✓ Number of Variables: 180 (numerical and qualitative: codified)

The general structure of questionnaire: gather information about...

- ✓ Respondents
- ✓ Organization of work
- ✓ Management of fire service, risk plan, and the safe deliver of emergency service
- ✓ Health and Safety
 - ✓ Health – medical condition, responsibility, check up ex ante and ex post, information about risks factors related to work and life - physical fitness – health surveillance
 - ✓ Safety – guidelines, personal equipment, standard equipment, vehicles, and last but not the least ... **training**
- ✓ Accident investigations
- ✓ Record and statistics on intervention and relating to the nature, frequency and severity of all accidents, injuries, illness or death
- ✓ Freely available information
- ✓ Overlapping with other state officers and cross border collaboration

An excerpt from database: 180 variables

Code	Variable description	Variable Name	Expressed as:
Q1	Inside citizenship of the country surveyed respondent	inci	yes=1/no =0
Q2	Outside citizenship of the country surveyed respondent	outci	inEU, caEU, outEU
Q3	Title of the respondent	jtitle	nominal
Q4	Stopping age of full time education of the respondent	agedu	number of year
Q5	Still studying	moredu	yes=1/no =0
Q6	numbers of year in paid fire fighter employment after stop full time education	yepaid	number of year
Q7	Length of service	yefire	number of year
Q8	Employer of fire fighters	empff	state, region, local
Q9	Territorial Distribution of fire departments	tdfidep	risk assess, political and electoral aspects, intervention time, distance
Q10	Level of general information of the survey respondent on health and safety risks	infrehsr	ordinal scale (2,1,-1,-2)
Q11	Number of nights (at least 2 hours between 10.00 pm and 05.00 am) per month	nightw	number
Q12	Number of evening (at least 2 hours between 6.00 pm and 10.00 am) per month	eveningw	number
Q13	Number of Sunday work per month	sundayw	number
Q14	Number of Saturday work per month	saturdayw	number
Q15	Number of "more than 10 hours" day of work per month	moth10hw	number
Q16	Modality of work (same number of hours every day)	mwhed	yes=1/no =0
Q17	Modality of work (same number of day every week)	mwdeu	yes=1/no =0
Q18	Modality of work (fixed starting and finishing times)	mwsft	yes=1/no =0

An excerpt from database: final formatted data

✓ Country Code:

- ✓ HR – Croatia
- ✓ ML – Malta
- ✓ ES – Spain
- ✓ PT – Portugal
- ✓ EL – Greece
- ✓ SI – Slovenia
- ✓ IT – Italy
- ✓ IL – Israel

	Q4	Q5	Q6	Q7	Q8	Q9					
					empff			tdfidep			
countrycode	agedu	moredue	yepaid	yefire	state	region	locale	1	2	3	4
HR	42	0	21	9	0	0	1	0	0	0	1
MT	14	0	30	10		0	0		0	1	0
ES	28	0	25	25	1	1	1	0	1	1	1
SI	20	1	1	2	0	0	1	0	0	1	1
IT	24	0	1,5	29	1	0	0	0	1	1	1
IL	18	0	33	20	1	1	1	0	1	1	1
PT	18	0	22	22	1	0	1	0	1	1	1
EL	37	0		32	1	0	0	1	1	0	0

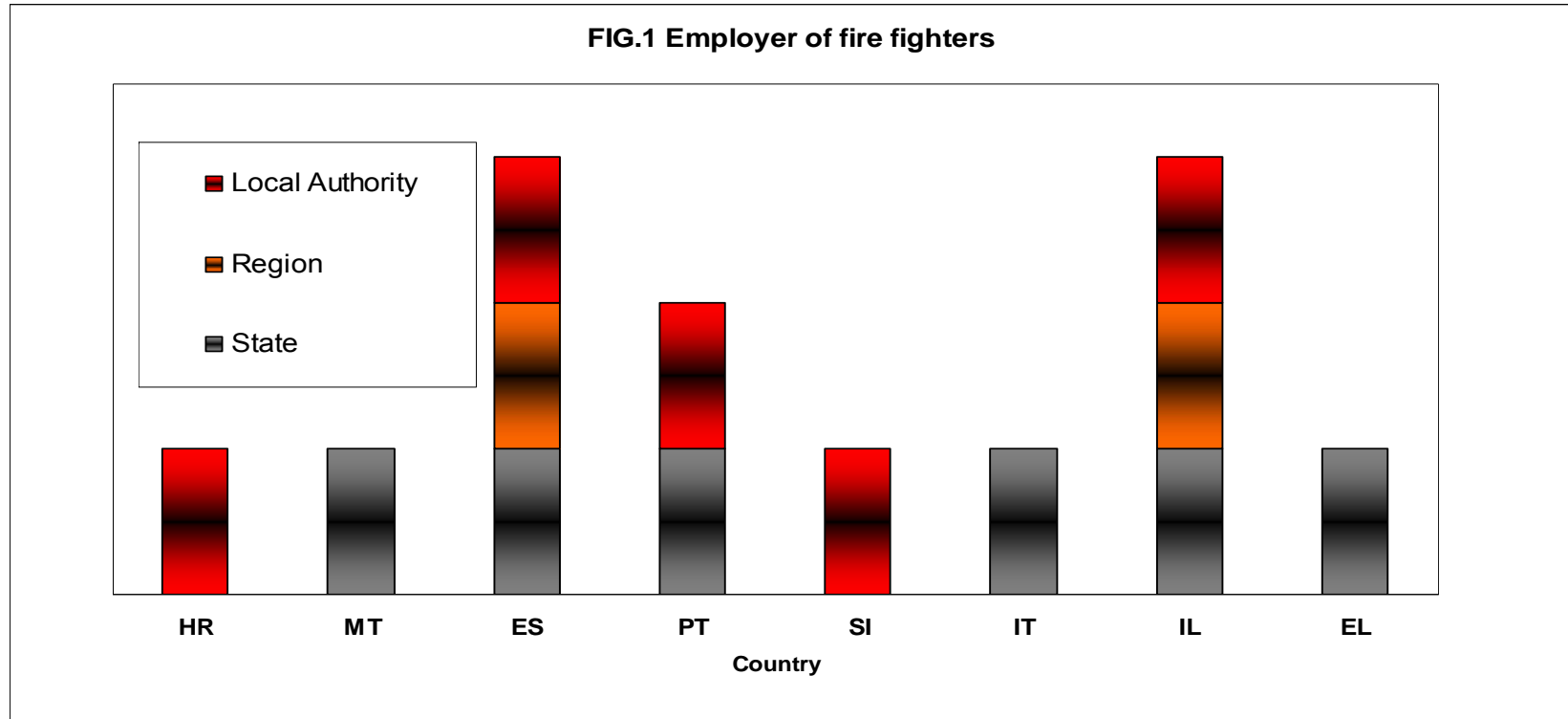
The respondent typology

The respondents: some characteristics - table 1

Country	Job title	Year in paid fire fighters	Years in fire fighters organization	Information about H&S at work
HR	high	21	9	more than adequate
MT	high	30	10	adequate
ES	high	25	25	adequate
PT	high	22	22	more than adequate
SI	medium-high	1	2	adequate
IT	high	31	29	more than adequate
EL	high	32	32	adequate
IL	high	33	20	adequate

