

Approach to establishing ChiPSoNet - Children Protection Social Network

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Abstract. Article describes the background and concept of establishing social network aimed to decrease the injury rate in children. Internet based portal should allow children themselves, their parents and other guardians to enter and retrieve the information about accidents and subsequent injuries. About 100.000 children in Croatia yearly are suffering in accidents, which 500-700 of them became handicapped and about 50 even die yearly.

Children Protection Social Network should help to boost risk awareness and mitigation. Systematic epidemiology of children injury as well as scientific studies in that area, was neglected in past decades. Besides of information entry and structured browsing, portal visitors will get medical advices and the possibility of forming social network. This communication related to injury groups could help overcoming the impact of accident consequences.

Keywords. Children, Injuries, Internet, Social Network, Prevention

1 Introduction

The parents and other children's guardians throughout the world express the very same saying or thought (after experiencing accident and subsequent injury): "If I only would have known...!". Unfortunately, at that point of time, it is always too late – children are in physical and psychological pain, sometimes with life-long impact and even the worst – death. There are no exact figures about children injuries which yield medical treatment in Croatia, but some estimation mounts to 100.000, including at least 50 deaths yearly (38 younger than 10 years) [1].

Persons who take care about children are mostly aware of some dangers that can take place, but the

hazards are very numerous and often unpredictable. Children contribute on both sides of this trade off with their naivety, negligence, curiosity and continuous activity.

In contrast to other diseases and death causes, great deal of injuries could be prevented. General method that should be applied here is pure educational work, i.e. giving proper information to children's guardians. This information should be given through modern communication channels. Authors' idea is primarily through the Internet. For those population groups which are expected not to be familiar with modern technology, excerpts from primary information on Internet should be presented in written as "safety manuals" or other media forms (TV, radio, billboards).

To be more specific, authors suggest using some kind of social network paradigm on Internet, where children's guardians can both "read" and "write". People whose children suffered from injury can share their painful experience with people who are interested to acquire experience aimed to avoid similar accident. Of course, this social network on Internet has to be moderated by medical and media professionals, assuring best class information based on Internet HONcode principles. [5]

This initiative represents materialization of existing "National program for children injury prevention" [3], as a part of „National population policy“ [4], which is adopted in Croatian Parliament in November 2006. Implementation plans were very ambitious, but as far as governmental and literature sources demonstrate, aside of paperwork, there was no substantial progress in projects' development based on these declarations until now.

2 Examples and existing experiences

There are numerous Internet sites aimed to help patients with medical advices [9], second opinions [7], some of them specialized for children safety [10],[11]. All of these resources deal with professional advices to patients or safety hints for parents and other guardians, including interactive presentation of hazardous scenarios.

2.1 Worldwide experiences

Measures of injuries prevention are conducted and controlled through different models. Some of them are stated in the WHO's „Manifest for Safe Communities“ [16].

French model of public health education is based on visiting the households with children, education accomplishment, pointing to the possible hazards and changes execution. This method decreased the incidence of children injuries in targeted sample by 80%, although yields huge effort to be done. [18]

Recent work in this area was done in Netherlands by van Beelen et al., who published in 2010. the results of “beSAFE” study [21] which pointed out that there is an urgent need for boost the awareness of parents and other guardians about injury hazards, because there is no significant decrease in children injuries in Netherlands. Injuries in children in the age 0-4 was observed and the incidence in Netherlands was some 57.000, out of which some 30 die. These numbers are approximately ½ compared to the Croatian figures in percentage to the whole population (0,3% vs. 0,6%).

2.2 Croatian experiences

Sporadic educational actions are also in place in many countries and in Croatia as well.

This pragmatic and non-systematic activities are conducted through persons and bodies that otherwise have no direct contact with injured children. It is generally known, but not pointed out in a bold manner, that the effects of such methods are limited. Evidence for this harsh statement we can derive from insignificant changes in death and handicap incidence of injured children. In Fig. 1 we can see death statistics caused by children injuries in Croatia that shows practically no improvement through the years.

