



SELINUS UNIVERSITY
OF SCIENCES AND LITERATURE

MAKING TRNC HOSPITALS SAFER WORKPLACES

By

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DECLARATION

(I, Halil Ibrahim Erdim, declare that this study is an original study and does not contain any copied idea, text, image, table or something else which is not ethic or against the copyright codes.)

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ABBREVIATIONS

COVID-19 (Coronavirus disease) An infectious disease caused by a newly discovered coronavirus.(WHO definition)

IFNANE : International Forum On Nursing and Nurse Education

ICD code : International Statistical Classification of Diseases and Related Health Problems,

ILO: International Labor Organization

JCI: Joint Commission International

LOTO : Lock Out Tag Out

NEBOSH : National Examination Board in Occupational Safety and Health (UK)

NHS : National Health Service (UK)

OSH : Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

PPE: Personal Protective Equipment

SCADA: Supervisory control and data acquisition

TRNC: Turkish Republic of Northern Cyprus

WHO: World Health Organization

DEFINITIONS

Amputation : An amputation is the surgical removal of part of the body, such as an arm or leg. (<https://www.nhs.uk/conditions/amputation>)

Emergency : An unforeseen combination of circumstances or the resulting state that calls for immediate action 2: an urgent need for assistance or relief <https://www.merriam-ebster.com>

Hazard: A hazard is the potential for harm (physical or mental). In practical terms, a hazard often is associated with a condition or activity that, if left uncontrolled, can result in an injury or illness (OSHA).

Injury: Injuries—resulting from traffic collisions, drowning, poisoning, falls or burns - and violence - from assault , self-inflicted violence or acts of war—kill more than five million people worldwide annually and cause harm to millions more
(<https://www.who.int/topics/injuries/en/>)

Occupational disease : According to WHO, An “occupational disease” is any disease contracted primarily as a result of an exposure to risk factors arising from work activity. “Work-related diseases” have multiple causes, where factors in the work environment may play a role, together with other risk factors, in the development of such diseases [.www.who.int](http://www.who.int)

Occupational Safety and Health: Occupational safety and health (OSH) is generally defined as the science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment.

(Fundamental Principles of Occupational Health and Safety – ILO Second edition by Benjamin O. ALLI)

Risk : Risk is the likelihood that a hazard will cause harm in combination with the severity of injury, damage or loss that might foreseeably occur (NEBOSH)

ORGANISATIONS SUGGESTED TO TAKE PART IN THE PROPOSED SYSTEM

1. Cyprus Turkish Nurses and Midwives Association
2. Cyprus Turkish Lawyers' Bars association
3. .Union of the Physicians
4. Association of the Occupational Safety and Health Professionals
5. Private Physicians Association
6. Cyprus Turkish Chemistry association
7. Agency of Occupational Safety and Health
8. Society of Universal Patients Rights
9. Association of the Private Hospitals
10. Representative of workers trade union
11. Representatives of the Union of Universities
12. Union of the Chambers of the Cyprus Turkish Engineers and Architects
13. Universal Patient Rights Association

ABSTRACT

Searches about workplace accidents and occupational diseases show that global focusing on the subject is necessary. Especially the undeveloped countries need urgent action to avoid workplace accidents and occupational diseases and protect the workers.

North Cyprus, as a developing country, although there are a lot of studies, the country has a lot of deficiencies in Occupational Safety and Health.

Statistics show that workplace accidents are concentrated in a few sectors such as construction, quarrying, transport, and agriculture. Information about the health sector is not included in the statistic, because it is thought that the hospitals are at a good level about occupational safety and health applications since they are organizations to provide health to the people.

Regarding occupational safety and health, there are a lot of differences between hospitals and other establishments. The most important differences are:

- We cannot apply the risk control hierarchy in hospitals.
- Hospitals should continue functioning even during disasters, emergencies, and pandemics.
- In hospitals, besides the employees and visitors, there are patients which will need help during an emergency.
- During emergencies and pandemics, Hospital workers continue saving lives. There is a loss of life risk always.

A lot of physicians and nurses lost their lives during the global COVID19 pandemic. We are thankful to healthcare workers always. I am very proud to get the opportunity to thank them, for preparing this study.

INTERVIEWS

During the study, some interviews were carried out with:

1. Cyprus Turkish Medical Association
2. Association of the Occupational Safety and Health Professionals
3. Private Physicians Association
4. Cyprus Turkish Chemistry association
5. Agency of Occupational Safety and Health
6. Association of the Private Hospitals
7. Union of the Chambers of the Cyprus Turkish Engineers and Architects
8. Universal Patient Rights Association

QUESTIONNAIRES

Various questionnaires have been carried out. The results are included below

Table .1. Questionnaire1

As far as you know, what is the frequency of the workplace accident in TRNC		
	No of persons	%
Once a day	4	10
Once a week	14	34
Once a month	16	39
Once a year	7	17
TOTAL	41	100

Table .2. Questionnaire2

How do you evaluate the frequency of workplace accidents		
	No of persons	%
It is less than we expect	9	20
Normal value	7	15
It has a big value accrding ro our population	14	30
Records are not real. There are more accidents than declared	16	35
TOTAL	46	100

Table 3. Questionnaire3

Which factor (s) make it difficult to reduce work accidents in our country		
	No of Persons	%
Insufficient legislation	2	5
Insufficient inspection	18	46
Employers do not pay sufficient attention to occupational health and safety	9	23
Workers are not trained, they dont possess an OHS culture	10	26
TOTAL	39	100

Table 4. Questionnaire 4

During your work life, how many times did you go to health check-ups upon the request of the workplace?		
	No of persons	%
Zero (Never)	24	46
Once	19	36
Between 2-4	5	9
Five or more	5	9
TOTAL	53	100

Table .5. Questionnaire 5

Which health centre you prefer to get service?		
	No of persons	%
Public hospital	57	46
Private Hospital	39	32
Private clinic	23	19
Foreign country	4	3
TOTAL	123	100

Table.6. Questionnaire 6

Do you feel safe in the hospital you get service?		
	No of persons	%
Yes	37	51
Partly	35	49
No	0	
TOTAL	72	100

Table 7. Questionnaire 7

On the hospital you get service, which one makes you feel safe ?		
	No of persons	%
Hospital is ready for emergency case	13	29
Hospital management takes adequate precautions to prevent disease transmission.	7	16
Personnel is experienced enough	10	22
Any time I have a problem, there is someone to help me	15	33
TOTAL	45	100

Table 8. Questionnaire 8

In the hospital you get service, which one makes you feel unsafe?		
	No of persons	%
Building is old, not suitable to be a hospital	28	55
There is not any emergency sign, hospital is not ready for an emergency	13	25
Electrical installation insufficient and is not adequate	5	10
There is not adequate thermal comfort	5	10
TOTAL	51	100

Table 9. Questionnaire 9

According to what you have heard or remember from occupational accidents in hospitals so far, who are at the highest risk		
	No of persons	%
Inpatient	13	55
Patients coming for examination	3	12
Employees	3	12
Visitors	5	21
TOTAL	24	100

LITERATURE REVIEW

1. **Northern Cyprus- Economy Competitiveness Report** Assoc. Prof. Dr. Kamil Sertođlu, Assist. Prof. Dr. Tufan Ekici , 2017 - 2018
2. **Meslek Hastalıkları (Occupational Diseases)**
Halil Erdim, Prof. Dr. Ayşen Türkman, Altay Taşyürek, 2013
3. **Guidelines for protecting the safety and health of healthcare workers**, September 1988, Iosh
4. **Dünya Ülkelerinde Beşeri Kalkınma ve İş Kazaları İlişkisi**
Murat MIZRAK (1) - Orhan KANDEMİR (2)

AIMS

Traffic accidents, workplace accidents, cause negative effects on human health. The affected people visit hospitals to get well.

As a result of sick persons and other biological, chemical, and radioactive hazards, the hospitals are not safe and healthy workplaces. Additionally being a small island and unrecognized country, North Cyprus has extra handicaps on occupational safety and health.

Since non-registered activities are a big part of the whole economy, social security funds are very weak, and sufficient health services cannot be provided to employees working in the private sector. These factors are making the situation heavier, the health system and the whole social system may collapse in an emergency or pandemic like COVID19.

In occupational safety and health, our objective is to make the hospitals safer workplaces. To manage this, we need to analyze the technical, environmental, medical, and social problems. Once the problems are defined, we can decide the methodology.

In this study we carried out questionnaires among community members, among hospital operators and managers, we arranged interviews with presidents of the relating NGO s. We tried to learn the weak and missing chain parts. After discussing the situation, 5 proposals are included into the study.

SECTION 1- GENERAL INFORMATION

1.1.DEFINITION OF OCCUPATIONAL SAFETY AND HEALTH

Occupational safety and health is a multidisciplinary concept to provide safe and healthy workplace and to minimize the workplace accidents and occupational diseases in a workplace or due to work. It is called also Occupational Health and Safety.

1.2. FUNDAMENTALS OF THE OCCUPATIONAL SAFETY AND HEALTH

Occupational health and safety are studies that are related to human life. For this reason, we have to take proactive measures. The measures should be focused on to the employees.

There are 3 main topics in occupational safety and health.

- The occupational safety (workplace accidents),
- The occupational health (occupational diseases)
- Emergency case (unexpected events or situation)

There are a lot of rules, regulations, standards about occupational safety and health. But the most important topic is the occupational safety and health culture.

If there is a good safety and health culture in a place, no need to worry about our safety and health.

1.3. HISTORY OF THE OCCUPATIONAL SAFETY AND HEALTH

Although the law and regulations of occupational safety and health were seen after the industrial revolution, the studies and applications started in the early ages of history. The actual applications started with the emergence of employee - employer relations.

In the beginning, workplace accidents were not important. Because the workforce has consisted of the slaves. If any worker was injured or died due to any reason or any accident, the employer could buy another worker (slave) from the market. But if there was any illness

and most of the workers got sick, the whole work could stop. That's why health was much more important in the early ages, the employees were given leather masks to protect their respiratory system.

A lot of people studied or interested in occupational safety and health, which some of them are listed below:

- Emperor Hammurabi (1792 BC to c. 1750 BC)
- Historian Herodot (484 – 425/413 BC)
- Mineralogist Georgius Agricola (24 March 1494 – 21 November 1555)
- Bernardino Ramazzini. (October 4, 1633-November 5, 1714)

Ramazzini is believed to be the father of modern occupational safety and health applications.

The regulations of occupational safety and health improved by the United Kingdom and the Industrial Revolution (1760

- 1840) provided the first spark for the application.

Britain owes this to the discovery

of the steam engine. Thomas Savery invented the steam engine in 1698. This engine was used to pump out the water from the underground mine. Later more equipment was invented which was working by steam such as the steam motor invented by James Watt, steam locomotive invented by George Stevenson.

The use of the steam engine brought some disadvantages beside civilization.

- There were wars throughout the World. Male persons were fighting at wars
- Huge amount of coal was necessary to run the steam engines
- That's why the women and children were working in the factories and underground mines

- A lot of equipment, new technologies and systems were being added to the economic life in a very short time. It means, the workers were being forced to use this equipment which was unfamiliar to them.

The above factors resulted in more workplace accidents. Children and women were the most affected persons. It was clear that this situation was not sustainable. Children and women should be protected. Then the British parliament discussed the situations and accepted some restrictions. Those were the first restrictions for occupational safety and health. For today's conditions, they were very small restrictions but it took about 70 years to make this step.

A few sample decisions are as follow:

- ***Factory Act 1802 Act for the preservation of the health and morals of apprentices and others employed in cotton and other mills, and cotton and other factories***
1802- Most importantly the Act provided that the apprentices should be instructed in reading, writing, arithmetic and the principles of the Christian religion
- *The Cotton Mills and **Factories Act 1819** (59 Geo. III c66) stated that no children under 9 were to be employed and that children aged 9–16 years were limited to 12 hours' work per day. It applied to the cotton industry only, but covered all children, whether apprentices or not.*
- *In 1833 the Government passed a **Factory Act** to improve conditions for children working in **factories**. young children were working very long hours in workplaces where conditions were often terrible. ... employers must have an age certificate for their child workers. children of 9-13 years to work no more than nine hours a day*

1840 Royal Commission established to investigate working conditions in the Mining Industry -*The Commission's findings published in 1842 made shocking reading. Accidents, brutality, lung diseases, long hours and highly dangerous and adverse working conditions*

were found to be the norm. Public outcry resulted and the Mines Act 1842 was brought into force

- **Coal Mines Act 1842**-This Act prohibited the women and children from underground work. The radical nature of this measure undoubtedly eased the way for the milder **Factories Act of 1844**
- In **1844**, Parliament passed a further **Factories Act** which in effect was the first health and safety **act** in Britain. All dangerous machinery was to be securely fenced off, and failure to do so regarded as a criminal offense. No child or young person was to clean mill machinery while it was in motion
- **Factory Act-1891 (2nd Act)** to women employment at night prohibited and work for 11 hours and 11/2 hrs. of rest allowed. In 1906, a textile **factory** and labor committee were appointed and in its report, the **factory act** of 1911 was enacted.

Today, UK is in a leader position in the world with a very improved Occupational Safety and Health regulation. Some countries are in a very well situation but there are a lot of countries which are very weak in occupational safety and health.

SECTION 2. NORTHERN PART OF CYPRUS – TRNC

2.1. INTRODUCTION OF COUNTRY

Cyprus is an island in the Eastern Mediterranean. It was a colony of Great Britain until 1960 which then got freedom and the Republic of Cyprus was established and became a member of the United Nations.

In December 1963 intercommunal war started and two separate authorities appeared. After 1983 the Turkish Republic of Northern Cyprus was established. Since 1968, intercommunal talks are continuing to find a solution to the interior war.



Figure 2.1. Location of Cyprus.

The southern part of Cyprus is a member of the European Union since 2004, while TRNC is under isolation. Because of TRNC is not a recognized country, there are a lot of gaps in

legislation and the OSH inspections are not sufficient. This leads to a high ratio of accidents and occupational diseases.

The frequency and severity of workplace accidents are proportional to the income, level of education and training.