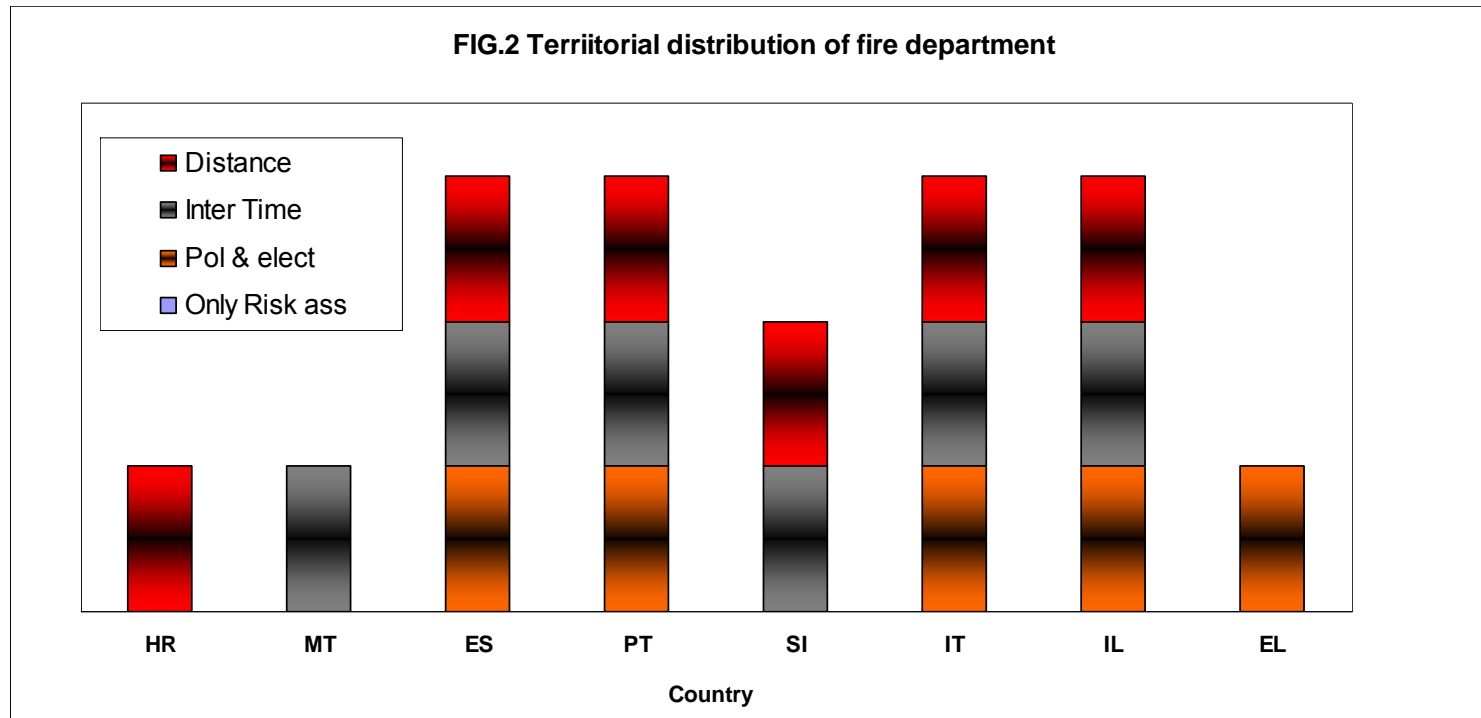
- ✓ High qualified respondents
- ✓ High number of years in paid job and fire fighters organization
- ✓ Informed opinion [information about H&S is sufficient]

Employer



- ✓ Only ES in the sample presents a more complex structure of fire fighters employers responsible. Regarding MT there is also the Malta International airport as private employer
- ✓ HR and SI regional service supply
- ✓ Public dominate in the fire fighters service supply

Fire department distribution



- ✓ No one consider only risk assessment: ES, PT and IT common patterns. Other countries are diversified. Political and electoral aspect are important in ES, PT, IT, EL
- ✓ Focus on political and electoral aspect: is it an appropriate criterion?

How fire fighters work [1]

How fire fighters work - table 2.1

Country	(a) General characteristics			(b) Particular characteristics (for month)				
	(=) hours every day	(=) hours every week	fixed start and finish time	Evening	Night	Saturday	Sunday	> 10 hours a day
HR	no	no	yes	4	4	4	4	in summer
MT	no	no	yes	7	7	3	3	14
ES	yes	no	yes	6	6	1	1	6
PT	yes	no	no	8	8	3	3	all days (12 h)
SI	yes	no	yes	.	.	2	2	16
IT	yes	no	yes	7	7	2	2	14
EL	no	no	yes	8	8	3 or 4	3 or 4	.
IL	yes	yes	yes	10	10	2	2	10

- ✓ Dominance of fixed start and finish time
- ✓ Demanding working condition: please consider the particular characteristics section of table: > 10 hours a day

How fire fighters work [2]

How fire fighters work - table 2.2

Country	(a) Shift organization			(b) Working time arrangements set			(c) Regular change in work schedule	
	Daily split	Permanent (morning, afternoon, night)	Alternating Rotating	By fire dep. no change	By fire dep. several fixed choose	Flexi time		
HR	no	no	yes	yes	no	no	yes	
MT	no	no	yes	yes	no	no	no	
ES	no	yes	no	yes	no	no	no	
PT	no	no	yes	yes	no	no	yes (no) in private (public) sector	
SI	no	no	yes	yes	no	no	no	
IT	no	yes	no	yes	no	no	no	
EL	no	no	yes	yes	no	no	yes	
IL	no	yes	yes	no	yes	no	no	

- ✓ As general case, working time arrangements set is fixed by fire department with no change possibility: very rigid
- ✓ No flexi time

How fire fighters work [3]

How fire fighters work - table 2.3

Country	Team in countries the standard team	the composition
HR	3, 6 or 13 fire fighters depending on the situation	Fire-fighter + head of the station + driver
MT	10, included one Chief Fire Officer is responsible for all	Station Officer + Crew Commander + 3 Leading Fire-Fighters + 7 Fire-fighters
ES	5-6 fire fighters	1 driver + Crew Commander + 4 fire fighters
PT	depends on function performed and fire department	health emergency services 2 elements forest fire 5 elements
SI	n.a.	n.a.
IT	5-6 fire fighters	1 crew commander + 1 or 2 drivers + 2 or 3 fire fighters
EL	5 fire fighters	1 crew commander + 4 fire fighters
IL	2-3 fire fighters, 3-4 teams for each shift High risk operations > 1 team Mass operations: more teams than a regular shift.	n.a.