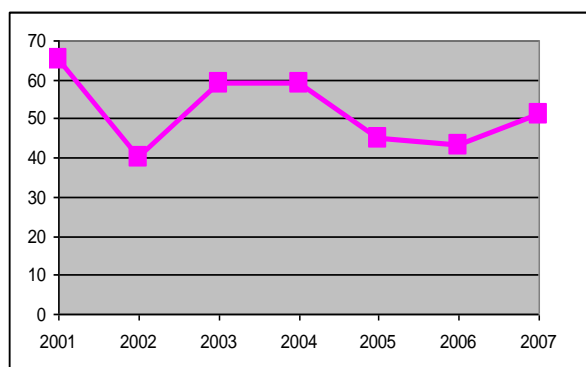


Fig. 1: Statistics of deaths caused by children injuries in Croatia [1]

There is no Internet resource in Croatian language, which could systematically contribute to the children safety. Recommendable actions (although of very narrow risks spectrum) were published by the Ombudslady for children in Croatia (drowning [9] and dogs' attacks [13]).

Scientific literature resources in Croatia about children injuries protection are also scarce. Only comprehensive program containing several studies was performed by dr. Tomić back in early 90-ies of previous century [14]. Bottom line conclusions were very pessimistic: injury rate in children was yearly 10-12% and more than 500 children yearly suffer life-long handicap. Same author points on lack of comprehensive and evidence based preventive measures, as capital factor in decreasing injuries in children. Very same conclusions derives same author in his important paper that compares his own research data with those of WHO and INSERM [15], where also the need for establishing prevention legislation in Croatia was pointed out.

Even worse, today – 15 years after this study completion – there was no progress in Croatia in this field, as stated here introductory. National plan 2006-2012 contained the measure 5 in chapter 2.5 “Establishing National program for children injury prevention with clearly defined tasks” (assigned to the Ministry of health and social welfare with the due year 2006). As usual in Croatia, “working group” was established some three years later in 2009, document was stated as drafted, but not yet “judiciary approved” [3].

Recent work in this area was made by dr. Aida Mujkić [1], pointing out the need for inclusion of primary care MDs in prevention activities, legislation issues, as well as 6 categories of risk groups, that were all included in our pilot web-site.

Numerous papers demonstrate how severe injury consequences can be, where despite highly professional medical treatment children's handicap persists in great deal of cases. [19]

The state of children injury prevention in Croatia can be also testified from the point of view of hospital treatments. In University hospital center Zagreb – Children traumatology in Surgery Department, yearly projection is 7.460 children are treated as 1st outpatient visit in 2011. [2] Same source says that 2011. yearly projection of “S” and “T” main diagnoses for inpatient counts to 461. “Thumb rule” takes University hospital center Zagreb as 10% of Croatian hospital system, thus approximate figures of children injuries treated in Croatian hospitals are 75.000 as outpatients and 4.500 as inpatients!

These figures can be compared to another source – Annual report of Croatian public health institute [20]. Figures are stated for groups 0-6 and 7-19 years

of age, which say that in primary care some 108.000 children injuries were treated, while 80.000 in general medical services.

All these injuries are very different in severity, cause and consequences to the patients. But most of them have something in common: with little more attention of guardians, other stakeholders and children themselves, they could be easily avoided.

Treating all these injuries, authors on the medical side were motivated to take the action in direction of accidents prevention. Together with the author on the IT side, the system for children injury prevention was conceived.

2.3 Case study: three accidents by same cause

Medical professionals are prepared to cure the consequences of each and every injury, but they stress always substantially bigger potential in prevention itself. Here we can bring one case study, where unfortunately despite maximal medical involvement the outcome was the worst one.

- In April, 2008, 9-years-old Tomislav hanged on the non-fixed soccer goal in school sports facility. It felt and smashed his head. Boy died during the transport to the local hospital.
- In June, 2009, 12-years old Mihaela was badly injured on the local sports facility, hit by the fallen handball goal, which was not properly fastened. It felt from the unstable balance state and hit Mihaela on chest, her liver was injured and she died before transplantation could be made.
- Exactly 2 years later, handball goal felt on the 9-year-old boy and smashed his skull. He survived after several surgeries, having life-long imparity consequences.

What are the lessons learned from this three cases? First of all, we are not speaking here about “circumstantial hazards”, which can be decreased in incidence, but not eliminated in total. Here we are speaking about the lack of control: in Croatia, there is no mechanism which systematically supervises

children injuries and enforces the safety measures that can partially or even completely prevent such accidents. In this case at least one life and one impairment could be avoided, if the regulation for goals fixation would be enforced!