Fatal accidents at work, 2017

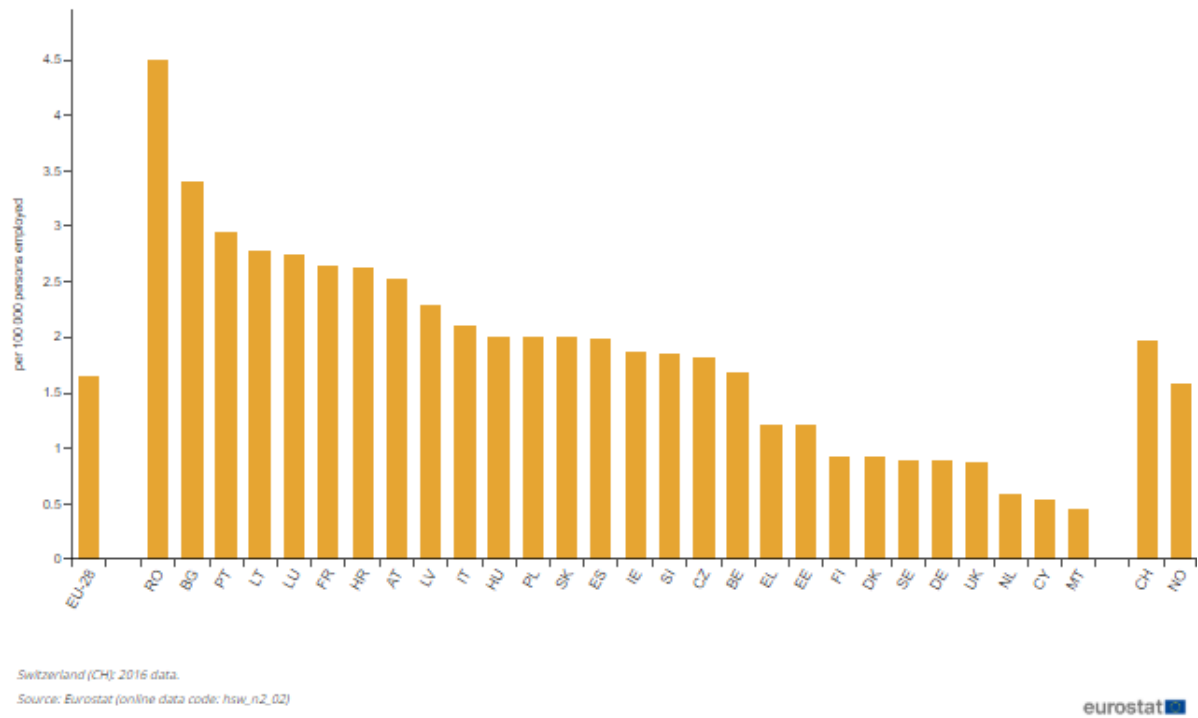


Figure 2.2. Fatal accidents in Europe (2017)

https://ec.europa.eu/eurostat/statistics-explained/index.php/Accidents_at_work_statistics

Table 2.1. Development and workplace accidents

Ref: The Relationship between human development and Occupational Accidents in

By Murat MIZRAK - Orhan KANDEMİR

Ek Tablo 1: Ülkelere Göre Ölümlü Mesleki Yaralanmalar ve İnsani Gelişme (Beşeri Kalkınma) Endeksleri										
Sıra No	Ülkeler	100.000 İşçi Başına Ölümlü Mesleki Yaralanma Oranları (%)*					Toplam (A+B+C+D+E)	2013-17 Aritmetik Ortalama**	İGE 2015	Ülke Grubu 1:Çok Yüksek İnsani Gelişme 2: Diğer
		2013 (A)	2014 (B)	2015 (C)	2016 (D)	2017 (E)				
1	Norway	1,9	1,7	1,5			5,1	1,7	0,949	1
2	Australia	1,7	1,6	1,7			5	1,667	0,939	1
3	Switzerland	7	5,6	1,3			13,9	4,633	0,939	1
4	Germany	1,5	1,1	1,6			4,2	1,4	0,926	1
5	Denmark	1,5	1,4	1			3,9	1,3	0,925	1
6	Singapore	2,1	1,8	1,9			5,8	1,933	0,925	1
7	Netherlands	0,6	0,7	0,5			1,8	0,6	0,924	1
8	Ireland	2,1	2,5	2,5			7,1	2,367	0,923	1
9	Canada	2	2				4	2	0,92	1
10	United States	3,3	3,4				6,7	3,35	0,92	1
11	Hong Kong, China	7	7	6			20	6,667	0,917	1
12	Sweden	1	1	1	1		4	1	0,913	1
13	United Kingdom	0,5	0,8	0,4			1,7	0,567	0,909	1
14	Korea, Republic of	7,1	5,8	5,3	5,3	5,2	28,7	5,74	0,901	1
15	Israel		2	1,7	1,4		5,1	1,7	0,899	1
16	Luxembourg	2,1	4,8	3,3			10,2	3,4	0,898	1
17	France	2,4	2,7	2,6			7,7	2,567	0,897	1
18	Belgium	2,5	1,6	1,6			5,7	1,9	0,896	1
19	Finland	0,8	1,5	1,4			3,7	1,233	0,895	1
20	Austria	3,1	2,2	2,3	2		9,6	2,4	0,893	1
21	Slovenia	2,5	3,1	2,8			8,4	2,8	0,89	1
22	Italy	2,3	2,3	2,4			7	2,333	0,887	1
23	Spain	1,7	1,8	2,1	1,8		7,4	1,85	0,884	1
24	Czech Republic	2,3	2,4	2,6			7,3	2,433	0,878	1
25	Greece	0,7	0,8	1,2	1,3		4	1	0,866	1
26	Estonia	3,2	2,6	2,5	4		12,3	3,075	0,865	1
27	Cyprus	2,9	1,7	1,3			5,9	1,967	0,856	1
28	Malta	2,3	2,2	2,7			7,2	2,4	0,856	1
29	Qatar				1,7		1,7	1,7	0,856	1
30	Poland	1,8	2,2	2,5			6,5	2,167	0,855	1
31	Lithuania	5,8	5,7	4			15,5	5,167	0,848	1
32	Chile	5,1				3,4	8,5	4,25	0,847	1
33	Slovakia	2,7	1,7	2,8	2		9,2	2,3	0,845	1
34	Portugal	3,6	3,6	3,5			10,7	3,567	0,843	1
35	Hungary	1,4	1,9	2,3	1,8		7,4	1,85	0,836	1
36	Latvia	3,5	4,5	3,7			11,7	3,9	0,83	1
37	Argentina		4,7	4,9	4,2		13,8	4,6	0,827	1
38	Croatia	1,9	2	2,1	2,7		8,7	2,175	0,827	1
39	Russian Federation	8	7	6	6	6	33	6,6	0,804	1
40	Romania	4,7	4,7	4,1	3,8		17,3	4,325	0,802	1
41	Belarus	3,8	3	2	2,3	2,2	13,3	2,66	0,796	2
42	Bulgaria	3,1	4,4	3,6			11,1	3,7	0,794	2
43	Kazakhstan	5,9		5			10,9	5,45	0,794	2
44	Malaysia	5		5			10	5	0,789	2
45	Panama	1,3	1,2		4		6,5	2,167	0,788	2
46	Costa Rica	8,3	5,8	6,2	9,7		30	7,5	0,776	2
47	Turkey	8,3	9,4	6,9	7,5		32,1	8,025	0,767	2
48	Mexico	8,1	7,9	8,2	7,7	7,5	39,4	7,88	0,762	2
49	Azerbaijan				4	4	8	4	0,759	2
50	Ukraine	5	4,3	4	4,5	3,8	21,6	4,32	0,743	2
51	Thailand	7,1	6,8				13,9	6,95	0,74	2
52	Mongolia				2,7		2,7	2,7	0,735	2
53	Colombia	5	4	4			13	4,333	0,727	2
54	Moldova, Republic of	6,2	5,9	5,7			17,8	5,933	0,699	2
55	Egypt		11,2				11,2	11,2	0,691	2
56	Philippines	6,4					6,4	6,4	0,682	2
57	Kyrgyzstan	6		4,1			10,1	5,05	0,664	2
58	Myanmar	3,7	2,9	3,6	4,1	2,6	16,9	3,38	0,556	2

2.2. OCCUPATIONAL SAFETY AND HEALTH IN TRNC

Occupational Health and Safety Law (35/2008) has been approved in the parliament in 2008 and started to be applied in 2013. The regulations are not completed yet. In December 2019, three regulations put in force under 35/2008. According to regulations, the Occupational Health Safety Professionals, which are certificated by the Department of Labour after an exam, are giving service by preparing the Risk Assessment reports, inspecting the workplaces and training the employees.

North Cyprus has a lot of handicaps/ disadvantages related to Occupational Safety and Health. We can list some of them as follow:

- Lack of information/ records of workplace accidents and occupational diseases
- The exact population and manpower is unknown
- A lot of employees from various countries, which are in a worser situation then North Cyprus, are working in the country. These employees do not know Turkish and they are not trained against workplace accidents
- Although the exact figure is not known, approximate % 60 of the economy is non registered
- A large amount of illegal economic activities are present
- Most enterprises are small family-run companies / a lot of persons are working for themselves
- Being a small island, people knows each other, probably relatives of each other
- No importance is given to periodical health control of the employees
- Compensation against workplace accidents is not a usual application
- Number of the official labor inspectors is not enough for effective inspection

Labour Department statistics

Table:2.2. Labour Department statistics of TRNC about occupational safety and health

8- Tespit Edilen Çalışma İzinsiz İşçilerin Cinsiyet, Uyruk ve Seyahat Belgesine Göre Dökümü:

Seyahat Belgesi/ Uyruk	Kasım 2018 Ayı Sonu İtibariyle Tespit Edilen			Aralık 2018 Ayı İçinde Tespit Edilenler			Aralık 2018 Ayı Sonu İtibariyle Tespit Edilen		
	Erkek	Kadın	Toplam	Erkek	Kadın	Toplam	Erkek	Kadın	Toplam
KİMLİK	114	16	130	3	1	4	117	17	134
PASAPORT	340	40	380	12	5	17	352	45	397
TOPLAM	454	56	510	15	6	21	469	62	531
T.C	346	38	384	8	3	11	354	41	395
DİĞER	108	18	126	7	3	10	115	21	136
GENELTOPLAM	454	56	510	15	6	21	469	62	531

This table shows the number of foreign workers who are working in TRNC without any working permission.

About 531 workers determined in 2018, 395 of them from Turkey, 136 from other countries. 469 were male and 62 were female workers.

Since Cyprus is a small island, we have some advantages with OSH. For example ;

*. Cyprus is a small island, with a small population of citizens, people know each other; usually, this makes the situation easier.

* There is no heavy industry and huge mining activities in the island, which means that the hazards are limited with the light industry.

2.3. FIGURES ABOUT NORTHERN CYPRUS

Some research showed that there is a relationship between development and workplace accidents. Global Competitiveness is also important. In table 2.1 we can see that, workplace accidents by 100 000 workers in various countries. In Table 2.3. we can see the Global Competitiveness index of some countries.

Table 2.3. Comparison of Global Competitiveness (Index 2017-2018 Ranking and 2016-2017 Ranking)

GCI 2017 - 2018			GCI 2016 - 2017	GCI 2017 - 2018			GCI 2016 - 2017	GCI 2017 - 2018			GCI 2016 - 2017
	Economy	Score	Prev.		Economy	Score	Prev.		Economy	Score	Prev.
1	Switzerland	5,86	1	51	Mexico	4,44	51	101	Mangolia	3,90	102
2	United states	5,85	3	52	Kuwait	4,43	38	102	Kyrgyz Republic	3,90	111
3	Singapore	5,71	2	53	Turkey	4,42	55	103	Bosnia Hersegovina	3,87	107
4	Netherlands	5,66	4	54	Latvia	4,40	49	104	Dominican Republic	3,87	92
5	Germany	5,65	5	55	Viet Nam	4,36	60	105	Lebanon	3,84	101
6	Hong Kong SAR	5,53	9	56	Philippines	4,35	57	106	Senegal	3,81	112
7	Sweden	5,52	6	57	Kazakhstan	4,35	53	107	Seychelles	3,80	n/a
8	United Kingdom	5,51	7	58	Rwanda	4,35	52	108	Ethiopia	3,78	109
9	Japan	5,49	8	59	Slovak Republic	4,33	65	109	North Cyprus	3,77	114
14	Canada	5,35	15	64	South Cyprus	4,30	83	113	Tanzania	3,71	117
15	Taiwan	5,33	14	65	Jordan	4,30	63	114	Uganda	3,70	113

Table 2.4 Comparison of the tables 2.1 and table 2.3

Table 2.1			Table 2.3
Country	Injuries per 100 000 workers	Development constant	Global Competitiveness
Column 1	Column 9	Column 11	Ranking index
Singapore	1.9	1	5.7
UK	0.6	1	5.5
Canada	2	1	5.35
Cyprus South	2.0	1	4.3
Cyprus North	?	?	3.77
Kazakhstan	5.5	2	4.35
Turkey	8.0	2	4.4
Mongolia	2.7	2	3.9
Philippines	6.4	2	4.35

Table 2.4 is a derived table from Table 2.1 and Table 2.3. for comparison. The comparison of the tables 2.1 and table 2.3 is important to understand the relation between Development, Global Competitiveness index and the number of workplace accidents. As you can see, in the

countries with development constant 1, the workplace accidents per 100 000 workers are below 2, while in the countries with development constant 2 is over 2.5. On the other hand, the ranking index of the countries with development constant 1, is over 5, while the countries with development constant 2 the global competitiveness index are less than 4.5. (Cyprus differs from other countries because the south and north Cyprus has different values. If we combine the figures of both parts of Cyprus, the result will be compensated.