✓ wide heterogeneity in the standard size and composition of team

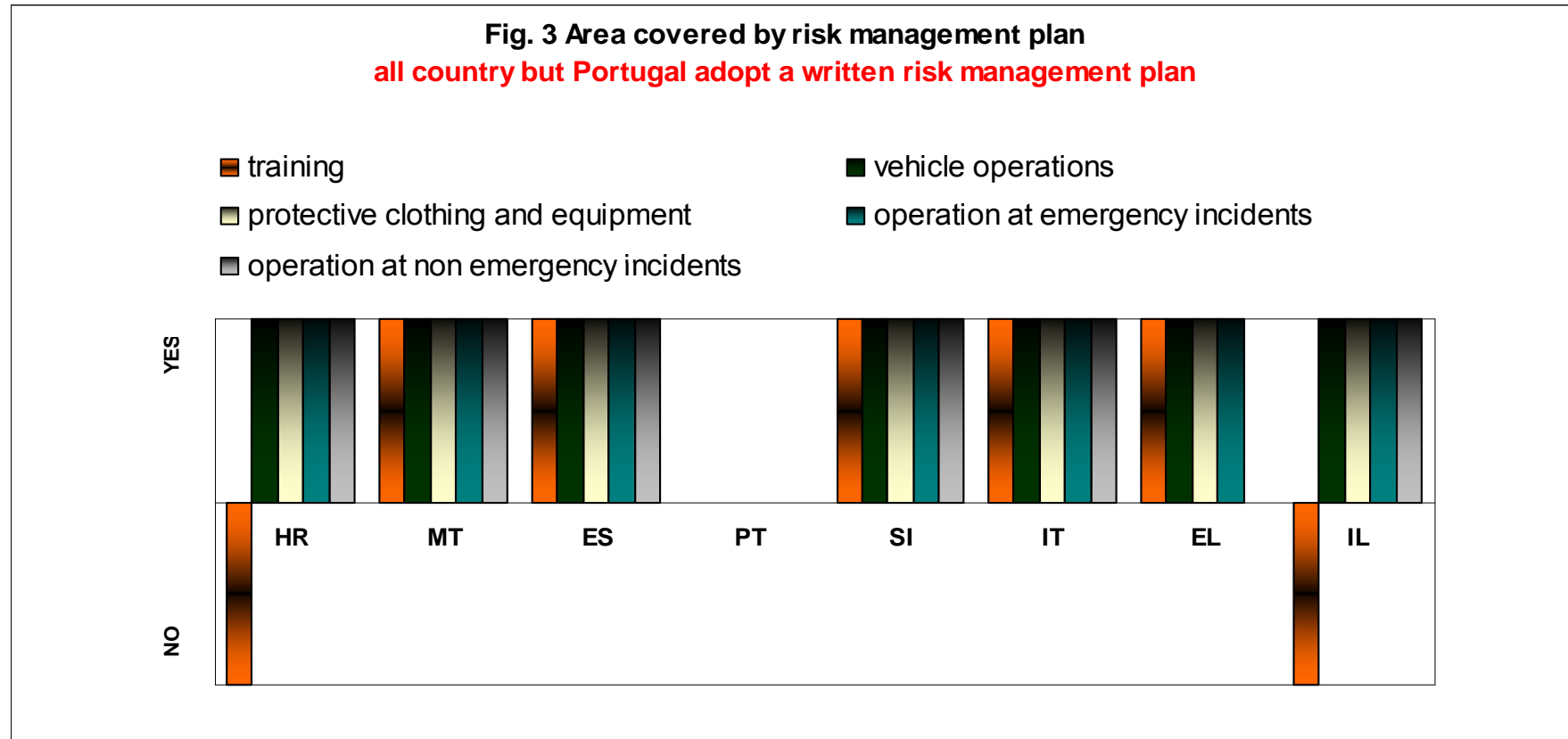
How fire fighters work [4]

How fire fighters work - table 2.4

Country	Overall working conditions satisfaction	Working ability suited to the tasks in 50 and 60	Presumptive disability law	Cuts in frontline personnel in 2008	Cuts and its presumptive impacts on security	Resources allocation
HR	not very satisfied	no	no	n.a.	.	disequilibrium
MT	not very satisfied	no opinion	no	no	.	equilibrium
ES	not very satisfied	no	no	yes	yes	disequilibrium
PT	not very satisfied	no	no	yes	no	disequilibrium
SI	moderately satisfied	no	no	no	.	disequilibrium
IT	not very satisfied	no	no	yes	yes	disequilibrium
EL	not very satisfied	no	no	no	no	disequilibrium
IL	moderately satisfied	n.a.	no	yes	yes	disequilibrium