Exactly that the authors suggest to be implemented by the Internet portal envisioned, which should have impact on all stakeholders in the children injury prevention. Initially authors made preliminary study of hazards and circumstances of children injuries, which can show the potentials of injury prevention, if only al stakeholders would be aware of it. Main idea of activities involved would be establishing the control, i.e. the feedback about accidents and injuries to all stakeholders, as depicted in the Fig. 2

3 Research approach and results

Authors designed the process that allows children injury information gathering and dissemination in controlled manner. The workflow is presented in Fig. 2.

To be in the shape of designing the functionality of web-site, authors made the following:

- Established model web-site using GoogleForms tool, accessible on www.kbc-zagreb.hr/sigurna_djeca
- Launched the survey form using free GoogleDocs [6] tool on Internet.

Starting 27.9.2010. and ending 18.6.2011. in total 170 records were collected, mostly sourced from Outpatient clinic of Surgery Department in University Hospital Center Zagreb. Survey consisted of following items:

- Child name
- Child age
- Child gender*
- Place of incident*
- Incident category*
- Incident description (context, injuries, outcome)

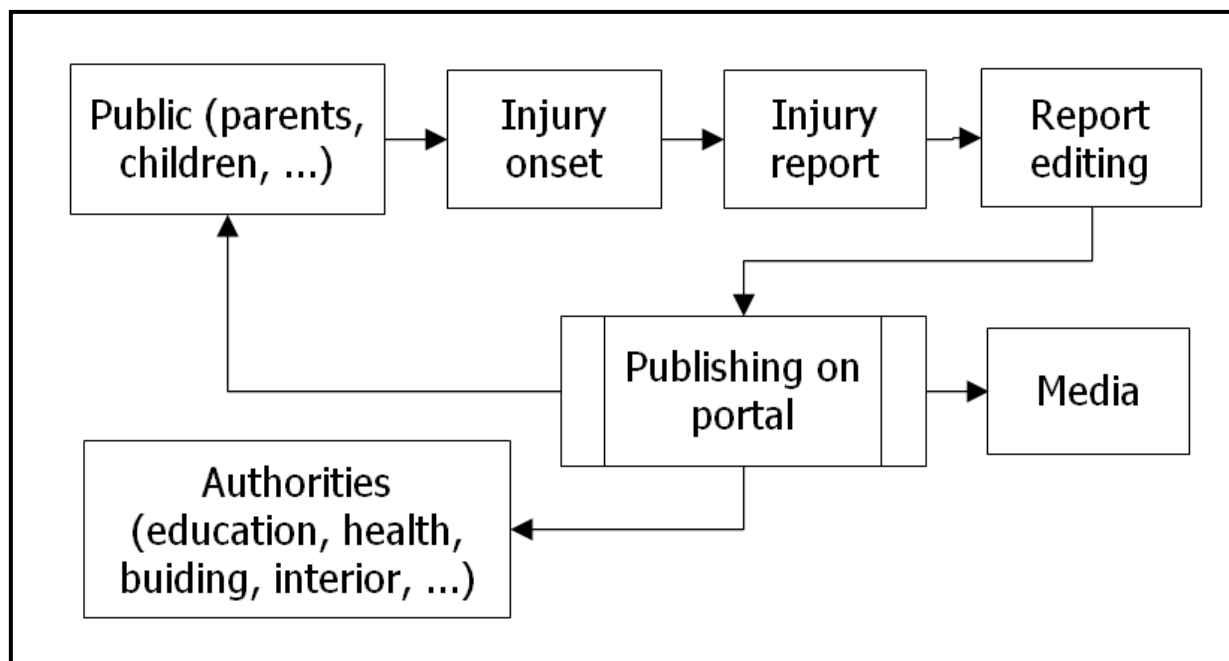


Fig 2: Project generic workflow

- Present guardian*
- Feedback information contact
- e-mail address
- Telephone number
- Notes and suggestions
- Data entry person
- * (List of values)

Preliminary survey results are shown in the Table 1. Actually there are 170 injury cases described, showing variety of interesting information, 1st time collected in Croatia. Main figures are as follows:

- Place: 31% home, 11% playground, 11% traffic, 12% sports facility, 28% educational facility
- Hazard group: 4% violence, 15% dangerous object, 32% sports, 24% other falls, 13% traffic,

Detailed report will be published after completing one year survey period. Interim results, as well as using the model web-site by volunteers, were used in building pilot internet site. This pilot web-site was designed and developed through donation to University Hospital Center Zagreb, approved by the Ministry of Health and Social Welfare.