2.3.1. Labor Department Statistics

Table 2.5. Statistics of the Labour department

2018 workplace inspection by the Department of Labour		
Number of inspection	Inspection type/ reason	%
142	Workplace accidents	3
874	Because of complaints	21
1532	Unregistered (without working permission) workers	37
558	To check the complaint inspection	13
219	General inspection	5
124	Construction	3
754	Others	18
4203	TOTAL inspection	100

In table 2.5. above, there is the inspection distribution of the labor inspectors. As we can see, most of the inspections are for unregistered workers. % 50 of the inspections are for the unregistered inspections and for checking the previous inspections. There are not sufficient inspections to prevent workplace accidents and occupational diseases.

2.3.2. Workplace Accidents

Workplace accidents are very important and we have to focus to reduce workplace accidents. In order to improve the situation related to workplace accidents, we need to record them. Every workplace has to report the accidents to the Labor Department and Labor Department records workplace accidents. Table 2.7 below, is published on the website of the Labor Department, The figures belong to the year 2018.

Table 2.6. Workplace accidents in 2018

Sector	Number of accidents
Hotel	43
Construction	29
Transport	26
Metal /garage	7
Public workss	6
Farm/agriculture	6
Trade	4
Restaurant	4
Carpentry	4
Manufacturing	3
Concrete	2
Service sector	2
Electricity	1
Housecare	1
Storage	1
Mining	1
TOTAL	140

2.3.3.Occupational Diseases

In 7 workplaces and among 724 workers, Health inspections were carried out in 2018 for occupational diseases due to heavy metals (lead, mercury, iron and zinc).

According to the Labor department records, there was not any metallic effect.

Besides the metallic effects, a lot of controls against specific diseases have been studied..

Those studies were to protect public health.

In order to provide a healthy workplace, we need:

- To identify hazardous jobs and working conditions
- To define the risks and occupational diseases due to the hazards
- To explain the measures in order to avoid occupational diseases
- To arrange periodical health controls for the workers

The table (2.7) below, is the Health Control Reports of the Nicosia (North) Burhan Nalbantoğlu General Hospital. As you can see, the statistics do not cover occupational diseases. In order to suggest any caution for the occupational diseases, We have to search The frequent occupational diseases, due to job and working conditions.

In Northern Cyprus the main hazards which cause any disability or occupational disease are:

- 1- Physical hazards: Noise, vibration, temperature, moisture, lighting, inert dust
- 2- Biological hazards: Epidemic diseases
- 3- Chemical Hazards: Toxic, flammable, corrosive materials, dust, vapor, miss
- 4- Radiation, electromagnetic pollution: Cancer
- 5- Ergonomical hazards: Wrong posture, repeated activities
- 6- Mechanical Hazards: Working at high, working in open-air,
- 7- Psychosocial hazards: Collective working, living and social conditions, mobbing, stress

In 2018, 720 male and 24 female workers had been checked up against heavy metals in (Lead, iron and Zİnc). The hospital reports of injuries and occupational diseases are very important



CHECK YOUR HEALTH PERIODICALLY

**IS IT IN THE PLACE
AND AT RIGHT LEVEL?**

Below, in Table 2.7.you can find **Health control records (Nicosia General Hospital)**

Table 2.7. Health control records (Nicosia General Hospital)

HEALTH CONTROLS (*)			CITIZENSHIP			NIGHTCLUB WOMEN
	DISEASE		TRNC	TURKEY	OTHERS	
No	TURKISH	ENGLISH				TOTAL
1	Aktif hepatit B	Active Hepatit B	1	67	56	2
2	Hepatit B taşıyıcısı	Hepatit B carrier	4	714	373	0
3	Hepatit A	Hepatit A	1	0	0	0
4	Anti HCV (+)	Anti HCV (+)	2	65	189	5
5	HCV RNA (+)		0	26	132	0
6	Gonore	Gonorrhea	2	6	1	0
7	Menenjit	Meningitis	0	0	0	0
8	Aseptik Menenjit	Aseptic meningitis	0	0	0	0
9	Ensefalit Menenjit	Encephalitis meningitis	0	0	0	0
10	Akut pürülan menenjit	acute purulent meningitis	0	0	0	0
11	Menenjit + Tüberküloz	Meningitis +tuberculosis	1	0	0	0
12	Suçiçeği (Varicella Z)	Chicken pox (Varicella Z.)	10	5	0	0
13	Akciğer tüberkülozu	Pulmonary tuberculosis	6	1	2	0
14	Akciğer tüberkülozu -öğr	Lung TB (Student)	-	0	2	-
15	Salmonella	Salmonella	0	0	0	0
16	Kabakulak	Mumps	0	0	0	0
17	VDRL (Sifilis)	VDRL (Syphilis)	1	0	0	15
18	Kızamık	Measles	6	3	0	0
19	HIV+	HIV (+)	8	12	30	6
20	Ekinokok	Echinococcus	0	0	0	0
21	Tifüs (Riketsia)	Typhus Rickettsia	8	1	1	0
22	Amipli dizanteri	Amoebic dysentery	1	0	0	0
23	Brusella	Brucellosis	4	25	0	0
24	Leismaniazis	Leishmaniasis	1	0	0	0
25	Kızıl	Scarlet fever	9	0	0	0
26	Boğnaca	Whooping cough	2	1	0	0
27	Tifo	Typhoid	0	0	2	0
28	Rubella (Kızamıkçık)	Rubella	0	1	0	0
29	Herpes Simplex	Herpes simplex	0	0	0	0
30	Scabies (uyuz)	Scabies	8	6	6	0
31	Zona - Zoster	Shingles zoster	2	0	0	0
32	Mide kanseri	Gastric cancer	0	0	0	0
33	6. Hastalık	Sixth disease	0	0	0	0
34	Genital Verrü	Genital Verrue	8	4	0	0
35	Adenopati	Adenopathy	0	0	0	0
36	Sair Organlar TBC	Other organs (TBC)	4	0	1	0
37	Sair Organlar TBC - öğre	Other organs TBC (Students)	-	0	1	-
38	Sıtma	Malaria	0	0	5	0
39	Genital Herpes	Genital Herpes	0	0	0	0
40	Leptospiros	Leptospirosis	0	0	0	0
41	Tularemia	Tularemia	0	0	0	0
42	Akut Flask Paralizi(Şüpheli)	Acute Flaccid paralysis	0	0	0	0
43	Akciğer Tüberkülozu asker	Pulmonary tuberculosis (Soldier)	-	0	-	-
44	HIV + (Mahkum)	HIV + (Prisoner)	-	1	-	-
45	Sair Organlar TBC (Asker)	Other Organs TBC (Soldier)	-	0	-	-

SECTION 3. MAIN HAZARDS AND RISKS

3.1.HAZARD GROUPS

In table 3.10 forty two main occupational hazards are listed. The hazards are defined by the Labour Department of Northern Cyprus and they are compiled in 8 different groups. These groups are described in the following tables (Table 3.1- 3.9)

Table 3.1.. Physical Hazards

PHYSICAL HAZARDS	
Hazard	Risks
Noise	Hearing Loss
Vibration	MSDs (Musculoskeletal disorders)
Temperature	MSDs, rheumatism, sun stroke
Moisture	MSDs (Musculoskeletal disorders),, rheumatism
Lighting	Damage at eyes
Dust	Damage in respiratory system, lung diseases
Heavy Load	MSDs (Musculoskeletal disorders),, rheumatism

Table 3.2. Chemical Hazards

CHEMICAL HAZARDS	
Hazard	Risks
Explosive materials/ substances	Explosion, injuries, amputatiton, death
Flammable materials	Fire, death
Toxic, Poisoning materials	Poiss
Asphyxiant materials	Asphyxition,
Oxidising materals	Fire
Irritating / corrosive materials	Irritaiton, corrosion

Table 3.3.. Radioactive Hazards

RADIOACTIVE / ELECTROMAGNETIC HAZARDS	
Hazard	Risks
Radioactive materials	cancer
Ionizing radiation	cancer
Electromagnetic pollution	Occupational diseases

Table 3.4.. Ergonomical Hazards

ERGONOMICAL HAZARDS	
Hazard	Risks
Wrong posture	MSDs
Repeated actions	MSDs

Table 3.5. . Mechanical Hazards

MECHANICAL HAZARDS	
Hazard	Risks
Working at high	Fall from height, amputation, injury, death
Mechanical equipment	Injury,, amputation, death
Traffic	Injury,, amputation, death
Heavy & unstable Loads	MSDs

Table 3.6.. Electrical Hazards

ELECTRICAL HAZARDS	
Hazard	Risks
Electrical shock,	Death, electrical burns
Fire	Burns, death, asphyxiation
Fall from high	Injury,, amputation, death

Table 3.7.. Psychological Hazards

Psychosocial Hazards	
Hazard	Risks
Stress	Difficulties in concantration to job, injuries, death
Mobbing	Difficulties in concantration to job, injuries, death

Table 3.8.. Biological Hazards

BIOLOGICAL HAZARDS	
Hazard	Risks
Waste(Solid waste, waste water)	Sickness, death
Sick persons	Sickness, death
Epidemiologic Diseases	Sickness, death

Table 3.9.. Working conditions

WORKING CONDITIONS	
Hazard	Main Risks
Working in open air	Sun stroke, getting cold, illness
Confined space	Asphyxiation, poisoning, injuries from explosions, mutilation, amputation, death
Lack of Hygen	Sickness
Cold or Hot climate	Hot or cold burns,
Air Volume	Difficulty in breathing, loss of concentration to job, injuries
Air Velocity	Difficulty in breathing, feeling hot or cold
Air refreshing speed	Infectious disease, death
Air quality	Difficulty in breathing, asphyxiation, poisoning, death
Exposure to Rays	Skin burns, occupational diseases, cancer, death
Unsatisfactory Organisation	Loss of concentration to job, injuries, death
Working in the Dark	Loss of concentration to job, injuries, death
Hazards from the neighbourhood environment	Injuries, death
Working at high	Injuries, amputation, death

The most common risks are

1. Injury
2. Amputation
3. Getting disabled
4. Sickness
5. Cancer & other occupational diseases
6. Death

3.1.1. Hospital Hazards and risks (For workers, patients and visitors)

Table 3.10 Hospital hazards and risks

No	Hazard	Risk	Presence in Hospitals
1	Slippery / wet/ uneven surface	Injury, disability	+
2	Moving machinery, heavy equipment	Injury, amputation	+
3	Moving parts of the equipment	Injury, death	+
4	Objects with hazardous, sharp surfaces	Injury, amputation	+
5	Hot or cold surfaces, hot oil, ice or flame	burns	+
6	Working at high, climbing points -suitable for fall	Fall, injury, death	+
7	Hand tools (Electrical or without)	Electric shock	+
8	High pressure (Divers)		-
9	Electrical tools, electric current, static electric	Shock, death, explosion	+
10	Combustible materials (Causng fire), fire	Burn, death, amputation	+
11	Materials causing flammable or explosive substance (oil, thinner, organic dusts, paper, cloth, wood dust)	Burn, death, asphyxiate	+
12	Chemicals, hazardous materials	Chemical burns, death	+
13	Dust	Lung diseases	+(Maintenance)
14	Noise	Loss of hearing	+
15	Vibration	MSDs	+
16	Physical and mental load	Physiological problem	+
17	Natural disasters (Earthquake, lightning, flood), emergency case	injury, death	+
18	Microclimate	influenza	+
19	UV;IR,Laser and microwave radiation	Cancer	+
20	Electromagnetic field, high voltage lines	Health problems	+
21	Hot or cold climate	influenza	+
22	Heaavy or unstable loads, carrying loads by hand transporting equipmnt, bands, elevators	MSDs, injury, death	+
23	Working under wrong posture, unergonomic working conditions	MSDs	+
24	Biological hazards (Viruses, parasites, molds, fungi) contact with biological waste or animals, insect invasions, epidemiologic diseases, bug or snake bite	Epidemiologic diseases	+
25	Carsinogens, mutagenic, teratogenic or radioactive materials	Cancer, DNA distortion	+
26	Insufficient working organisation	Physiological problem	+
27	Stress, violence, abuse, mobbing	Physiological problem	+
28	Confined space	Health problems, death	+
29	Working alone	Physiological problem	+
30	Falling objects	injury, death, amputation	+
31	Flying objects (Object projected by equipment etc)	injury, death, amputation	+
32	Equipment screens, radiation	MSDs, Occ. disease	+
33	Poison and Asphyxiant gases, locations which need ventilation	asphyxiate	+
34	Insufficient working area, Works to be carried out in dark	MSDs, Physiological	+
35	Lifting equipment, lifting platforms, manuel lifts	injury, death, amputation	+
36	Elevators, platforms which can be rised, escalators	injury, death, amputation	+
37	Soil movement, landslide, working in hole	emergency, death, injury	+
38	Explosives	injury, death, amputation	-
39	Traffic	injury, death, amputation	+
40	Unauthorised machine operating	injury, death, amputation	+
41	External Hazards chemicals leakage from outside, fire	burns, poisoning	+
42	Containers under pressure (LPG bottles, air compressors, carbide tubes)	injury, disability, death, amputation	+

3.2. EXPLANATION OF HAZARDS

1. Slippery / wet/ uneven surface

There are some big problems in most workplaces because we need to provide a hygienic working atmosphere. This is more important in hospitals because there are a lot of biological agents in hospitals.

The floor is cleaned up, mopped in such places and we need to post the sign “wet surface” If the floor is slippery, we can place non-slippery bands or sand covering. If there is an obstacle, we can put a sign to warn the people

2. Moving machinery, heavy equipment

Machinery is always hazards for the operators, other employees and the people around.

Heavy equipment is generally used in hospitals for temporary works by service providers & operators. They should know that they have to apply the OSH rules of the hospital when they are within the hospital boundaries. The employees of a hospital, the patients, the visitors and the employer (management) of the hospital are also under risk. Necessary precautions have to be taken.

3. Moving parts of the equipment

Moving parts of the equipment generally cause mechanical injuries. Mostly, the operator is affected. The operators should be trained and the operating manual should be followed. In hospitals, there are a lot of equipment with moving parts, including beds, lifting equipment, etc. There should be warning signs on the equipment. Some of the equipment may have warning lights, voice warning and protective covers. These should be maintained and in place. The Bypass should not be allowed.