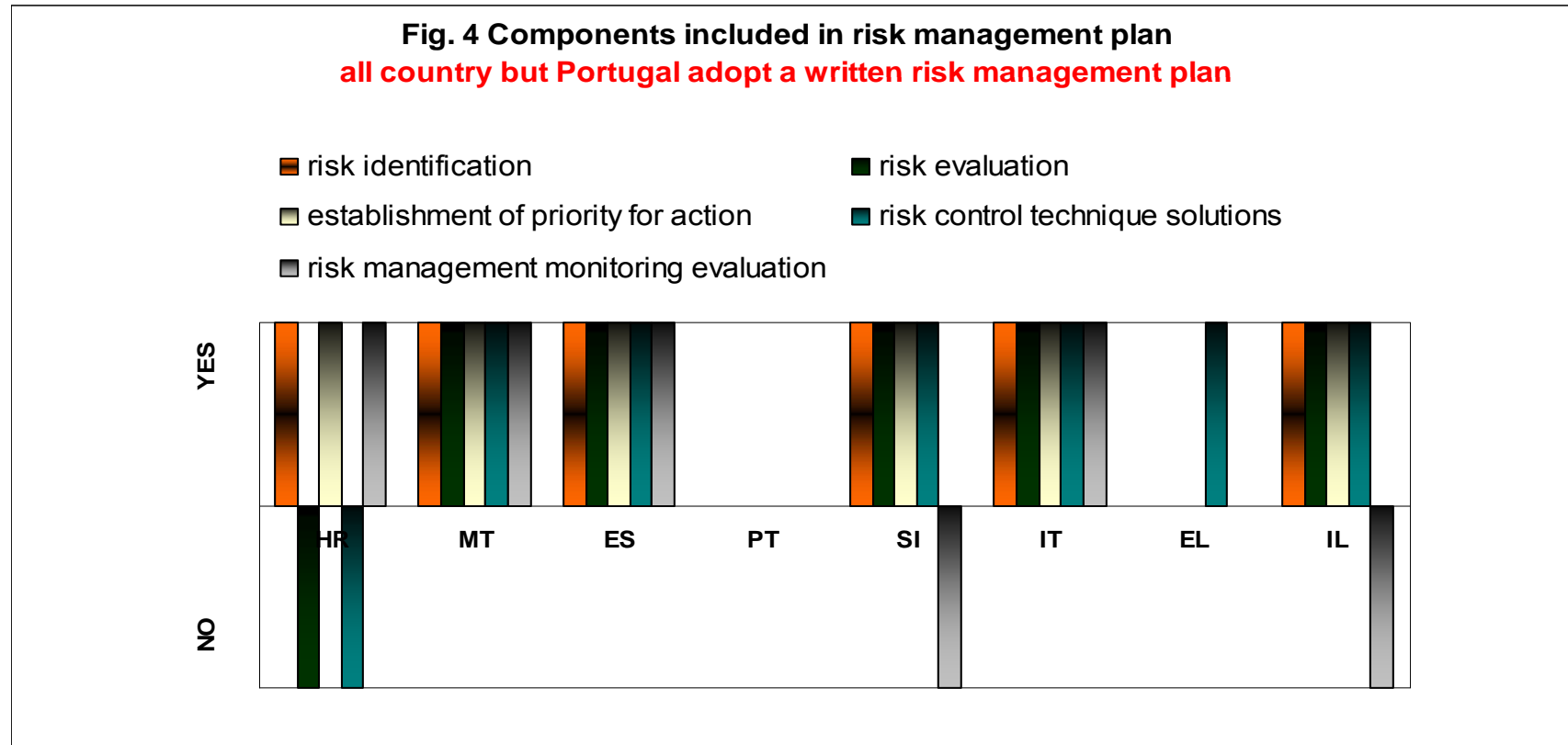
- ✓ No job satisfaction is the rule
- ✓ Elderly problem: how resolve it? Priority area
- ✓ No organic presumptive disability law: how resolve it? Priority area
- ✓ Cuts in frontline personnel is considered a menace in big countries. It is supposed to have a strong impact on safety.
- ✓ There is a general consensus on a disequilibrium in resources allocation

Risk management plan: areas



- ✓ Remember: the enforcement problem can plague this descriptive analysis
- ✓ All country but Portugal adopt a written risk management plant, but training isn't included in HR and IL

Risk management plan: components



- ✓ All countries include but Greece the same components in risk management plan but in HR there is a lack of important components as risk evaluation and risk control technique solutions. Risk management monitoring evaluation is excluded in SI. Greece presents only risk control technique solutions.

Opinion ranking on health consequences of fire fighters work

Health consequence of work in fire fighters opinion - table 3

80% of fire fighters think that H&S is at risk due of fire fighters work

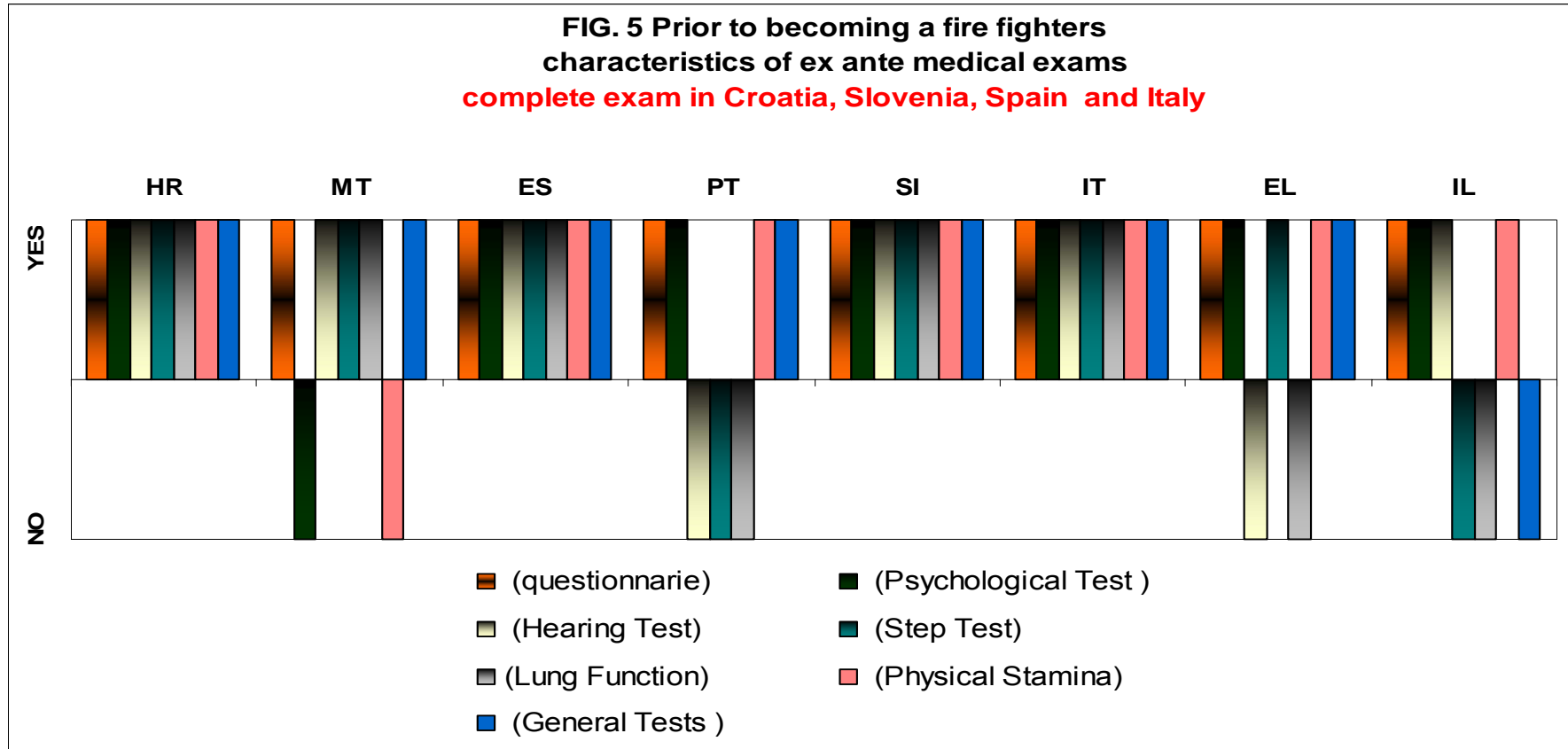
80% of fire fighters think that fire fighters work impact on their health

