Rational criteria and ethical principles of healthcare sector human resources organizing regarding to COVID19 pandemic

The grid of analysis and organization of activities within the specific interventions

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Argument

The different impact of COVID19 on different people categories, identified by a set of variables, is indicated by a whole series of researches, being a part of the public strategies of fighting against pandemic. In these conditions, the extension of the impact differences principle on healthcare system staff, according to the variables identified as relevant, the analysis of potential consequences, the establishment of impact hierarchization criteria and organizing the healthcare sector staff interventions according to these criteria, is a part of the approach based on proofs strategy. With other words, in the fight against COVID19 pandemic, the rational allocation of resources involves taking into consideration the relevant variables, including of those who targets the one mobilized in the first line of this fight: HEALTHCARE SECTOR STAFF.

The elaboration of this grid takes into consideration the obligation to rational assign/organize the human resources from healthcare system, based on the existing evidence and also on the need of ethical criteria organization of healthcare sector staff in the context of COVID19 pandemic.

The proposed grid of risks hierarchization simultaneous satisfies two categories of interest:

A. *The group interest of healthcare sector staff*. This is about identifying the solutions for homogenization of assumed risk of those involved in this fight, taking into consideration the multiple variables that occur meanwhile.
B. *The general social interest*, represented by the rational allocation of resources.

Methodology

Regarding to this proposal, we refer to the following existing differences between healthcare sector staff (each one generating specific levels of intervention):

1. The risk of contamination is different, according to:
   - Proximity to COVID19 infected patients. We use three scales to assess the degree of proximity to the source of infection risk.

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- The professional category of the employee. The professions who work directly with the COVID19 infected patients are ranked by the risk derived from the frequency of the presence near patients and the professional carried out procedures. In hierarchizing of this risk, we also took into consideration the recommendations made by the European Centre for Disease Prevention and Control[2] regarding the personal protective equipment, considering the number of used equipment as an indicator of the assumed risk.

2. The mortality risk is different according to two sets of variables:
   - *Demographic:* Two variables have been recognized until now as giving different mortality risk in the infection cases with COVID 19:
     - Age;
     - Gender.
   - *Health status.* Studies[3] have revealed until now 5 general categories that cause a significant increase risk of mortality.

If the healthcare staff contamination risk is the same for the same workplace and same professional category, mortality risk in case of contamination, assumed by each one of the healthcare sector employees is variable, depending on the relevant demographic and health status variables. An ethical and rational approach of this situation means a uniform distribution of the risk, taking into consideration all the relevant variables.

If the mortality risk is different depending on demographic and health status variables, than the risk to develop the severe forms of the disease is in the same situation. The risk of developing the severe form of the disease brings along the necessity to mobilize the necessary treatment resources. The exposal of high risk of contamination and high risk of mortality healthcare system staff increases the level of necessary resources for COVID 19 fight. In other words, it constitutes a rational approach from the general social interest perspective the different exposure to the risk of the health personnel (in the sense of reducing the level of exposure proportional to the increase of the risk of mortality) according to:

- Age;
- Pre-existing conditions;

3. Differences between family variables. The discussion is related to:
   - Possible differences between consecutive social costs;
   - The possibility to use family variables as being ethical criteria;

Presentation of *the risk analysis grid*

From an analytic perspective, useful for the understanding of practical dimension, the grid of risk analysis takes into consideration 4 data categories:

1. *Demographics;*
2. *Health status;*

[2] Personal protective equipment (PPE) needs in healthcare settings for the care of patients with suspected or confirmed novel coronavirus (2019-nCoV) https://www.ecdc.europa.eu/sites/default/files/documents/novel-coronavirus-personal-protective-equipment-needs-healthcare-settings.pdf

[3] Vital Surveillances: The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) — 2020[J]. China CDC Weekly, 2020, 2(8): 113-122. http://weekly.chinacdc.cn/en/article/id/e53946e2-c6c4-41e9-9a9b-fea8db1a8f51

3. *Professional;*
4. *Social.*

I. Demographic criteria

This category takes into consideration 2 demographic variables, considered as relevant by Control Center of Diseases from China[4] (we will use CCDC as abbreviation):

1. The age, organized by 4 categories of age;
2. Gender.

The risk percent for each variable category was calculated according to the COVID19 associated mortality indicators, taking into consideration the data from CCDC study. In order to fit these variables in the assembly of risks analysis, we took into consideration the following distribution per demographic variable of the possible total score:

- Age: 20 points;
- Gender: 10 points.