4. Objects with hazardous, sharp surfaces

Sharp objects are used very often in Hospitals. Employees (Nurses, physicians and technical personnel) have to use injectors, cutters, cutting devices, and similar sharp objects during their daily jobs. These objects should be in hygienic conditions or uncontaminated. Users should be trained and vaccinated, periodical health control is necessary

5. Hot or cold surfaces, hot oil, ice or flame

In some departments of the hospital, there may be hot or cold rooms, hot and cold objects, etc. To keep the temperature steady is important, while we have to protect the workers from cold or hot. There should be warning signs, working instructions, Personal Protective Equipment (PPE) Training is also important

6. Working at high, climbing points -suitable for fall

In some locations or in some activities workers may need to work at high. They should use appropriate equipment and tool, they should be trained and they should use the right PPE. Other safety cautions should be in place, such as warning signs, safety barriers, etc.

7. Hand tools (Electrical or manual)

Electrical, hydraulic, pneumatic, or manual hand tools are extensively used in hospitals. Operators should be trained and use appropriate tool according to producer instructions, the tools should be periodically maintained according to the maintenance manual. If necessary, warning signs and safety barriers should be placed.

8. High pressure (Divers):

This hazard is unlikely to present in the hospitals

9. Electrical tools, electric current, static electric

As we described earlier, there are electrical appliances used in hospitals. The tools should be used as described in article 7. Electrical energy is also a hazard in the hospital as every workplace. There are 2 kinds of electrical energy. electric current and electrical energy.

Electric current also can be classified under 2 different topics. The first one is the alternating current and the second one is direct current.

Alternating current is taken from electric mains while direct current is provided by electrical batteries. Direct current is accepted to be safe under 120 Volts, while the safety limit for alternative current is accepted to be lower than 42 volts.

Static electricity is the electrical energy that is stored in our body, occurs during transferring some liquids through plastic pipes.

Cordless portable electrical equipment is run by batteries, so they are safe regarding electrical energy.

10. Combustible materials (Causing fire), fire

Some combustible materials may cause a fire. These materials should be stored with care. Storage rules should be followed. Also, special care should be taken. Fire communication systems and fire fighting systems should be in place. Emergency teams should be prepared, trained and escape plans should be prepared and simulated. A hospital should be ready for emergency and evacuation for all aspects

11. Materials causing flammable or explosive substance

When they reach a specific concentration in the air, some materials (some gases, the vapor or miss of oil, solvents, thinners and some dust, like organic dust, paper, cloth, wood dust, etc)

may establish an explosive or flammable substance. The flammable or explosive substance is more dangerous than the combustible materials which we described above (in hazard 7). To manage the flammable and explosive atmosphere, we have to be very careful and take some special measures. Working in such a department is very dangerous. Since the explosive atmosphere may occur with a certain percentage of the material, the most important thing is ventilation. We must never allow the material to reach the limit. Also, we need to collect the dangerous material, convey it to a safer place and store it in a safe container or building. In a flammable atmosphere, we need to avoid electric arc, static electric discharge, fire, etc. In hospitals, the flammable/ explosive atmosphere may occur due to some chemicals, painting areas, gas leakage, etc.

12. Chemicals, hazardous materials

Chemicals are classified according to different criteria. Regarding to the hazards, we can use the following classification

- **Flammable materials:** Described above (Hazard 11)
- **Toxic / poisonous materials:** Toxic materials' risks may be occupational diseases, amputation or loss of function and death. Toxic materials may be solid, liquid or gas. Some important toxic materials are H₂S, CO, mercury, arsenic, chlorine gas, solid wastes, heavy metals, medical wastes and Cyanide.
- **Asphyxiant materials:** Simple asphyxiates means a substance or mixture that displaces oxygen in the ambient atmosphere, and thus causes oxygen deprivation in those who are exposed, leading to unconsciousness and death.

Carbon dioxide CO₂, Methane CH₄, Ozone

- **Oxidising materials:** These are materials give off oxygen or other oxidizing substances. Oxidizing substances may be bromine, chlorine, or fluorine. Oxidizing materials may be liquid or solid. Some examples of the oxidizing materials are.

- Oxygen :
- Organic peroxides, (e.g.) benzoyl peroxide,
- Sodium hypochlorite (also known as bleach),
- Concentrated acids (Such as nitric acid, sulfuric acid, hydrogen peroxide).
- Concentrated or heated perchloric acid,
- Potassium permanganate $KMnO_4$.

Oxidizers are a severe fire **hazard**. They are not necessarily combustible, but they can intensify combustion, thus they are not the direct reason for occupational diseases, but during fires, the firefighters may expose some hazards.

- **Irritating/corrosive materials**

Corrosion has two meanings. One of them is damaging the tissues of the human body and the other is damaging the objects (metallic, wooden, ceramic, glass, etc). Liquids may cause five different hazards. Liquids can be classified according to these hazards. As we explained these in earlier pages, the liquids may be toxic, flammable, explosive, corrosive and biologically hazardous.

In hospitals, we use a lot of chemicals. Our most important weapon against chemicals is the MSDS (Material Safety Data Sheet) forms. Limits and ventilation and storage are also important, we need to keep the chemicals in original containers and the containers must have labels.

13.Dust

Dust is, fine, dry powder consisting of tiny particles of earth or waste matter lying on the ground or surfaces or carried in the air. Small particles or fibrous materials occur during

transporting and the working process like grinding, milling, drilling of the metals, wood or similar materials are also called dust.

WHO definition for dust is: “Dust” as *solid particles, ranging in size from below 1 μ m up to at least 100 μ m, which may be or become airborne, depending on their origin, physical characteristics, and ambient conditions.*

There are many criteria for dust classification

- Classification by size:
- Classification by material
- Classification by the biological effect
- Combustible/explosive dust:

Regarding occupational safety and health, every type of dust causes different types of problems in the human body. Dust can harm the:

- Eyes
- Skin
- Nose and respiratory system and
- Harmful to the digestive system if swallowed
- Some dust may be explosive: Coal dust, sugar dust, organic dust, aluminum dust.

In order to minimize the risk, we start fighting with dust, at the source and the steps should be:

- To stop emission
- To collect present dust
- To convey dust to a safer location
- To store the dust in a secure way
- To use PPE

14.Noise

Noise is one of the most common physical hazards present in the workplace. The frequency, amplitude (volume) and duration of exposure are very important.

Noise above the 85 dB(A) limit leads to hearing loss. The following sectors generally produce noise over 85 dB: If we cannot avoid noise emission by collective protection methods, proper personal protective equipment (PPE) should be used to avoid hearing loss,. The PPE should be in EN Standards and should carry the CE mark. Inadequate hearing protection or prolonged exposure to noise can result in either temporary or permanent **hearing loss**.

Regarding hospitals, there may be excess noise at ambulance, compressor room, generator cabin, registration department, emergency section, and some other departments.

15. Vibration

Vibration means a rapid movement to and fro or oscillating movement. Mechanical vibrations at work can expose workers to vibrations. There are two types of vibrations. Hand-arm vibration (HAV) occurs during drilling or cutting operations and this vibration is transferred to the worker through the hands and arms. Whole-body vibration (WBV) occurs when working, standing or sitting on a moving platform, basement or seat, and transferred to the body through the legs. Road or pavement cutters, drivers, and workers at similar jobs are at risk. Vibration may cause MSDs, White finger, and Carpal Tunnel Syndrome. Limits of the vibrations are as follow:

Table 3.11. HSE Vibration exposure limits

	ELV Per 8 hours A(8)-Exposure Limit Value	EAV per 8 hours A(8) -Exposure action value
HAV	5 m/s ²	2.5 m/s ²
WBV	1.15 m/s ²	0.5 m/s ²

In hospitals, portable equipment, some medical equipment, cleaning equipment, and similar equipment are the main source of vibration. We can protect the workers by organizing the working hours, by periodical maintenance of the equipment. Personnel training, periodical health control, and vibration measurement is necessary.

16. Physical and mental load

These loads affect the workers' health negatively. Especially in hospitals, workers are always facing these problems. Due to these adverse conditions, workers get tired, physically, and mentally. This situation is very dangerous because it may lead to an accident.

17. Natural disasters (Earthquake, lightning, flood), emergency case

Natural disasters are emergency hazards. Any emergency case in hospitals affects more groups according to other workplaces. The inpatient people should be rescued by hospital workers. Similar to the other workplaces, hospitals must be ready against natural disasters. The same precautions should be in place as item 10 (- fire) against natural disasters. Additionally, our building the outer area must be safe against floods, lightning, and earthquake. In Northern Cyprus, the main hospital faced twice disasters in 10 years. Cyprus is in the second-degree earthquake zone.

18. Microclimate

Microclimate describes the homogeneity of room atmosphere about temperature, moisture, air quality, air velocity, etc. It is important in all departments of the hospital and appropriate ventilation is necessary to avoid any discomfort.

19. UV;IR, Laser and microwave radiation

Ionized and non- ionized rays re harmful to the human body. Ionized rays occur if there s radioactive materials while non-ionized rays are related to electromagnetic pollution.

Various rays cause some health problems. In hospitals, there are some ionized rays and unionized rays. Some of the produce cancer. For example, X-Rays are very harmful to the human body. Exposure over limits should be avoided. Also, risk groups (such as pregnant women) are very important. Warning signs should be used and unauthorized entrance should be avoided. Measurements and health control are necessary.

Table 3.12. Difference between ionizing and non-ionizing radiation

ionization type	Wavelength / Frequency	Energy
Non-ionizing radiation	longer wavelength/lower frequency	Lower energy.
ionizing radiation	short-wavelength/high frequency	Higher energy.

20. Electromagnetic field, high voltage lines

As described above (19) communication equipment, microwave ovens, electric lines are the sources of electromagnetic pollution. This pollution may cause some health problems.

Periodical health control should be arranged. Some medical devices may cause an electromagnetic field.

21. Hot or cold climate

In North Cyprus, the temperature limits for a closed workplace are 150C (min) and 350C(max). These limits are not applied to working in the open air such as construction, agriculture, infrastructure etc.

Regarding the occupational safety and health, we consider the relative humidity. Although it may differ among the institutions, we accept the ideal relative **humidity** for health and

comfort is about 35–60%. The Health and Safety Executive (UK) states that a relative humidity between 40% and 70% do not have a major impact on thermal comfort.

Excess humidity affects the airways, the respiratory system, and lungs, increase asthma risks.

Low humidity affects the eyes and static electricity. Electronic equipment in offices causes dry heat which leads to a change in thermal comfort. To prevent negative changes in thermal comfort, ventilation is the most effective method.

Humidity and temperature are two components of thermal comfort. Since the temperature and humidity react with each other, the resultant effect is important and the air velocity is also very important. Air movement is created by the air conditioning or ventilation system.

Thermal comfort is affected by air movement. There may be discomfort, especially on the head, neck, and shoulders, ankles, feet, legs.

Some departments of the hospital may need a cold climate. In that case, if possible working limits will be applied, while workers may wear appropriate clothes.

Working in the Open-air

Open-air Works may be hazardous because of excess cold and temperature. In summer it is too hot, some days may be over 45°C. In winter it may be too cold. Both have negative effects on the human body. Especially in summer, if it is too hot, government bans to work in the open air between 12.00 – 16.00 hours. In hospitals, some maintenance, infrastructures, or repair works may be carried out in the open air.

22. Heavy or unstable loads, carrying loads by hand, transporting equipment, bands, elevators

Heavy loads should be lifted and transported by mechanical equipment. The Limits for the load in TRNC is 25 Kg for young workers and women. There is not any limitation for male



workers, but it does not mean that they may be forced to lift any load over their capacity. It is the employer's responsibility to provide mechanical equipment to lift and carry the loads.

PHOTO :3.1. Operator free transport equipment

In Photo 3.1. There is a programmable, operator free equipment to carry the loads up to 200 Kg. It's taken at the XXI International Occupational Safety and Health Congress in Singapore

In hospitals, there may be heavy load at ambulances, emergency and intensive care departments, surgery rooms, morgue, etc.

Lifting devices (Including elevators) should have a yearly working permission document from the Labor Department. In hospitals, the patient lifting devices should have working permission also. Wheelchairs should have a periodical maintenance program.

23. Working under wrong posture, unergonomic working conditions

Working under inappropriate (unergonomic) posture may lead to MSDs. In various departments of the hospitals including ambulance, emergency, inpatient, and intensive care departments, morgue, etc. employees might have to work in wrong body posture. To minimize the risks, workers should be trained about MSDs, if necessary to arrange a working program to work a shorter time. Meanwhile, annual health control is necessary.

Ergonomic hazards may pose risks of injury to the musculoskeletal system or result in a musculoskeletal disorder,

- Muscles or ligaments of the lower back,

- Tendons or nerves of the hands/wrists,
- Bones surrounding the knees.

Exposure to ergonomic hazards may cause different disorders. Generally, we call them Musculoskeletal Disorders (MSDs)

Some Musculoskeletal Disorders (MSDs) are:

- Carpal tunnel syndrome.
- Tendinitis.
- Rotator cuff injuries (affects the shoulder)
- Epicondylitis (affects the elbow)
- Trigger finger.
- Muscle strains and low back injuries.

24. Biological hazards (Viruses, parasites, molds, fungus) contact with biological waste or animals, insect invasions, epidemiologic diseases, bug or snake bite

Biological hazards are very important in hospitals. It is one of the most likely hazards in hospitals. The most common biological hazards in hospitals are sick persons, laboratory samples (pathogens), medical waste, contaminated PPE. Regarding hospitals, we cannot apply the risk control hierarchy. Because we cannot stop the sick persons coming into the hospital. Regarding PPE, we should prefer the single-use PPE, if it is not possible, the contaminated PPE must be cleaned in the hospital, never brought home for cleaning. Globally we have lost a lot of physicians because of coronavirus.

25. Carcinogens, mutagenic, teratogenic or radioactive materials

These materials should be stored, used, transport, and disposed of under appropriate conditions.

There should be warning signs and necessary PPE should be used, workers should be informed and trained against the hazards, risks, and present measures in the workplace. MSDS is also necessary.