Opinion ranking on health consequence of work

	yes	no	don't know
Injury (ies)	100%	0%	
backache	86%	14%	
muscular pains	86%	14%	
overall fatigue	86%	14%	
anxiety	71%	14%	14%
stress	71%	29%	
irritability	57%	29%	14%
sleeping problem	57%	14%	14%
headaches	57%	29%	14%
hearth disease	57%	43%	
skins problems	57%	43%	
allergies	57%	43%	
stomach ache	43%	29%	29%
respiratory difficulties	43%	43%	14%
hearing problems	43%	43%	14%
problems with vision	14%	43%	43%

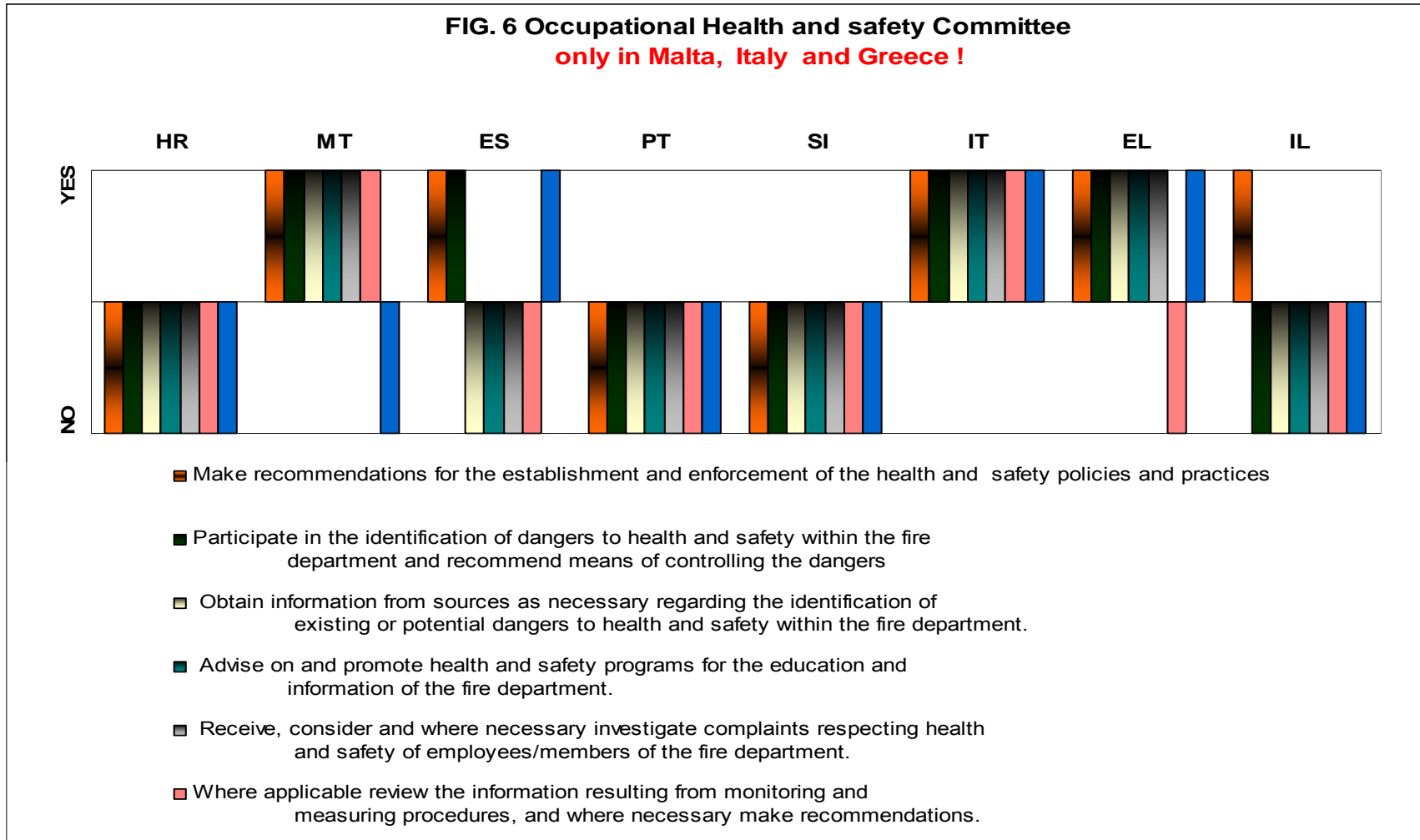
- ✓ In the fire fighters opinion the more important consequences are injuries (+++), backache (+++), muscular pains (+++), overall fatigue (+++), anxiety and stress (++) , irritability (+), sleeping (+), problem (+), headaches (+), hearth disease (+), skin problems (+), allergies (+) .