The grid of risk analysis related to relevant demographic criteria:

		Risk score
Age	over 60 years	20
	50-59 years	7
	40-49 years	2
	under 40 years	1
Gender	Male	10
	Female	6

II. Health status criteria

The grid for health status data takes into consideration healthcare sector staff pre-existing conditions, relevant from the perspective of COVID19 associated mortality indicators, as it was reported by the CCDC study. The conditions considered as relevant are:

- Cardiovascular disease;
- Diabetes
- Chronic respiratory disease;
- Hypertension;
- Cancer.

The total score for this category (20 points) was distributed according to the percentage associated to each condition category[5].

[4] Vital Surveillances: The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) — 2020[J]. China CDC Weekly, 2020, 2(8): 113-122, http://weekly.chinacdc.cn/en/article/id/e53946e2-c6c4-41e9-9a9b-fea8db1a8f51

[5] We mention that this data category is very sensitive to new proofs, needing to be readjusted according to those proofs.

The grid of risk analysis related to health status:

		Risk score
Health status	Cardiovascular disease	20
	Diabetes	14
	Chronic respiratory disease	12
	Hypertension	12
	Cancer	11
	None	1

Because we can't exclude the possibility that an employee has multiple relevant conditions (which brings along a higher risk level), we let the possibility to accumulate the score for each one of them.

III. Professional criteria

This category is organized by two relevant criteria for the implemented activities specific to COVID19 pandemic, respectively for the risk variation resulted from this activity:

- The workplace;
- The professional category.

The total score for this category is 40 points, distributed equally between the two relevant variables.

1) *The workplace takes into consideration different distribution of professional risks, according to:*
   a. The level of proximity to COVID19 infected or suspicious to be infected patients;
   b. Specific procedures (the risks associated with these)- the case of ICU.
2) Professional category takes into consideration the variation of the risk according to professional attributions/gestures.

In order to develop and hierarchize the categories of each variable, we took in consideration professional acts for each staff category and we reported to the risk analysis which is involved by the need of personal protective equipment proposed by the European Centre for Disease Prevention and Control[6]. We have also referred to the published recommendations of National Institute of Public Health „Rational use of PPE in the context of COVID 19" [7].

The grid of professional risk analysis

		Risk score
Workplace	Direct contact with COVID19 infected patients- ICU	20

[6] Personal protective equipment (PPE) needs in healthcare settings for the care of patients with suspected or confirmed novel coronavirus (2019-nCoV) https://www.ecdc.europa.eu/sites/default/files/documents/novel-coronavirus-personal-protective-equipment-needs-healthcare-settings.pdf

[7] National Institute of Public Health, Rational use of PPE in the context of COVID 19 pandemic, http://www.cnscbt.ro/index.php/informatii-pentru-personalul-medico-sanitar/1476-utilizarea-rationala-a-ppe-in-contextul-covid-19/file

	Direct contact with COVID19 infected patients	15
	Contact with patients with infection suspicion or unknown situation (including ICU/E.R.)	10
	Contact with patients without infection suspicion	5
Professional category	Nurse	20
	Doctor	15
	Infirmieră	10
	Caretaker	5
	Other professional categories involved in medical activities (eg: sampling/laboratory analysis)	5
	Other professional categories	1

The grid of analysis according to professional categories takes into consideration the variations of the risk according to official attributions of different professional categories and the mandatory amount of time near the patient, reported to the specific of this pathology.