26. Insufficient working organization

Unsatisfactory working organization cause stress on the workers or patients. In hospitals, we usually face with this hazard. We get an appointment and go to visit we wait there for hours, then someone says: “The physician will not come today. You better go back. You will need to get a new appointment to see the doctor.”

Someone calls an ambulance because of a traffic accident. The officer records the call and sends an ambulance but forget to delete the request. His duty ended about a quarter of an hour. The following officer saw the undeleted ambulance and sent the second ambulance. What will happen when they arrive at the accident location?

27. Stress, violence, abuse, mobbing

These are some hazards under psychosocial hazards. Psychosocial Hazards mean work stress. The most common definition of a psychosocial hazard is an occupational hazard that affects the psychological and physical well-being of workers. Wellbeing includes their ability to participate in a work environment among other people.

There are various hazards under the topic of Psychosocial Hazards. Most common are: Gender discrimination, Mobbing, Alcohol in the workplace, Body stressing, Violence, bullying in the workplace, Customer aggression, Driver fatigue, Remote or isolated work, Work-related mental stress

In hospitals: Violence applied to the employees (nurses, physicians, registration officers, etc), long and unregular working hours, the pressure to heal the sick persons, working against time are the most common topics of psychosocial Hazards.

28. Confined space

Confined space is one of the most difficult locations in the workplace for occupational safety and health. Because dangerous locations usually have signs to warn people about the hazard. But no one puts a sign near a confined space to warn the employees and others. Professionals should discover the confined space themselves and put necessary signs, prepare the necessary procedures to enter and work in the confined space.

An example is the interior of a storage tank, occasionally entered by maintenance workers but not intended for human occupancy. A tunnel, a water well, a mine or pit, a cold store, a cave, etc are the samples of the confined space. There should be special procedures to enter or to work in a confined space. Sometimes, there is not any hazard before entering the space but hazards come out when somebody starts working inside. An oil tank is a confined space but the hazards appear when a welder starts welding inside.

29. Working alone

Working alone is the source of various risk factors. The most important one is the psychological effects the workers. If any health problem occurs, there is no one to help.

Confined space studies, night watchman, long-distance driving, and similar works are in this category. Measures including the followings should be taken:

- For vehicles, vehicle monitoring system
- For workers, human monitoring system
- For confined space: Atmosphere control system with SCADA

In hospitals, at some locations, there may be some person working alone such as a gateman, morgue worker

30. Falling objects

If someone is working at high, there is a risk of falling objects. In hospitals, during maintenance, there is a risk of falling objects. Very unlikely, some stones or lining material may fall from the ceiling. Also, any object which is not stored securely or properly may fall from the shelves. During an earthquake, some objects and shelves may fall. To avoid this, shelves should be fixed to the Wall.

31. Flying objects (Object projected by equipment etc)

These are the objects which are thrown from the equipment during working or projected by someone to get rid of. In hospitals, a lot of portable tools such as grinding tools, are the reason for flying objects.

32. Equipment screens, radiation:

Most of the equipment such as mobiles, computers, medical devices, etc. we are using in our daily life and work, have screens. These devices may produce electromagnetic pollution and the screen user may have problems with eyes, because the light may harm the eyes. Also looking at the same point always may cause MSDs for example neck or upper back problems.

33. Poisonous and Asphyxiant gases, locations which need ventilation

Hazard gas may affect the people, even mass death may occur. Alarm systems, continuous gas measurement by SCADA system, ventilation and appropriate PPE should be used. In hospitals, like surgery rooms, emergency and intensive care departments are open to this risk. It is not unlikely that an asphyxiant gas is connected to the system instead of oxygen.

34. Insufficient working area, Works to be carried out in the dark

Lighting (illumination) is the use of **light**. The light can be natural or artificial. If there is not enough natural illumination, we use artificial light to get enough illumination. There are standards illumination levels according to the task. In Northern Cyprus, the following levels are necessary at workplaces.

Table 3.13. Min. Lighting level (Lux) **TRNC Occupational Safety and Health legislation**

Buildings/ Task	Min. Lighting level (Lux)
Outside of the building, roads, yards, including the exceptional locations which need extra lighting	20
Large and covered rooms, stores, corridors and stairs	50
Small and uncovered locations, parking areas, boiler rooms	100
Bakeries, machine rooms and shops	200
Workshops, control rooms, offices	500
Special characteristic places such as watch and clock manufacturing and repairing, sewing shops	1000

If there is not appropriate level lighting, some health disorders may occur. Because the eye is different according to the other organs. For example, if the voice level is very low, our ears do not try to hear it, unless we need to hear. But if the illumination level is low, the eyes automatically try to see. If this is repeated very often or a very long time, there may be some disorders in the eyes. That's why the level of illumination in the workplaces should meet the limits.

Working in the dark

Under some conditions, the job may need to work without any light. About 20 -30 years ago, the computers were not improved like today, the films were being prepared in the dark rooms. Normal light was disrupting the films, that's why film producers had to work under total dark under very weak red light. Working too long under this condition gives hazard to the eyes

Ref: https://hosting.iar.unicamp.br/lab/luz/ld/Arquitetural/Handbooks/lighting_in_the_workplace.pdf

35. Lifting equipment, lifting platforms, manual lifts As we described before, the lifting equipment should have valid working permission from the Labor Department. This permission must be renewed every year. This equipment may cause to fall from high. They need periodical maintenance. In hospitals, this equipment may be used to reach higher points. Also changing the lamps, servicing to ventilating propellers, higher drawers of the shelves, etc. They need to be safe and properly constructed. Operators should be trained to use the equipment. Falling from the equipment is always possible.

36. Elevators, platforms which can be raised, escalators, fall from high

Falling of the patients from ambulances or from the bed is not unlike. This equipment is similar to the equipment at (35). Elevators are very special. load and people need to be carried in different elevators. Especially under pandemic conditions, the number of people in each elevator should be restricted, if possible the elevator usage may be completely prohibited. For sick persons, a different elevator may be reserved

37. Ground movement, landslide, working in a hole

Soil movement and landslide are similar to earthquakes. They are emergency cases. Hospitals have to be ready for any kind of emergency. In order to minimize the risks of soil movement and landslide, safety measures should be taken during the planning stage.

Working in holes is similar to working in a confined space. Before entering the hole, procedures and instructions for working in the hole must be prepared. Additionally, in order to enter any confined space, written working permission from an authorized person is necessary. Working in a hole or any confined space in an inappropriate way may cause death. In hospitals, on the basement floor, it might be necessary to work in holes. Also, during construction somebody may need to work in holes. Employees should be trained for this purpose. The emergency and evacuation plan should cover this situation.

38. Explosives: Dynamite, ammonium nitrate, ANFO (ammonium nitrate + Fuel oil), gunpowder, etc.

Under this topic, we find the civil explosives which are used to extract materials from the earth's crust or demolished old buildings. These materials are produced, stored, used, transported, and disposed of under special regulations. These materials generally do not cause occupational health, but mainly cause death. In hospitals, to work with explosives is unlikely.

39. Traffic

Traffic is a very big hazard for drivers, pedestrians, voyagers, people living staying or passing around. We have to take measures on the route and at the car park. Regarding hospitals, we are facing to traffic hazards at the car park and in the ambulances. Ambulance driver and crew are under the risk of injury, amputations, violence and death.

Arranging a vehicle monitoring system, providing regular maintenance to the ambulance, training driver and crew for an emergency situation will be helpful

40. Unauthorized machine operating / jobs In occupational safety, it is very important to avoid unauthorized activities. Every employee should have written work instructions compatible with the working contract

Fatal accidents may due to unauthorized activities. Especially during maintenance or repair works, LOTO (Lock out-tag out) ought to be applied to protect workers. Everybody should be trained in the subject.

In hospitals, LOTO application is very important. Meanwhile, it is very important also to work according to the working instructions.

41. External Hazards chemicals leakage from outside, fire

External hazards may affect our workplace at any time. If there are any building, any workplace, any public department near the hospital, we have to coordinate with them. We must exchange information, hazards, risk and measures we have taken. Our neighbors need to share their position regarding OSH. Any chemical leakage may spread into our building, any fire may jump into our workplace, etc.

There is a probability of hazards that originated outside the boundaries of the workplace. For example emergencies such as fire, plane crash, flood, Rolling of rock, etc. Also, the workplace may be under attack of animal occupation and epidemiological diseases.

42. Containers under pressure (LPG bottles, air compressors, carbide tubes

Pressured gas tubes are always hazards. Special care should be given during storage and transportation. Workers should be trained on how to carry and use the tubes. Compressors

need periodical tests and working permission should be renewed annually. Carbide tubes are very important. Excess pressure should be avoided.

3.3. CRITICAL SECTORS

According to the Labor Department's 2018 records, the hotels, the construction sector, and the transport sector were the top 3 sectors regarding workplace accidents. The frequency is highest but the severity is very low in the hotels. The most critical sectors are the construction sector transport and agricultural sector because the frequency and severity are very high.

The list, order by the number of workplace accidents are :

1. Hotels
2. Construction
3. Transport
4. Farming /Agriculture
5. Quarries
6. Waste (Hazardous Solid waste and wastewater)

The most dangerous sectors in North Cyprus related to workplace accidents (According to Table 2.4.) are:

- 1.Hotels
- 2.Constructions
3. Transport
4. Metal Works, garage
5. Public works
6. Farm / Agriculture
7. Trade sector
8. Restaurants

9. Carpentry

10. Manufacturing

11. Concrete sector

134 accidents of annually recorded 140 total accidents in 2018 (%96 of workplace accidents) took place in these 11 sectors.

But if we look at the occupational diseases, we cannot find any records, so we need to study the riskiest sectors about occupational diseases.

These sectors are probably

1. Collective living areas (workers' lodgings, nightclubs, cinemas, schools)
2. Waste (Solid waste collecting, transporting, treating and disposing of) and wastewater treatment plants)
3. Health sector (Hospitals, laboratories, veterinary services)
4. Animals: Slaughterhouse and butchery, farms, pet shops, circus, zoo, etc.
5. Paint factories, vehicle& metal parts painting
6. Mines and quarries
7. Construction sector
8. Transport sector
9. Hairdressers
10. Banks, offices

Table 3.14. Most often 10 cancer types in Northern Cyprus (2012)

ICD code : International Statistical Classification of Diseases and Related Health Problems,

ICD-10 CODE	TOPOGRAPHY	INCIDENT	PERCENTAGE (%)
C50	NIPPLE CANCER	113	21.3
C18-20	COLORECTAL	59	11.1
C73	THYROID	55	10.4
C33-34	LUNG	36	6.8
C61	PROSTATE	32	6
C67	BLADDER	30	5.7
C32	LARYNX	20	3.8
C82-85, C96	Non-Hodgkin lenfoma	19	3.6
C16	STOMACH	18	3.4
C22	LIVER	13	2.4
OTHERS		136	25.5
TOTAL		531	100-

KANSEKİ YENMEK İÇİN YÜRÜYÖRÜZ
17. ORKİDE YÜRÜYÜŞÜ
 1 Mart 2020 Pazar

Kanser Araştırma Vakfı'nın Telsim ana sponsorluğunda gerçekleştirdiği 17. Orkide Yürüyüşünde kansere karşı hep birlikte yürüelim.

Let's walk together against cancer in 17th Orchid Walk, organized by The Cancer Research Fund (KAV) and sponsored by Telsim.

17. ORKİDE YÜRÜYÜŞÜ
17th ORCHID WALK
Buffavento-Taşkent Piknik Alanı
Buffavento-Taşkent Picnic Area
1 Mart 2020 Pazar
March 1, 2020, Sunday
Bağış Miktarı: 50 TL
Donation Amount: 50 TL

Bilet Satışı | Ticket Sale
 Deniz Plaza Şubeleri: Lefkoşa, Gönyeli, Girne, Gazimağusa
Telsim Shop: Lefkoşa Ortakoy
 Servis Kalkış Noktaları | Meeting Points
Lefkoşa, Atatürk Spor Salonu Önu: 09.00
Girne, GAU: 09.00
Gazimağusa, Belediye Önu: 08.30
Güzelyurt, Otobüs Terminali: 08.00

,In the above pages, we have tried to list the most hazardous sectors, main hazards, and most frequent risks. In the proceeding sections, we shall try to explain why we decided to study the situation in hospitals

PHOTO : 3.2. Social Activities against cancer Some social activities organized and people are invited to donate the NGO's against cancer.

SECTION 4 -WHY HOSPITALS

4.1. GENERAL

Hospitals are very important because we want to get service when we need medical care or during emergencies. If we cannot get the service we need, it may cost our lives. Besides this the importance of the hospitals are as follow:

- Occupational Safety and Health in Hospitals is necessary for employees, patients, and visitors. In hospitals, the number of people maybe 3 or 4 times of the sick persons, because there are a lot of visitors
- During emergency cases, the rescued/ recovered people probably will be transported to hospitals. It is very important during an earthquake, a flood, a train crash, or similar events like a pandemic. During these events, a lot of persons will be placed in the hospitals in a very short time, and these persons will be concentrated in emergency services, surgical department, etc.
- During a pandemic, a lot of persons will be carried to hospitals for a test. For this reason, health services in many countries have been failed during COVID-19.
- If an emergency event has occurred in the hospital, the nurses and other health care persons will be responsible for rescuing the patients and visitors. This means that the number of people who will try to get help may be at least 10 times higher than the employees.