Ex ante medical exams: becoming a fire fighters



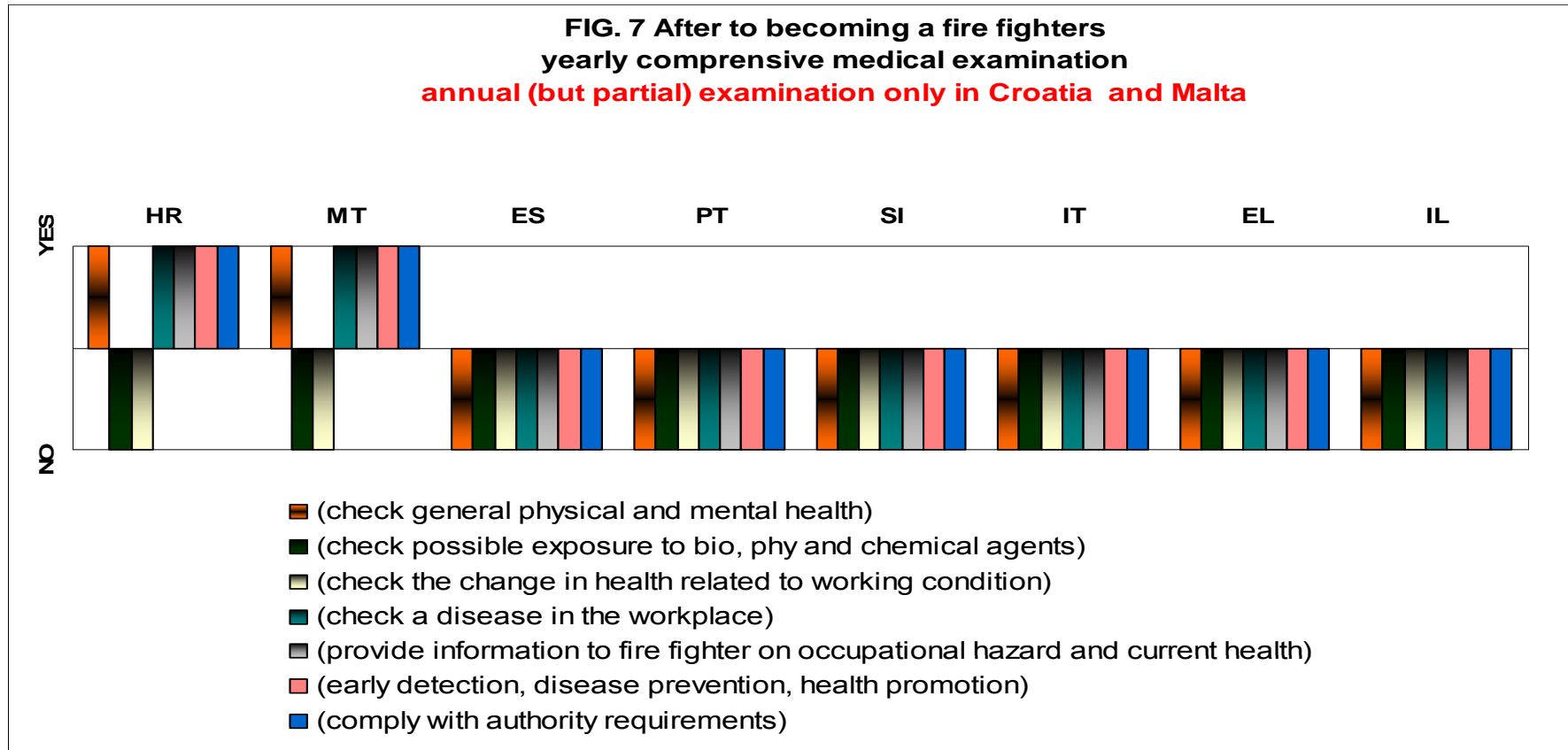
- ✓ Complete exam in HR, in SI, IT (regarding ES in some cases from questionnaire emerge no complete exam: is an enforcement problem?! Step test, lung test)
- ✓ in MT lack of Physical stamina and Psychological test, in PT lack of Hearing, Step and Lung function test, in EL lack of Hearing and Lung function test.

Health and safety committee



- ✓ H&S committee only in MT, IT and EL. ES data are contradictory
- ✓ Complete only in IT

Yearly complete medical examination?



✓ No Yearly complete medical examination as generalized pattern

✓ Yearly but partial examination only in HR and MT. It's a priority area

Health [1]

Health care - table 4

Country	Country official written departmental occupational H&S policy	Country national medical and physical fitness standard	Comprehensive annual medical examination by a fire department physician	Ex post long term and debilitating illness medical exam to be reactivated
HR	yes	yes	yes	yes
MT	yes	yes	yes	yes
ES	no	no	no	no
PT	yes	no	no	no
SI	yes	no	no	yes
IT	yes	yes	no	yes
EL	no	no	no	yes
IL	no	no	no	no

- ✓ ES, PT, and EL must improve in this crucial area: more information (IL)
- ✓ Why don't establish an European standard?

Health [2]

Information on the effects to exposition to various agents - table 5

Country	exposure to specific biological agents	exposure to specific physical agents	exposure to specific chemical agents	exposure to specific radiological agent	opinion on the adequacy of policy guidelines for the prevention of transmission of blood borne pathogens and other infectious disease
HR	inadequate	inadequate	inadequate	inadequate	inadequate
MT	less than adequate	adequate	adequate	adequate	less than adequate
ES	adequate	adequate	adequate	adequate	adequate
PT	less than adequate	less than adequate	less than adequate	less than adequate	less than adequate
SI	less than adequate	adequate	less than adequate	adequate	adequate
IT	adequate	adequate	adequate	adequate	adequate
EL	less than adequate	less than adequate	less than adequate	less than adequate	less than adequate
IL	less than adequate	less than adequate	less than adequate	less than adequate	inadequate

- ✓ HR, PT, EL must improve in this crucial area (as IL)
- ✓ Exposition to specific biological agents deserve more attention

Health [3]

Healthy life in fire department - table 6

Country	Possibility to workout on duty	Endowment of exercise equipment in each station	Healthy message communication (poster, bulletin boards, newsletters, brochures, videos or lectures in 2008	Information provided about the risk factors for heart disease in 2008	Supply to employees of an assistance program in the case of personal problems affecting their work performance	Supply to employees of "incident stress" counseling and psychological support
HR	yes	yes	no	no	no	no
MT	yes	yes	yes	no	no	no
ES	no	yes	no	no	no	no
PT	yes	no	no	yes	no	no
SI	yes	yes	no	no	no	no
IT	yes	no	yes	no	no	yes
EL	yes	yes	no	no	no	no
IL	yes	yes	no	no	no	no

- ✓ There is a generalized pattern of lack of information on health, in particular in hearth disease area.
- ✓ We note one of the first evidence of "heroes handicap": no assistance program; no incident stress counseling

Clothing, apparatus, equipment [1]

Personal protective equipment, apparatus, systems - table 7

Country	Existence of country national regulation and requirements about protective clothing	Appropriateness of protective clothing in relation of hazard of work environment	Appropriateness of fire fighters training in use, inspection and limits of their personal protective equipment	Firefighters personal responsibility about the efficiency of their personal protect equipment	Officers responsibility about the checking of fire fighters personal protect equipment	Existence of country system of information alert informing fire fighters about problems in the use of apparatus
HR	yes	yes	no	yes	yes	yes
MT	no	yes	yes	yes	yes	yes
ES	yes	yes	yes	no	no	yes
PT	yes	no	no	yes	yes	no
SI	yes	yes	yes	yes	no	no
IT	yes	yes	yes	yes	no	yes
EL	yes	yes	no	yes	yes	no
IL	yes	no	yes	yes	yes	no

✓ Relative homogeneity and adequacy in personal protective equipment is a good news

..