Following main functionalities were implemented:

- Data entry related to the children injury case (including guardian's story, anonym injury picture and professional medical opinion)
- Editorial support which enables: information check, full anonymization, proper case categorization, release for publishing

- Information browsing aimed to the parents and other children guardians (as well as older children themselves!), enabling finding cases pertinent to gender, age and risk group and full text search for accident circumstances.
- Hints from medical doctors' and other pertinent professionals (e.g. architects, traffic experts, lawyers), how to decrease the accident risk for specific children activity/circumstance
- Medical advices how to act in emergency case by onset of injury, structured by injury group
- Establishing interest related groups (mostly children's parents within same injury/accident group)

4 Conclusions and recommendations

Vision: "Decrease the number of children injuries by the yearly rate of 10%!"

Mission: "Boosting the risk awareness and mitigation using Internet."

General motto: "Accidents don't occur only to OTHER'S people children!"

Institutional form: Non-governmental organisation „Sigurna djeca“ (NGO "Safe Children") was founded in November 2010 and will run operationally this project. It's intention is to be the component of

National program for children injury prevention. Schools were invited for submitting children's drawings for NGO's logo, on Fig. 3 two interesting submissions. All contributions will be placed on the portal for visitors' voting.

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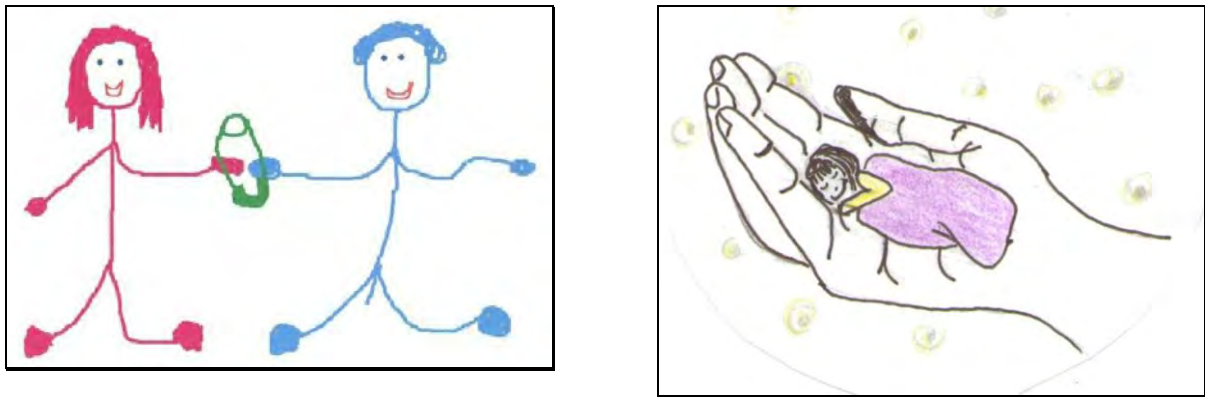


Fig. 3: Suggestions for “Safe Children” NGO’s logo

	Age groups (yrs)						Grand Total
	0-1	1-2	2-4	4-8	8-12	>12	
Grand Total:	1	5	17	43	60	44	170
Injury site:							
Home (incl. garden)	1	5	13	17	8	8	52
Park, playground			1	5	8	4	18
Traffic				4	5	10	19
Sports facility				3	9	8	20
School				8	22	11	41
Kindergarten			2	4			6
Other			1	2	8	3	14
Responsible:							
Guardian's negligence	1	4	2	6	3	3	19
Child's negligence		1	12	31	42	34	120
Negligence other persons			1	6	12	3	22
Other responsible			2		3	4	9
Hazard group:							
Contact with dangerous object	1	1	9	6	6	3	26
Violence			1	2	3	1	7
Fall (except by sports)		2	4	13	18	4	41
Traffic				4	7	11	22
Shooting or explosion				5			5
Sport				10	21	23	54
Heat, cold, radiation, air pressure		2	3	3		2	10
Animals					5		5

Table 1: Preliminary survey results in frequency cross-table (n= 170)