4.2. Information about hospitals in North Cyprus

In North Cyprus, there are different types of hospitals

- a. Public (Governmental) Hospitals+ other health centers
- b. Private Hospitals + Clinics
- c. University Hospitals

In this study, we searched the records & health statistics of the public hospitals, while we had observations in 5 different hospitals. (Kolan British- Nicosia, Mağusa Tıp Merkezi – Famagusta, Cyprus Life as Hospital- Nicosia, Başkent Hastanesi – Nicosia and Famagusta Government Hospital)

Table: 4.1. -2018 Health Report of the Ministry of the Health of TRNC about public hospitals (2018)

-Bütün Hastaneler	Burhan Nalbantoğlu	Mağusa Devlet	Girne Akçiçek	Cengiz Topel	Toplam	1 Yıllık Veri
Muayene	446722	243743	149633	65819	905917	905917
Hasta	111394	65224	48592	20896	246106	218658
Erkek	60555	34239	25971	10890	131655	117826
Kadın	50838	30984	22620	10005	114447	100831
Yaşlı 65 -	13405	6816	4295	2993	27509	22525
Yetişkin 19 - 64	80195	47295	33975	14567	176032	156596
Genç 13 - 18	5158	3704	2827	1168	12857	11826
Çocuk 0 - 12	12636	7409	7495	2168	29708	27711

Table: 4.2. -Population of TRNC total public hospitals (2018)

All Districts	Lefkoşa	Mağusa	Girne	Lefke	Güzelyurt	İskele	Toplam
Population	73869	59536	46889	8441	17416	24596	230747

As can be seen from Table 4.2., The population of TRNC was 230 747 in 2018. Meanwhile, as we can see in Table 4.1, 905 917 persons applied to public hospitals for medical inspection. And 218 658 sick persons applied for medical treatment.

These figures show the importance of hospitals. This is the main reason that we need to create safer hospitals. There are some more reasons:

- The main hospital of TRNC faced two important disasters (emergency case) in 10 years (first one is a flood, second one a fire)

- We don't have any pandemic hospital and during COVID 19 this has been a very big trouble

For the above reasons, hospitals are the subject of this study. We have to make the hospitals safer workplaces.

4.3. General Handicaps of Hospitals

There are some handicaps related to Occupational Health and Safety (OSH) applications in Hospitals. At the same time, there are some special situations in hospitals. If we have a look at the OSH applications in the hospitals:

IOSH mentions (Guidelines for protecting the safety and health of healthcare workers, September 1988- Page 1-4) that traditionally, hospital administrators and workers, considered hospitals and health institutions safer than other work environments and recognized mainly infectious diseases and physical injuries as risks in the hospital environment. Administrators have therefore emphasized patients care and have allocated few resources for occupational health.

- Hospital workers have been viewed as health professionals capable of maintaining their health without assistance
- The availability of informal consultations with hospital physicians reduces the use of worker health services.
- Hospitals are oriented toward treating disease rather than maintaining health

This situation produces a handicap against the workers' health and safety, some health professionals deny the above opinion indirectly. At the IFNANE 2019 conference in Valencia, Spain (IFNANE 2019 — 3rd International Forum On Nursing and Nurse Education between 13rd- 15th June 2019); during a presentation, I told: “In the Occupational Safety and Health culture, everyone enters to the workplace, should be able to go out, at least at the same level of health. If we are in the hospital, we expect to go out in a better situation. A

health professional put an objection to this opinion. He said, “this is not a general approach. Health professionals may not make everything better always”

Below table 4.3. there is a comparison of the workplaces and the risk groups

Table: 4.3. Comparison of some workplaces according to the risk groups

	Groups under risks		
	Group 1	Group 2	Group 3
Schools	Teachers & other employees	Students	Others (Visitors, suppliers , service providers etc
Hospitals	Doctors, nurses, trainees, other workers	Patients	Others
Transport	Drivers	Passengers	Others
Others (construction, restaurants, factories, hotels, etc)	Employees, trainees	-	Others

According to the records of the Ministry of Health (<http://bndh.gov.ct.tr/tr/kurumsal/hastane-istatistikleri>), there were 810 employees (doctors, nurses, laboratory technicians, and others) in 2017, and 858 sick persons applied for medical treatment (total sick persons in 2017 were 205697). It means 810 employees service to 205 000 sick persons in a year. Remember that these sick persons need care, and in an emergency case they need assistance for evacuation.



Figure 4.1. Comparison of hospitals with other workplaces according to access to the workplace

SECTION 5 SITUATION OF HEALTH SYSTEM IN THE NORTHERN PART OF CYPRUS

5.1. INFORMATION ABOUT HEALTH SYSTEM OF TRNC

WHO defines 3 criteria about hospitals

- a. Hospitals and close surrounding
- b. Hospitals as a part of the complete Health system
- c. Hospitals as a part of the wider social system of the country.

Since our main subject is the first one (Hospitals and close surroundings), we shall have a quick look at the second and third subjects then we shall involve the main topic.

5.2. HOSPITALS AS A PART OF THE WHOLE SOCIAL SYSTEM

A PART OF THE WHOLE SOCIAL SYSTEM				
GROUP 1 -5000 TL		GROUP 2 -1500 TL		GROUP 3- ZERO PAYMENT
RETIRED PERSONS (Public or social insurance)	PUBLIC EMPLOYEES	PRIVATE EMPLOYEES	NON CITIZEN WORKERS	NON REGISTERED ILLEGAL WORKERS
5000 TL max	5000 TL max	1500 TL fix	Zero payment	Zero payment

Figure 5.1. Different types of employees in Northern Cyprus (details are given below)

At the above figure 5.1. You can see the payment which the government paid to the employees during 2 months lockdown (March-April 2020) because of the Coronavirus Pandemic.

As you can see, five types of employees are compiled in 3 different groups (according to the amount of payment).

Group 1 consists of the first and second types of workers in figure 5.1. In this group, there were retired persons and persons employed by the government. They got paid (max) 5000 TL each.

In the third type (second group) there were private-sector workers which could not go to work because of lockdown. The government paid them 1500 TL each.

The third group consists of the fourth and fifth types of workers. There were foreign workers and non-registered workers. They did not get any payment at all.

This table shows that during the lockdown, there were not fair conditions. As WHO said, the hospital is a part of the whole social system of the country. If someone cannot get paid and stays hungry, probably this person will get ill and will go to the hospital for medical treatment. For this reason, everyone living in the country should get support at least for a sustainable life

5.3. HOSPITALS AS A PART OF THE WHOLE HEALTH SYSTEM

The second subject is the hospitals as a part of the whole health system.

PRESENT HEALTHCARE SYSTEM
HOW THE PATIENT REACH TO MEDICINE
PRESENT SYSTEM

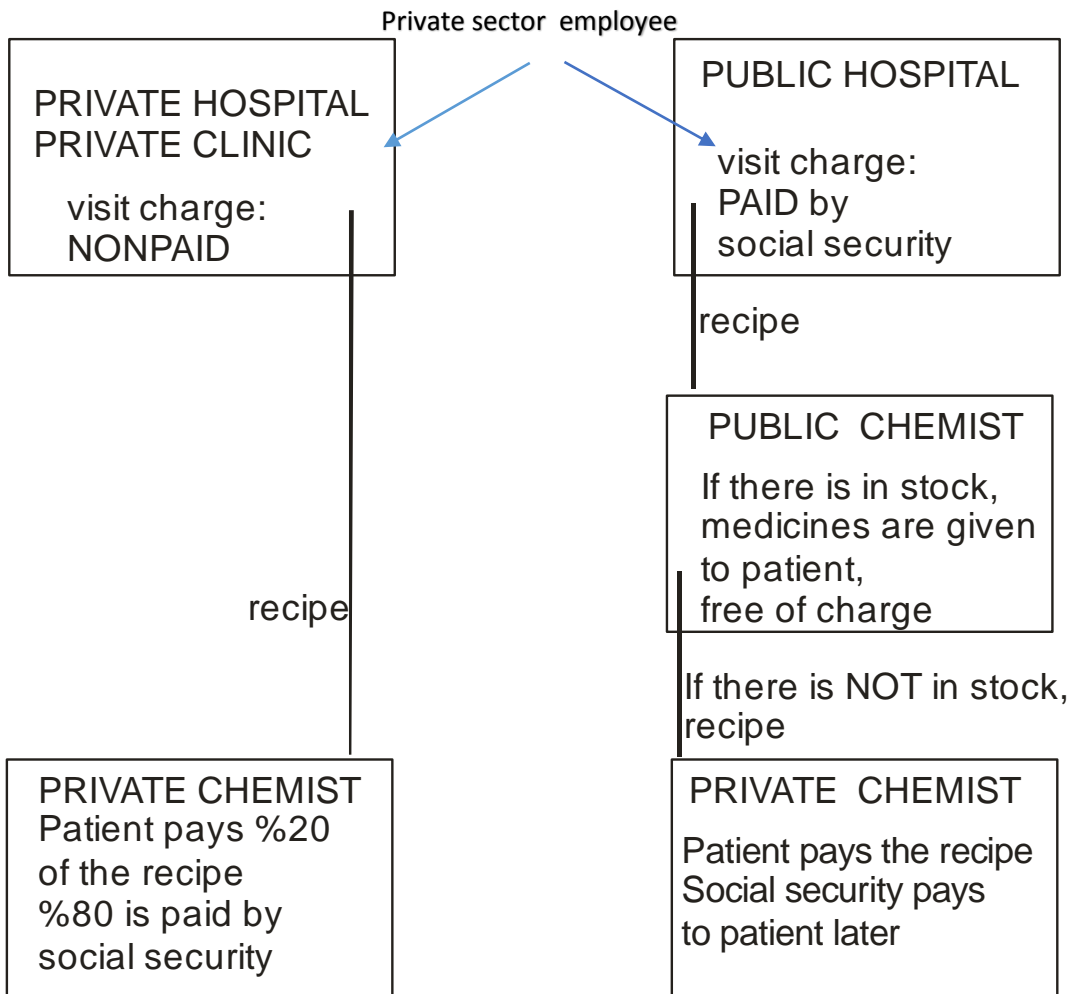


Fig 5.2.How the patient reach to medicines (Present system)

As it can be seen from the above figure 5.2., it is very complicated. There are different applications and there are inequalities at various stages. In order to arrange the equality and reach to a more simple system, we propose the figure 5.3. below

PROPOSED SYSTEM

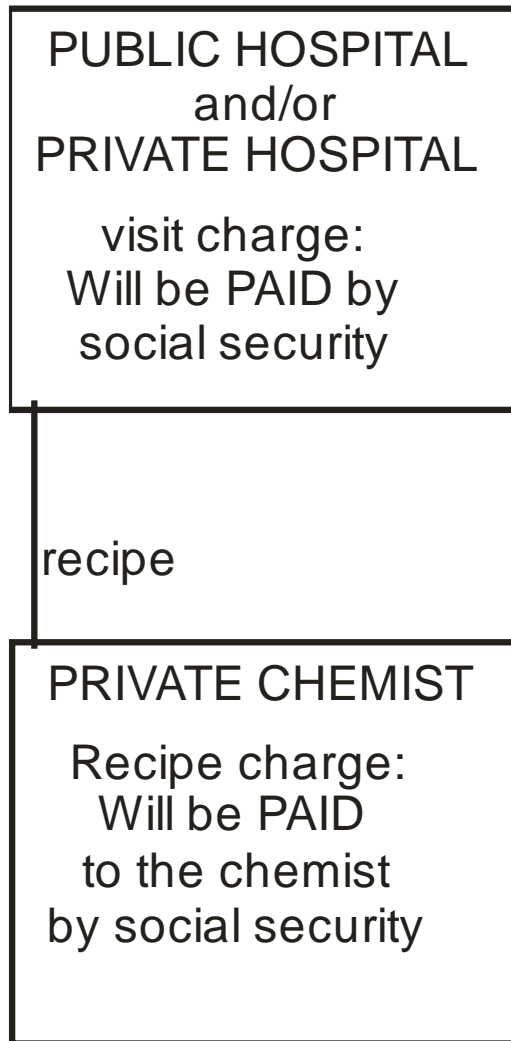


Fig 5.3.How the patient will reach to medicines (Proposed system)

In the proposed system, we have removed the government chemistries out of the healthcare system. The reason is the public chemistries provide complications in the general health system.

It will be easier to reach the medicines via private chemistries. This will help to protect the prestige of the health system and government.

The proposed system will increase the financial load of the social system. But as we can see in table 5 (Questionnaires section) only the %46 of the population prefers to get service from the government hospitals. % 54 of the population pays a lot of money to get health service. To overcome this inequality, we suggest increasing social security payments. Another important topic about hospitals is the storage, collection, transport, and disposing of medical waste.

5.4. MEDICAL WASTE

There are some problems with the stock management of medicines, and every year tons of medicines are buried.



PHOTO 5.1. The label of medical waste and medical waste containers

Hospitals keep separately, municipalities collect altogether

90 out of date trucks of drugs found in the pharmaceutical warehouse in TRNC

<https://www.haberler.com/kktc->

In the NORTH Turkish Republic of Cyprus (TRNC), 90 trucks of drugs with expired expiration dates equivalent to millions of TL have been found in the last 10 years.



🕒 07.08.2019 17:10 | Last Update: 07.08.2019 17:10

NORTH Cypriot Turks in the Republic (TRNC) corresponding to the last 10 years past the expiration date of millions of TL 90 truck **drugs** were found. Making a statement on the subject, Health Minister Ali Pilli stated that the drugs will be destroyed.

PHOTO 5.2. From press: 90 trucks full of expired drugs

Waste Management-Authority- Medical waste

Medical waste is any kind of **waste** that contains infectious material (or material that's potentially infectious). This definition includes **waste** generated by **healthcare** facilities like physician's offices, hospitals, dental practices, laboratories, **medical** research facilities, and veterinary clinics. As identified by the WHO, medical waste can be classified as shown in table **5.1.** below.

Table5.1. Medical waste classification

Sharp- waste	Anything that can pierce the skin, including needles, broken glass, razors, ampules, etc
Infectious Waste	Anything infectious or potentially infectious goes in this category, including swabs, tissues, excreta, equipment, and lab cultures
Radioactive waste	Radiotherapy liquids, Lab research liquids, glass containers contaminated with these liquids
Pathological waste	Body liquids, textures, body parts, animal carcasses, unused, expired or contaminated vaccines or drugs etc
Chemical waste	Disinfectants, solvents, batteries, heavy metals such as mercury
Genotoxic waste	Carcinogen, mutagen or teratogenic materials
Other medical waste	Other waste unclassified in the other topics of this table

In order to avoid the negative effects of the medical waste material, we need a new authority.