Clothing, apparatus, equipment [2]

Personal protective equipment, apparatus, systems - table 8

Country	Self Contained Breathing Apparatus	Available portable radio instruments	Radio communication systems	Safety alert systems	Information about the Hazardous Materials
HR	more than adequate	less than adequate	less than adequate	less than adequate	inadequate
MT	adequate	adequate	adequate	adequate	less than adequate
ES	more than adequate	more than adequate	adequate	adequate	less than adequate
PT	adequate	adequate	less than adequate	n.a.	less than adequate
SI	adequate	adequate	adequate	n.a.	adequate
IT	more than adequate	adequate	adequate	adequate	adequate
EL	more than adequate	less than adequate	adequate	n.a.	adequate
IL	adequate	adequate	adequate	n.a.	less than adequate

- ✓ There is a generalized consensus on the adequacy of SCBA, radio instrument and communication systems
- ✓ Lack of information about Hazardous material

Vehicles

Vehicles - table 9

Country	Fire department written, driving skills, and pre-trip inspection test for driver of team	Fire department formal training program on the exact types of apparatus that will be driven in the field	Official operational and safety inspection at the beginning of each tour of duty	Policy guidelines to reduce vehicle – related injury	Written basic strategies for improving safety during vehicle and roadway incident operations
HR	yes	yes	adequate	less than adequate	inadequate
MT	yes	yes	adequate	adequate	less than adequate
ES	yes	yes	adequate	less than adequate	adequate
PT	no	yes	less than adequate	less than adequate	less than adequate
SI	no	no	less than adequate	adequate	adequate
IT	yes	no	less than adequate	adequate	adequate
EL	yes	no	adequate	adequate	less than adequate
IL	no	no	less than adequate	adequate	less than adequate

- ✓ More attention on vehicle is necessary in terms of training, safety inspection, written basic strategies

Training: opinion [1]

Opinion on Adequacy of training - table 11

Accident Hazard	>adequate	adequate	< adequate	Inadequate
Falls from heights during ladder work	29%	29%	43%	
Falls from heights due to collapsing structures	14%	14%	71%	
Struck by falling objects during rescue, fire-fighting operations, or salvage operations	14%	14%	57%	14%
Stepping on, struck by or striking against glass, metal or other sharp objects leading to cuts or scratches, including injuries due to explosions	14%	43%	29%	14%
Caught in collapsing or collapsed structures	17%	17%	50%	17%
Overexertion in lifting during fire-fighting or rescue operations	14%	57%	29%	
Contact with hot surfaces or superheated gases	14%	71%	14%	
Inhalation of superheated air and/or products of combustion	14%	43%	29%	14%
Contact with or exposure to chemical products during fire-fighting, rescue or hazardous chemical spill operations	14%	29%	43%	14%
Interruption of air supply during fire-fighting operations	14%	57%	29%	
Injuries due to transportation accidents in responding to an emergency.	29%	29%	43%	
Slips, trips and falls on the fire-ground	14%	57%	29%	
Physical Hazard				
Collapse of ceilings, walls or floors	14%	57%	29%	
Sudden ignition of gas products "flashover."	29%	71%	0%	
Exposure to heat leading to burns	14%	86%	0%	
Exposure to heat leading to heat stress	14%	57%	29%	
Exposure to cold during winter fire-fighting or rescue operations or during maritime rescue operations	14%	57%	29%	
Exploding objects on the fire-ground	17%	67%	17%	
Exposure to noise in vicinity of pump or other equipment	14%	29%	57%	
Chemical Hazard				
Inadequate oxygen in the breathing air	14%	57%	29%	
The presence of carbon monoxide gas and other products of combustion in the breathing air	14%	43%	43%	
Exposure to chemicals during chemical emergencies activities	14%	43%	43%	
Biological Hazard				
Exposure to communicable diseases while treating patients as part of emergency medical related activities	0%	83%	17%	
Ergonomic, Psychosocial and organizational factor				
Psychological stress due to post traumatic stress syndrome	0%	0%	71%	29%
Overexertion and musculo-skeletal injuries while handling or moving heavy or awkward objects such as fire hoses, specialized rescue equipment while wearing heavy personal protective equipment.	29%	29%	43%	

Training: [2]

Training modality in the 2008: Typologies, Time, ways - table 11

Country	dynamic risk assessment training in the past 12 months			specialist breathing apparatus training		refresher training			hot fire/fire behavior training			some specialist building construction training			large scale training exercise
	if	day	way	if	time	if	time	way	if	time	way	if	time	way	if
	HR	no			yes	1	no			no			no		
MT	yes	1	d	yes	1,5	yes	1,5	d,d,w	yes	1,5	d	yes	1,5	d	yes
ES	yes	1	d	yes	1,5	yes	1,5	d,d	no		d,d	yes	1,5	d	yes
PT	no			no		no			no			no			yes
SI	yes	1	d	yes	1,5	yes	1	d	yes	1,5	d	yes	1,5	d	yes
IT	yes	1	d	yes	1,5	yes	1,5	d	no			no			yes
EL	yes	1,5	d	no		yes	1	d	no			no			no
IL	no			no					no	no		no			no

- ✓ **Homogeneity in training but very low level.** Combining this results with the table 11 results, more training and more qualified training is better. **“quantity and quality”** of training could make the difference!
- ✓ We individuate **four priority areas**: caught, **psy stress**, falls, struck

Training [3]

Adequacy of training - table 12

Country	opinion on impact of current operational training on fire fighters safety	opinion on rehab training	improvement of the quantity and quality of training over the previous 12 months	expenditure rate of equilibrium in operational training, more frontline equipment, more frontline personnel, modern communications equipment for every fire fighter
HR	safety compromised	inadequate	scarcely improved	no
MT	safety compromised in some degree	inadequate	scarcely improved	yes
ES	safety compromised in some degree	less than adequate	scarcely improved	no
PT	safety compromised	less than adequate	scarcely improved	no
SI	safety compromised in some degree	less than adequate	improved	no
IT	safety compromised	adequate	scarcely improved	no
EL	safety compromised in some degree	less than adequate	scarcely improved	no
IL	safety non compromised	less than adequate	scarcely improved	no

- ✓ Low satisfaction about current operational training and its effects on fire fighters safety. Rehab training is generally considered inadequate.
- ✓ In the fire fighters opinion there was zero improvement in the 2008 in the quantity and quality of training

Volunteers

On volunteers -
table 13

Country	Equipment volunteers vs. professional fire fighters	Same tasks for volunteers and career fire fighters	Increase in the number of the volunteers in the 2008	Volunteers personal standard equipment	Volunteers skills	Volunteers training
HR	yes	yes	yes	adequate	adequate	adequate
MT	yes	yes	no	adequate	adequate	less than adequate
ES	n.a.	no	n.a.	n.a.	n.a.	n.a.
PT	yes	yes	no	less than adequate	less than adequate	inadequate
SI	yes	yes	yes	adequate	adequate	adequate
IT	yes	yes	no	adequate	adequate	adequate
EL	no	no	n.a.	adequate	adequate	less than adequate
IL	yes	no	no	less than adequate	less than adequate	less than adequate

- ✓ Fire fighters emphasize also a **misallocation of expenditure**. It could be interesting to know the parameters that drive resource allocation. It's a classic "max results sub constraint" problem
- ✓ **Volunteers** are considered a reality in all countries. Which **relationship with allocation of resources**? Electoral aspects? Substitute or complements?