IV. Social criteria

This one has a total score of 10 points, distributed by 7 categories. They take into consideration the familial situation of the employee and this one is being analyzed from two points of view:

- The impact of the familial situation on the professional life of the employee;
- The impact of the potential consequences related to the assumed risk of the employee on his family[8].

The grid of social criteria risk analysis

		Risk score
Familial situation	With minor children (0-9 years) and the only financial provider	10
	With minor children (10-16 years) and the only financial provider	8
	With minor children (0-9 years)	6
	With minor children (10-16 years)	4
	The only financial provider	4
	Both spouse employees of healthcare sector	2
	Other situations	1

[8] Because introducing some extra-professional elements in the risk analysis can raise some questions, can be useful the attempt to exemplify the relevance of this criteria. The example of the situation of Ministry of Internal Defense Emergency Hospital "Prof. Dr. Dimitrie Gerota" is relevant: one patient infected with COVID 19 forced into quarantine all the healthcare staff from the hospital. So we can imagine the drama for an employee with a single-parent family, including his kids.

The use of the grid

The general use of the grid of analysis is indicated by the two dimensions of it, as indicated in the Argument: rational allocation of the resources, in the same time taking into consideration the necessity of ethical criteria for organization the healthcare system staff activity, respectively assuming the risk.

General recommendation: the employees with a very high-risk score are preferred to be moved in the second line of action from the point of view of risk. The principle is also applies to different scenarios of risks based on unavailability of different percent of staff as the result of contamination.

The construction of the analysis grid allows:

- A general analysis of the situation (at departments level and hospital level) and hierarchization according to that, using the whole grid;
- Different application of each variable category, according to the concrete necessities and collective decision. For example, to organize each professional category from the same workplace, professional criteria aren't relevant anymore[9].

From organizational perspective, the hierarchy established according to the grid is recommended to be used for each professional category. With other words, the concrete staff needs in each healthcare unit can lead to situations where in the same workplace, staff from different professional categories with significant differences in the risk score, is being kept.

We didn't propose imperative limits, respectively levels of our scores which recommend moving healthcare staff in no-risk workplaces, leaving to the appreciation of the Health and Safety Work Committee the decision in this case. Although we consider relevant this kind of limits, we take into consideration the reality of existing some big variations between the available resources from different healthcare units and also the unpredictable of the pandemic evolution in different areas, these imposing a higher level of flexibility.

Possibilities and limitations

Mainly, must be taken into consideration the necessity of an analysis grid, which allows a transparent approach of the problem given by the allocation of healthcare staff criteria. In other words, we don't claim the pretention that we gave the best possible grid of analysis, meanwhile considering that the existence of a grid (this one), significantly increases the rationalization and equity level of human resources organization, compared with the absence of any other organization criteria.

Because the proposed model is based on public proofs existing in the time of its publishing, it is sensitive according to proofs changes.

Although the Italian authorities reported discrete different percentages[10] of mortality on age criteria, we preferred considering more conclusive the ones from China, using it as reference

[9] Because in this case each employee comes from the same professional category and same workplace.

system. For comparison, we created a score grid taking into consideration the mortality statistics from Italy[11].

The analysis grid based on the healthcare sector professional category is not sensitive to non-formal attributions/non-formal transfer of attributions between professional categories. Also, it can't adequate the evaluation to eventually situations of system „neo-feudalism" [12].

Demographic data should also take into consideration possible differences in the risks of contamination. We couldn't assess this because we couldn't identify the relevant data at this moment.

Bibliography

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[10] http://www.iss.it/documents/20126/0/Infografica_15marzo+ENG.pdf/791a803e-78bd-0c3e-eecb-0ff1826fa457?t=1584298825219

[11] The score which would result by reporting to mortality rate by age, reported by the Italian authorities:

	Risk score
Over 60 years	20
50-59 years	6
40-49 years	3
30-39 years	2
under 30 years	1

Male	10
Female	7

[12] For example, failure to comply with ethical criteria in establishing professional duties and tasks. From a functional point of view, however, the total score can be taken into account because all employees in this example will have exactly the same score in this category of criteria.