The Present system of managing medical waste is shown in figure 5.4. below

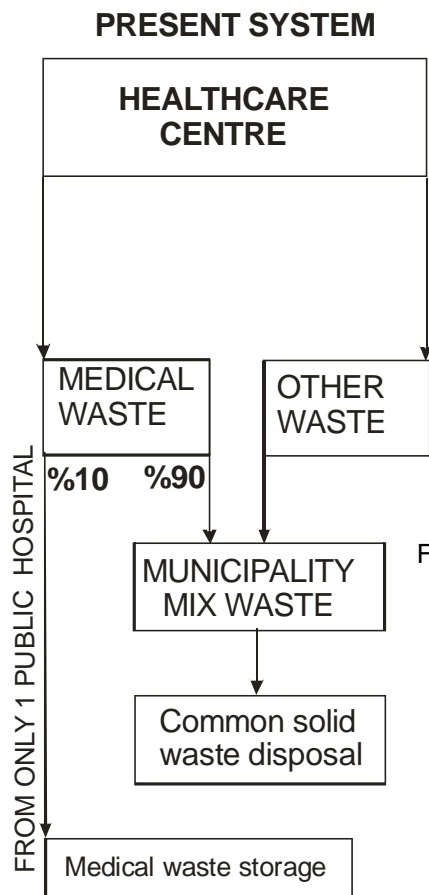


Fig 5.4. Medical waste disposal – present system

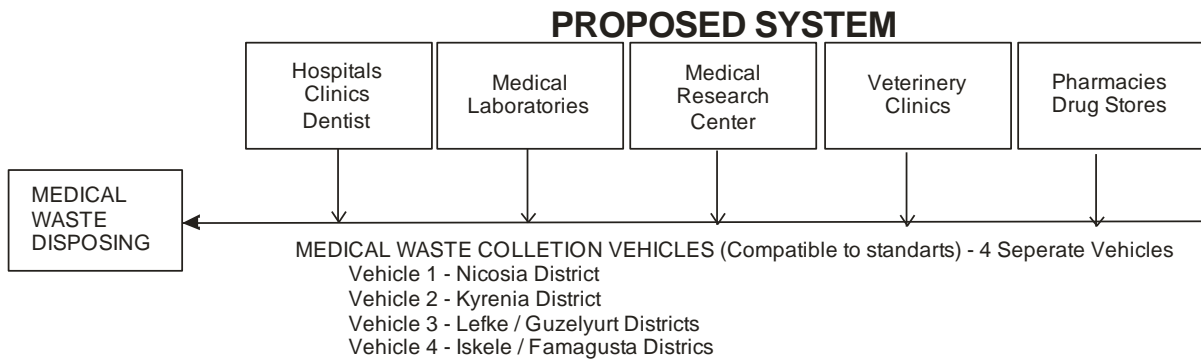


Fig 5.5. .Medical waste disposal Proposed system- MEDICAL WASTE AUTHORITY

Bio Medical Waste Facts



PHOTO 5.3. Medical Waste truck (in front) and Pandemic center (at the back)

5.5. HOSPITAL AND CLOSE SURROUNDING

5.5.1. General Information

There are three types of hospitals in the Northern part of Cyprus.

1. Government (Public) Hospitals, health centers
2. University hospitals and Private hospitals
3. Private medical clinics

Under the Hospital and Close Surrounding heading, there are a lot of topics that need to be developed. Main topics can be listed as:

- Hospital Organisation
- Healthcare system
- Appointment system

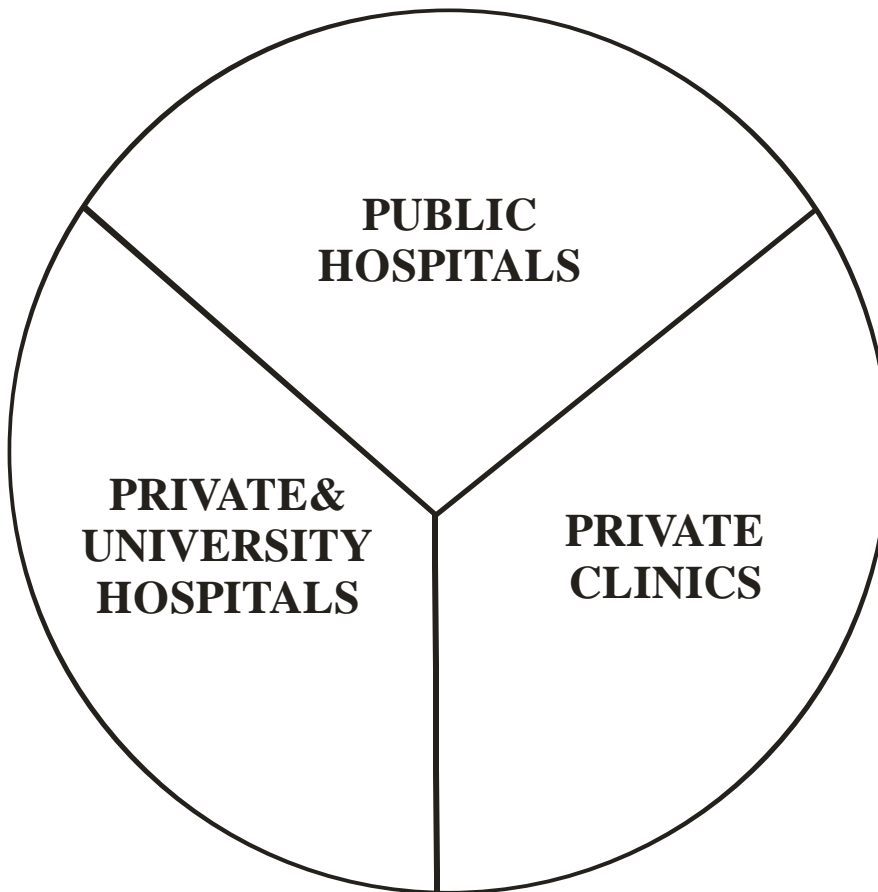


Fig 5.6. Hospital types in Northern Cyprus

Parallel to hospitals, the physicians are also categorized into 3 groups

* Physicians working in public hospitals

* Physicians working in private hospitals

* Physicians working in their own clinics



Fig 5.7. Employees and social security in Northern Cyprus

There is great competition among physicians working in different groups of hospitals.

The Physicians employed in public hospitals, are working part-time in the public hospital and they are allowed to work in private hospitals for the rest of the day Also they can operate their own clinics, even it is illegal. The Physicians operating their clinics say that this situation is a very big unfair competition.

This situation is a result of the social insurance (social security) system of the country. There are 2 kinds of retired persons in the country. Retiring from the government (public services) and retiring from the private sector.

There are also different types of medical treatment and medical check-up method.

The social security system does not pay the visit to the physicians working in the private sector. Only the visits to the public hospitals are being paid.

Regarding the hospitals is a part of the whole social system of the country, this situation leads us to the competition of private doctors - public doctors and public workers- private-sector workers.

When we try to propose an idea for occupational safety and health in the hospitals, we better review this competition.

In the previous paragraphs, we've got some information about the whole social system and the whole health system in TRNC. Now we shall look at the hospitals and close surrounding.

Regarding hospital and close surrounding, the situation about occupational safety and health needs some improvements, about:

- Medical waste (Described under 4.3.)
- Occupational Safety and Health Committee and other topics

Table 5.2. below, shows the results of a questionnaire about OSH applications at some hospitals in Northern Cyprus.

TABLE 5.2. OSH questionnaire among hospitals (Evaluation excludes the Government hospitals)

Nr	Question	Yes	No	Partly	Alternative
1	Is the OHS law and all legislation available	%0	%50	%25	%25 (Online reading the law)
2	Workers training	%25	%0	%75	%0
3	Is there OHS inspection		%50		%50 only for hygiene
4	Activities for risk control hierarchy	%50 PPE	%25	%0	%25 only during inspection
5	Are there working instructions of workers	%75	%25		
6	Is there a valid risk assessment Report	%0	%75	%0	%25 it is invalid
7	Is there a workers' representative	%0	%75	%0	% most veteran person
8	Is there a OSH Committee,	%0	%75	%0	%25 All staff meets together
9	Have appropriate precautions been taken so that only employees with sufficient information and instructions can enter private areas where serious danger is known	%75	%25		
10	Is there any OSH Professional in the hospital	%0	%75	%0	%25 ISO Officer
11	Can the OSH experts access the information of the workers and their employers	%75	%25		
12	Are the duties and responsibilities defined clearly to avoid the OSH risks	%25	%50	%25 (not written)	
13	Are the PPE provided	%100	%0	%0	
14	Was any workplace accidents happened b4	%0	%100	%0	
15	Is there an emergency plan for the hospital	%100	%100		
16	Was any simulation exercised?	%0			
17	Are the escape signs in place?	%50	%50		
18	Are the emergency teams established?	%25	%75		
19	Is the emergency "Meeting Point" present?	%50	%50		
20	Are the employees receiving periodical health control?	%50	%50		
21	Are the MSDS forms of the chemicals exist	%25	%75		
22	Are there any OSH measure for patients	%0	%50		%50 informing during registration
23	Are there any OSH measure for visitors	%0	%50		%50 informing during registration
24	Do you collect medical waste separately from other waste	%100			
25	Does the municipality collect them separately or mix them together	%100			
26	Do you have electrical grounding?	%100			
27	Is there periodical tests for electrical grounding	%50			%50 there is no record

As we can see in the above table 5.2. There is a lot of impropriety according to the

Occupational Safety and Health legislation. These improprieties are the result of:

- Lack of the classification of the hospitals
- Insufficient inspections of the hospitals
- The necessity of the codes to operate the hospitals
- Lack of an updated healthcare control system

For Hospital Organisation Chart about Occupational Safety and Health, we propose the following chart

OCCUPATIONAL SAFETY AND HEALTH ORGANISATION IN A HOSPITAL (proposal)

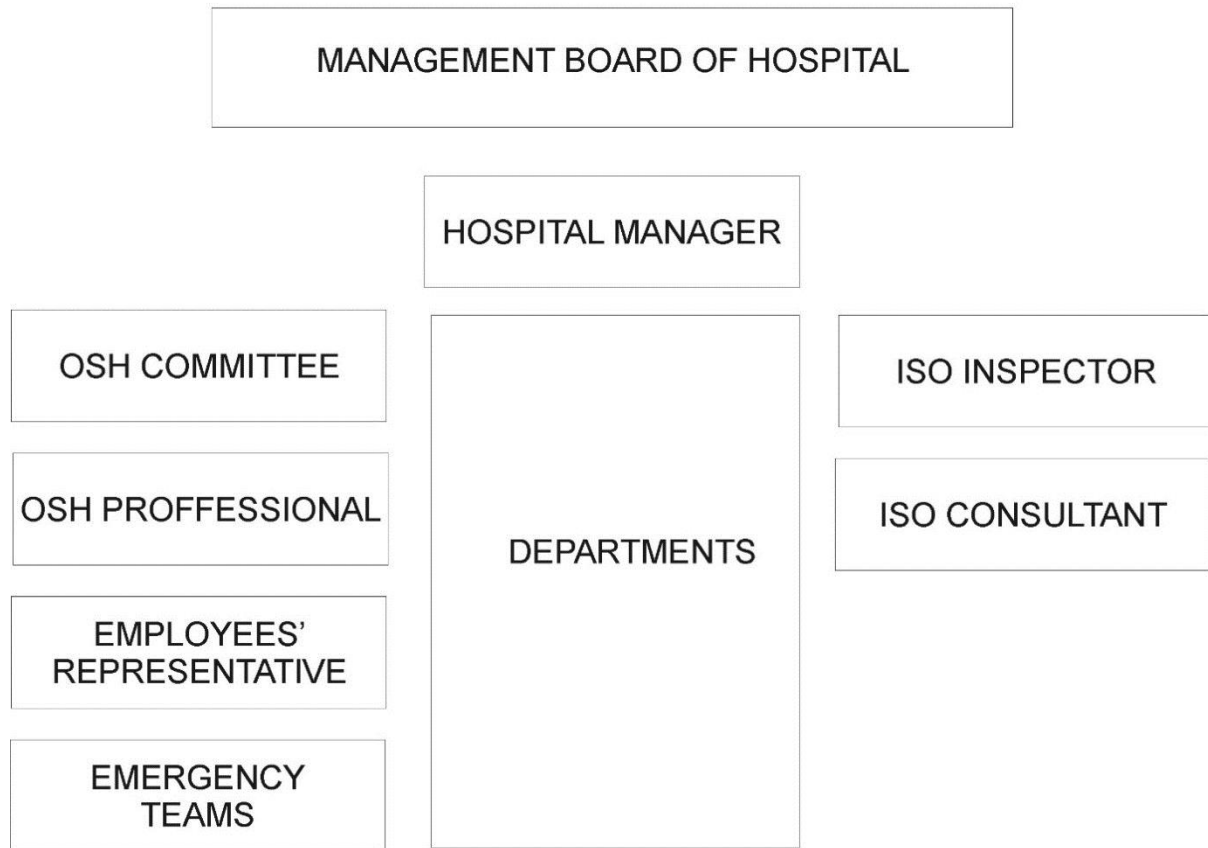


Fig 5.8. Hospital organization chart for occupational safety and health (Proposal)

In this stage, we can propose a new approach to the hospitals and health management

5.5.2. Proposed Healthcare System

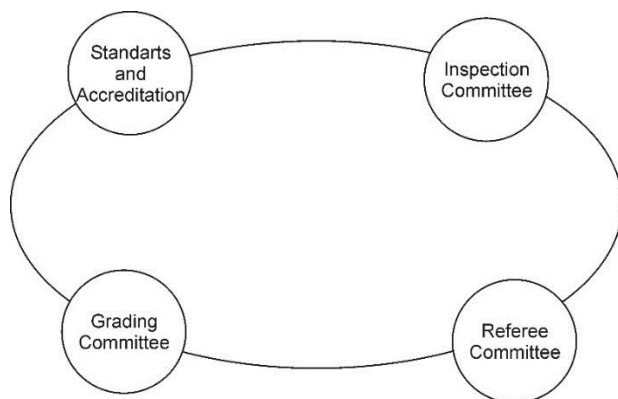


Fig 5.9. Healthcare System (Proposal)

PROPOSAL FOR THE HEALTHCARE SYSTEM

To start to describe our proposal, we shall start with the standards and accreditation. During the interviews with the presidents of some health NGO's and hospital managers, we learned that there is not a classification system among hospitals in the northern part of Cyprus. So, we can start with the standardization and accreditation. After we have a body for this purpose, we need an organization to control if the hospitals are operating compatibly with the standards. Another body will discuss the situation and produce a report. The last body will approve the grade of the hospitals. Any objection can be submitted to the referee commission. The Hospital operator can apply to the court against the decision.