Accident investigations

Information and Statistics - table 14

Country	Near miss reporting system	Accident investigation (a) inquiry - coordination (b) inquiry - responsible (c) inquiry - information filers	Diffusion of accident investigation report results	Free availability of the report
HR	useful	(b) Minister for the interior (a) Minister for the interior (c) Fire department which participate in the intervention	more than adequate	inadequate
MT	useful	(a) H&S at work officers (b) H&S at work officers (c) H&S at work officers	less than adequate	less than adequate
ES	useful	(a) H&S at work officers (b) H&S at work officers (c) H&S at work officers	less than adequate	less than adequate
PT	useful	(a) The highest ranking officer* (b) The highest ranking officer* (* in the scene of accident) (c) Fire department commander	less than adequate	inadequate
SI	useful	(a) H&S at work officers (b) H&S at work officers (c) H&S at work officers	adequate	less than adequate
IT	useful	(a) Commission & inspection service department (b) Engineers and physicians (c) Fire fighters chief director	adequate	adequate
EL	useful	(a) Minister of Labour and Hellenic Fire corps/ Department of H&S (b) Hellenic Fire corps (c) Hellenic Fire corps	less than adequate	inadequate
IL	useful	(a) Police (b) Police (c) Police	less than adequate	less than adequate

Accident investigations

- ✓ About accidents:
 - ✓ in all country a system of near miss reporting is judged useful
 - ✓ there is a wide heterogeneity in accident investigation
 - ✓ regarding the diffusion of accident investigation reports we emphasize a generalized pattern of slow diffusion of results with several obstacles to free availability

Records on interventions

Information and Statistics - table 15
records about the various type of interventions in countries

Country	Number of interventions considered	List of intervention	Intervention that record the highest number
HR	3	fire, technical interventions, others	fire
MT	n.a.	n.a.	n.a.
ES	13	fire, road accidents, rescues, water damages, wind damages, explosions, animal rescues, hazard materials accidents, gas leakages, collapsing structures, technical inspections, drill, simulations and manoeuvres	fire
PT	4	fire, forest, ciy, medical emergency situations	medical emergency situations
SI	7	fire, forest fire road accidents, industrial plant accident, environmental disaster, various, false alarms,	fire
IT	9	fire, rescue, water damage, road accidents, statics, airports and ports, various, false alarms, not necessary ex post operations	fire (various excluded)
EL	13	n.a.	Urban fires, forest fires and accidents (road, etc)
IL	n.a.	n.a.	fire

Records on interventions

- ✓ About intervention
 - ✓ Wide heterogeneity in the number of categories considered and in the list of categories. Data availability is scarce. Lack of data is the rule in this crucial area.

Cross border cooperation

Cross border cooperations: a brief description - table 16

Country

HR	There are some initiatives with Bosnia and Herzegovina, but with other countries scarcely
MT	Island
ES	No norms
PT	There are not extensive guidelines for cooperation in these matters. At least at National Government level. However there are several examples of inter regional cooperation. As an example there are protocols established between the fire fighter departments of the Northern Region of Portugal and of Galicia, that includes delimitation of intervention areas and training in each other facilities.
IT	Definition in any event of political agreement considering the technical equipment and intervention time of countries involved; periodical drill
EL	n.a.
IL	n.a.

Cross border cooperation and overlapping with other state officers

- ✓ About cross border cooperation:
 - ✓ heterogeneity is the rule. There are some official initiative but we note a lack of a common official standard
- ✓ About overlapping:
 - ✓ In all countries but EL emerge a coordination problem with other state officers

Synthesis, conclusion and further steps [1]

- ✓ Obtained results [1]
 - ✓ There is a room for improvement in some crucial area related to health and safety. **Norms and its enforcement.**
 - ✓ **Institutions** [lack a H&S committee], **common protocol** and **legal norms** [we need a **written departmental occupational H&S policy** and **presumptive disability law**]
 - ✓ **Information** [not only on diseases and a healthy life (heart disease) but information about exposition to biological hazards (HCV, HIV ...) and a more health surveillance]
 - ✓ **Medical Check up and physical and mental surveillance** [we need a common protocol on ex ante “complete” medical examination and a **yearly** “complete” medical check up; we need more assistance program and incident stress counseling]
 - ✓ **No job satisfaction** is the rule. It could be a problem also in productivity terms
 - ✓ **Elderly problem** [how resolve it? Training to others? Knowledge is different from information – learning (by doing, using, interacting), is different from information]

Synthesis, conclusion and further steps [2]

- ✓ Obtained results [2]
 - ✓ Cut in frontline personnel, safety and **volunteers**
 - ✓ **Vehicle and road accident** is an area that deserve improvement
 - ✓ **Training is the crucial area** [“quantity and “quality” of training must increase and improve]
 - ✓ The **organization of work** is another crucial area but it is linked to resource available and the volunteers increase [**substitution effects?**]
 - ✓ The **misallocation of resources and expenditure** is the rule in Mediterranean area
 - ✓ **Insufficient data** or case studies **on professional disease**
 - ✓ **Insufficient data** about **intervention**
 - ✓ **Insufficient records** on **accident**
 - ✓ **Insufficient diffusion of accident reports and several obstacles to free availability**

Synthesis, conclusion and further steps [3]

- ✓ Final consideration and Recommendations
 - ✓ The “**heroes handicap**” : remember = no incident stress counseling
 - ✓ It's necessary improve our knowledge about a more appropriate statistical systems and analysis. We need **more data on accident, on professional disease, on intervention standardizing categories** between countries at European level. We need a sound and common statistical basis to explore occupational disease of firefighters. We need more case studies. **We need more information exchange between us** on statistics on injury, illness, occupational disease and so on. A near miss system report could be useful
 - ✓ It's necessary **implement a discussion on best practice** and on the fundamental steps necessary in order to propose improvements in the existing occupational health and safety policy at european level

Synthesis, conclusion and further steps [3]

- ✓ it's necessary to propose a **European common standard and protocols on crucial areas** establishing a minimal common rules on health and safety on equipment, on training, on statistical records. We need a strong standardization efforts. We could start with **two basic questions**: [**Who is the modern European firefighter ?** [Identity and identity construction problem] **What's "his" job?** [The boundary problem and the changing role of fire fighters]
- ✓ It's necessary to consider the constitution of a **Technical Committee on Fire Service Occupational Safety and Health in the Mediterranean Area** – this Committee could specify the minimum requirements for an occupational safety and health program for a representative European fire department and set an agenda fixing target.
- ✓ **Ask directly to EU** is better than ask to your country!
- ✓ **Trade union as voice** to fight the “**resource problem**”, the “**lack of appropriate institutional rule problem**” the “**enforcement problem**” and to promote a cultural change necessary to remove the “**heroes problem**”

Thank you!