After giving a general view of the proposed system, we need to give some details about the foreseen bodies on the chart

1. Standards and Accreditation
2. Inspection Committee
3. Referee Committee
4. Grading Committee

Standards and Accreditation First Unit in the system is a Standards and Accreditation unit.

This unit will not put standards. Just specify which standards should be needed or present.

Hospitals will be accredited if they have enough certificates or standards such as ISO certificates or JCI requirements. Also, local legislation and inspection results will be checked.

The task of the Standards and Accreditation Unit is to prepare a checklist that will be used by the Inspection Committee. This application will provide a scale. There will be points on the scale and the class of the hospital will be determined by the given point. The points will be given by the Inspection Committee.

Standards and Accreditation Unit may consist of the following organizations

1. Ministry of Health
2. Ministry of Labor
- 3.. Union of the Physicians
4. Cyprus Turkish Nurses Association
5. Association of the Occupational Safety and Health Professionals
6. Private Physicians Association
7. Cyprus Turkish Chemistry association
8. Agency of Occupational Safety and Health
9. Society of Universal Patients Rights
10. Association of the Private Hospitals
11. Association of Chemistries
12. Representative of workers trade union
13. Representatives of the Union of Universities
14. Union of the Chambers of the Cyprus Turkish Engineers and Architects

The unit will work voluntarily. There will not be any payment. They will prepare their working instructions and program. The members of the unit will be changed at the end of 2 years.

b. Inspection Committee

According to our proposal, the Inspection Committee may consist

of :

- a. Ministry of Health
- b. Ministry of Labour
- c. Union of Physicians

- d. Society of Universal Patients Rights
- e. Association of the Private Hospitals
- f. Association of the Occupational Safety and Health Professionals
- g. Cyprus Turkish Nurses Association

The Inspection Committee will prepare their working program, the members of the committee will work for 2 years.

The committee will perform the inspection relevant to the checklist which had been prepared by the Standards and Accreditation Unit. They will prepare a report for the inspection and an evaluation report. If there is any serious application, the Inspection committee will report this to the referee committee.

Any complaint will be included in the task program and need to be inspected as soon as possible.

c. Referee Committee

The Referee committee will work upon the report of the Inspection Committee. They will examine the reports and if they need they will contact the hospital and collect information before deciding.

The Referee committee may consist of the following members

- a. Ministry of Health
- b. Cyprus Turkish Medical Association
- c. Association of the Private Hospitals
- d. Association of the Occupational Safety and Health Professionals
- e. Private Physicians Association

Grading Committee Any organization (University, company, foundation, etc.) which is operating a hospital, should apply for a grade to the Standards and Accreditation Committee.

The committee accepts the application and gives a guide to the applicant. In this guidance,

the codes of hospitals (Which contains the checklist of the Standards and Accreditation Unit)
. a memorandum of understanding is signed by the applicant and the authority (Grading Committee). When all the preparations are completed, the organization applies to the committee again. The committee informs the Inspection Committee An inspection arranged and the report is submitted to the Referee Committee. The Referee Committee evaluate this report and submit the decision to the Grading Committee.

Grading Committee may consist of:

- i. Ministry of Health
- ii. Cyprus Turkish Medical Association
- iii. Lawyers Bar association

The organization should be included in the law before starting to be applied.

The organization is not authorized to apply any punishment, it stands just defining the grade (Class) of the hospitals.

5.5.3. Registration and Appointment System

REGISTRATION AND APPOINTMENT SYSTEM

PRESENT SITUATION

APPLICATION FOR APPOINTMENT
BY TELEPHONE OR FACE TO FACE

Not possible to give daily appointment
Any person is sick, cannot see the physician

APPOINTMENT IS GIVEN
FOR 7-30 DAY LATER
FOR EXAMPLE 24th of October

30 patients get appointment for the
same day for each physician

All of these 30 patients are requested to come
on 24th October at 08.30 for
confirmation registering

About 20-25 physicians are serving in the
hospital, it means at least 600 people will meet
on the 24th Oct, in a small area

Fig 5.10. Registration and appointment system (Present situation)

The necessity of the reorganization in registration and appointment system is necessary because the

present system contains some risks in the hospitals. As it is known very well, social distance cannot be protected in crowded areas. In the hospital environment, this is the main problem.

The proposal system will be helpful to prevent crowded people in small areas.

PROPOSED SITUATION

APPLICATION FOR APPOINTMENT
BY TELEPHONE OR FACE TO FACE

If the system (KKS) applied, it will be possible to give appointment in 10 days.
Daily appointment will be possible for private clinics

APPOINTMENT IS GIVEN
FOR 10 DAY LATER
FOR EXAMPLE 24th of October

30 patients get appointment for the
24th October for each physician

Patients will get appointment for 24th October
Starting at 08.30 and 15 minutes apart
for confirmation registering

Since 600 persons will be spreaded through the day,
the number of patients who will meet in the hospital
will be lowered to about 100 people .

Fig 5.11. Registration and appointment system (Proposal)

5.6.EMERGENCY / PANDEMIC CASE

Regarding emergency, especially the government hospitals have a lot of problems. First, we shall have a look at the previous emergency events which affected Burhan Nalbantoğlu General Hospital in Nicosia which is the biggest hospital of TRNC.

This Hospital faced a lot of emergency cases in the last decade. In 2010, because of a great flood, most departments of the hospital could not serve for more than 2 months.

In 2020, there have been two fires which affected the functions of the hospital and one of them resulted in two death.

5.6.1. Explanation of the emergency events

FLOOD:

2009/ 2010 it was a rainy winter. The winter was so heavy that, most parts of the island occupied by the flood. Because of some departments of the hospital had been constructed into an old riverbed, these departments were covered by water about 1 foot high. Equipment was damaged, these departments closed, the patient could not get service for months.



PHOTO: 5.4. The floor was covered with water by 1 foot high

Source:

<https://www.kibrispostasi.com/c35->

KIBRIS_HABERLERI/n34267-

26/02/10 18:5418/11/19 19:52



PHOTO 5.5.

Emergency service underwater

FIRES:

The 2020 year will be remembered with the COVID 19 pandemics by the whole World. But for the Burhan Nalbantoğlu General Hospital of Nicosia, 2020 contains a lot of happenings.

The Coronavirus had been spread into most countries during the first two months, but in North Cyprus, the lockdown started at the end of March.

Just before 3-4 weeks of the lockdown, a fire broke out in the hospital. About 2 months later, another fire took place.

FIRST FIRE : 2 patients died.



Source: <https://www.milliyet.com.tr/galeri/hastanede-buyuk-panik-2-kisi-oldu-6155009/1>

DHA -• 28 Şubat 2020 - 16:23• Son Güncelleme: 28 Şubat 2020 - 16:23

The Fire started at 06.30 local times on the second floor, there had been a great panic, some patients rescued by firefighters, some others carried downstairs through stairs, the minister declared that 2 patients died and 300 patients transferred to the other hospitals.

PHOTO 5.6. First fire in Hospital

President of the Union of the Physicians declared that there was not any escape/ evacuation plan Nobody knew who would close the oxygen valve, who will turn the electricity off etc. (<https://kibriswebhaber.com/tedbirsizlik-ve-ihmal-141161.html>),

The Universal Patients Rights Association in North Cyprus declared that the authority has failed to manage the emergency situation. The rights of the patients were **contravened** in health services.

(Source: <https://gazeddakibris.com/ehhd-hastalarin-yasam-hakki-ihlal-edildi/>)

SECOND FIRE took place on the 24 th April 2020 at the laundry. Hospital workers used fire extinguishers and managed to put the fire off. Electrical accessories and the electric motor of the laundry machine were damaged.



<https://www.gundemkibris.com/kibris/nalbantoglundakorkutan-yangin-h293927.html>

PHOTO 5.7 Second fire in 2 months

5.6.2. The Situation

The above details about flood and fire show that there are some problems or missings in hospital management. This is the biggest hospital of TRNC in which 1 million persons come to get service. The community cannot afford the closure of this hospital.

If we analyze the situation we can prepare a list for the incompatibility

- Lack of OSH professional / or OSH service
- Lack of the escape/ evacuation plan
- Insufficiency or lack of training of employees against emergency conditions
- Lack of maintenance program and insufficient maintenance of the system/ equipment
- The negative effect of being a government organization. Officials usually hope that somebody else will come from outside to fight with the emergency event.

(Firefighting services, civil defense, etc)

This list may go on and on. The main thing is if we got a lesson from the past.

We got the chance to test if we could get a lesson during the pandemic. Let's look at it.

5.6.3. Pandemic Hospital

You can read the speech of the prime minister at appendices. Here we shall look at the statements of the NGOs about the construction.

Discussions started with the first positive corona case. There is not any pandemic hospital on the island. We had to decide on the subject very quickly. The government decided to build a new hospital for this purpose, in an urgent way.

Research showed that about 2 months was needed to build the hospital. For these 2 months, a building should be reserved for this purpose. A private hospital has been hired for this purpose, but a few weeks later the decision changed, new quest progressed, the decision changed for a few times and in the end, the General Hospital started to be used as the pandemic hospital. The construction of the new pandemic hospital started after 5 years. At this moment, the general hospital is still being used as a pandemic hospital. There are some objections to the new hospital. Such as:

The land is in a river bed. A new flood may affect the hospital.

Besides the problems with the land, the usage of the general hospital as a pandemic hospital means that the other functions of the hospital will stop. This means the hospital will not serve as long as the pandemics. Thus;

1. Department of chronic disease such as diabetics, heart illness, etc
2. Emergency service
3. Polyclinic services

Will stop giving service during the pandemics.

This situation will contradict the aims of the hospital which have been described in section 4 and with the criteria of WHO, which have been described in section 5.

A different hospital or suitable building should be selected as a pandemic hospital. It means we did not get enough lessons from the past.

SECTION 6: CONCLUSIONS

There are a lot of hazards and risks for the employees, patients, and visitors in Hospitals.

COVID19 showed us that hospitals should be ready for all kinds of hazards, as WHO says, even to the hazards of climate change. Otherwise, The health system may collapse, thousands of people may die and we can lose health care workers which are in a fight to save the sick people. That means, we have to make the hospitals safer workplaces.

In this study we examined some hospitals, inspected the physical situation, system, and developed five proposals for the health system of TRNC.

Also, we prepared some proposals for the hospitals, for the health system, and for the whole social system of the country. The proposed idea is listed below.

1. How the patient reach the medicine
- 2.Managing medical waste
- 3.Occupational Safety and Health Organization in hospital
- 4.Healthcare system
5. Registration and appointment system

I hope these proposals will help to establish safer hospitals in TRNC

7. REFERENCES

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<https://dergipark.org.tr/en/download/article-file/674913>

https://www.who.int/occupational_health/regions/en/oeheurcountryprofiles.pdf

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<https://www.gundemkibris.com/kibris/nalbantoglundu-korkutan-yangin-h293927.html>

<https://www.kibrisadahaber.com/100-yatak-kapasiteli-hastanenin-iki-ay-icinde-tamamlanmasi-hedefleniyor-263995h.htm>

<http://bndh.gov.ct.tr/tr/kurumsal/hastane-istatistikleri>

www. 100 yatak kapasiteli hastanenin iki ay içinde tamamlanması hedefleniyor

<https://www.merriam-webster.com/dictionary/emergency>

8. APPENDICES (additional details, published papers)

8.1. Prime-Minister's visit to Pandemic Hospital

<https://www.kibrisadahaber.com/100-yatak-kapasiteli-hastanenin-iki-ay-icinde-tamamlanmasi-hedefleniyor-263995h.htm>

27.08.2020 18:13

Prime Minister Ersin Tatar Nicosia Doctor Burhan Nalbantođlu made observations in the Emergency Hospital area behind the State Hospital, where construction work started.



PHOTO 8.1. Prime-Minister's visit to for the Pandemic Hospital

Prime Minister Ersin Tatar; Turkey's Ambassador to Nicosia with Health Minister Ali Ali Murat Bařcer observing activities in the field along with battery-powered, received information.

Source : [www.100 yatak kapasiteli hastanenin iki ay içinde tamamlanması hedefleniyor](http://www.100-yatak-kapasiteli-hastanenin-iki-ay-icinde-tamamlanmasi-hedefleniyor)



Appendix:8. 3 Introduction of the Organisations suggested to take part in the proposed system

1. Cyprus Turkish Nurses and Midwives Association

Web: <https://ktheb2017.wixsite.com/cyprus> Tel: 90 392 3301131

2. Cyprus Turkish Bars association

<https://www.kibrsturkbarolarbirligi.org/> ktbarolarbirligi@kibris.net

Tel: +90 392) 227 08 41

Fax: (+90 392) 227 08 40

3. Union of the Physicians

<https://www.kttb.org/>

info@kttb.org

Tel: 0 392 223 39 90 – 80 – 82

Faks: 0 392 223 39 89

4. Association of the Occupational Safety and Health Professionals

Facebook: isg-bir kibris

5. Private Physicians Association

<https://ktschb.com/>

Tel: 00 90 548 860 88 88

6. Cyprus Turkish Chemistry association

www.kteb.org

Tel 00 90 392 224 06 22

7. Agency of Occupational Safety and Health

8. Universal Patient Rights Association

www.ehhd.eu

Tel : 90 392 228 83 37

9. Association of the Private Hospitals : Tel : 0533 840 9383

10. Union of the Chambers of the Cyprus Turkish Engineers and Architects

<http://www.ktmmob.org/>

Tel : 0392 228 5151