UN MEDICAL DIRECTORS
UN COVID-19 VACCINE OCCUPATIONAL RISK GROUPS PRIORITIZATION

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As part of the overall strategy for distribution of COVID-19 vaccines, the UN Medical Directors (UNMD) recommend that specific occupational groups receive prioritization for vaccination that takes into account their risk profile as it relates to their work. This approach aligns with the principle of *reciprocity* as outlined in the 'WHO SAGE values framework for the allocation and prioritization of COVID-19 Vaccination'. Reciprocity recognizes the obligations of the UN as a vaccine provider to those individuals and groups 'who bear significant increased risks and burdens of COVID-19 response' for the benefit of the UN family and those the UN family supports. From an Organizational perspective, prioritizing 'at risk' workers addresses each Organizations duty of care to provide staff with as safe a workplace as can reasonably be achieved. The objective is to ensure that those who are at increased risk, such as healthcare providers, vaccination staff, or frontline humanitarian workers are systematically identified and then prioritized for early vaccination if that is possible.

MATRIX METHODOLOGY

The Occupational Risk Matrix was developed using the following principles:

- It would be based on a WHO epidemiological risk profile of 'community transmission'[1]
- It would *not* include mitigation measures. The 'worst case' scenario was assumed given the variability of prevention/mitigation measures across organizations, locations, and functions.
- It would use broad categories of staff so as to not be onerous for individual duty stations to assess, categorize and count.
- It would follow a standard risk assessment methodology and focus on only two components:
  - The 'exposure dose' that the worker would commonly receive when exposed; and
  - The 'exposure frequency' that the worker would have.

Exposure dose: Describes the amount of virus that occurs with each contact. This includes considerations of *how close*, for *how long*, *in what environment* (such as indoors vs outdoors), and *with who* – i.e., is the contact a well person, a sick person, or is their status unknown.

Exposure frequency: Describes the number of contacts that occur with the work – the more contacts or the more 'social connectivity', the more likely transmission is to occur.

[1] Countries/area/territories experiencing larger outbreaks of local transmission defined through an assessment of factors including, but not limited to:
- large numbers of cases not linkable to transmission chains.
- large numbers of cases from sentinel laboratory surveillance or increasing positive tests through sentinel samples (routine systematic testing of respiratory samples from established laboratories);
- multiple unrelated clusters in several areas of the country/territory/area.

MATRIX OUTCOME

Using a simple 'two by two' format, the matrix identifies staff in three broad risk categories:

	HIGH 'DOSE' EXPOSURE	**LOW 'DOSE' EXPOSURE**
HIGH NUMBER OF CONTACTS	HIGH RISK	MEDIUM RISK
LOW NUMBER OF CONTACTS	MEDIUM RISK	LOW RISK

1. Those who are clearly at ***high risk***, such as medical staff dealing directly with patients. These occupational groups are usually exposed to a lot of virus from those who are actively unwell and shedding virus, and close up, and have prolonged or frequent contacts.

2. Those who are clearly at ***low risk***, such as those working from home or another safe environment who have infrequent contact with the public as part of their work or their commute. Their exposure is usually only to well people, is voluntary, occurs in a controlled manner and is relatively infrequent. In this group, the occasional exposure to those with unknown status would not elevate the risk from *low* to *medium*.

3. All other staff who are considered ***medium risk***. This middle group may be large and includes those with low dose exposure but to a lot of people, such as frontline community staff, and those with higher/longer exposure but to a lesser number of people, such as a driver. It recognizes the difficulty in accurately assessing risk when there is variation between different work groups, and within the same work group, and even day by day.

Whilst the *medium risk* group is less easily defined, it;

- Stems from simplicity in the risk matrix.
- Provides the greatest flexibility to individual Organizations to determine who amongst their staff are included this category for job descriptions unique to their Organization. Implied in this is that this flexibility:
  - Allows the Organization to assess and include how 'essential' a particular role is, and which the UNMD cannot assess, and.
  - Requires honest and considered decisions by Organizations of who to include.
- Recognizes that occupational risk is just one of a number of considerations when prioritizing vaccine (including age, country profile, and co-morbidities).
- Recognizes that too many occupational sub-categories are likely to become redundant in comparison to the logistic approach taken (for example in some locations it may be most appropriate logistically to just deliver all the necessary vaccines in one tranche rendering detailed prioritization of no value).
- Avoids unnecessary debate about which individual staff member or work group is at higher risk or has more need for the vaccine before others.

OCCUPATIONAL RISK MATRIX

Description	SAGE category	Exposure "dose" level	Exposure frequency level	Overall risk	Examples of roles
Medical, post-mortem, or laboratory related activities with contact with persons/fluids with known/suspected/possible COVID 19 ('patient care')	Ia	High	High	**HIGH**	**Most hospital or clinical workers with patient care roles for those with respiratory illness**
Work with COVID-19 patients in crowded, enclosed places without adequate ventilation or where aerosol generating procedures performed	Ia	(very) High	(very) High	**HIGH**	Clinic/hospital doctor, surgeon, nurse, other paramedical and support personnel
Physical examination and providing direct care for a known or suspected COVID-19 patient	Ia	High	High	**HIGH**	Doctor, nurse, physician assistant
Testing services using manipulation of respiratory samples	Ia	High	High	**HIGH**	Sample testing staff, laboratory technician
Handling stool, urine or waste, or cleaning equipment associated with COVID-19 patients,	Ia	High	High	**HIGH**	Clinic/hospital nursing, laboratory, technical, cleaning laundry and similar support staff
Transportation of patients known or suspected to have COVID-19 without adequate distancing	Ia	High	High	**HIGH**	Ambulance officers / drivers, Aviation officers conducting Casevacs and Medevacs
Physical examination of or face-to-face contact with patients *without* symptoms suggestive of COVID-19	Ia	Low	(very) High	**HIGH**	Clinic doctor, nurse, patient facing receptionist
Clinical staff providing vaccinations	II	Low	High	**HIGH**	Recognizes ill people may seek vaccination and downplay symptoms
Non-medical 'public facing' roles requiring frequent contact with persons with unknown status	III	Varies	Varies	**MEDIUM**	
Frequent close or relatively uncontrolled interaction with communities in crowded settings with limited physical distancing, numerous high touch areas:	III	Low	High	**MEDIUM**	Personnel with field activities such as refugee or CBT registration clerks, field monitor, community workers, food distribution, educators, etc
frequent and close interaction with general public or co-workers	III	Low	High	**MEDIUM**	Security officer, maintenance, drivers, cafeteria workers
Those required to live in close quarters	III	Low	High	**MEDIUM**	Troops
Emergency response	III	High	Low	**MEDIUM**	Security, other first responders
Non-public facing activities with infrequent contact with persons with unknown status	Not Class'd	Low	Low	**LOW**	
Can remote work / work from home / live at home or has only occasional controlled contact with public	Not Class'd	Low	Low	**LOW**	Telecommuting or remote work, administrative staff, 'backroom' staff

RECOMMENDATIONS

This document outlined the rationale for proposing a UN COVID-19 Vaccine Occupational Risk Matrix for assisting in prioritizing COVID-19 vaccine delivery. UNMD recommends:

- The matrix approach be used as part of the overall selection process for prioritization.
- The prioritization based on occupational risk be balanced against other significant elements such as age, health conditions, country factors, and logistic requirements.
- That prioritization be considered within the overall SAGE values framework

REFERENCES

- WHO SAGE Roadmap For Prioritizing Uses Of COVID-19 Vaccines In The Context Of Limited Supply, https://www.who.int/publications/m/item/who-sage-roadmap-for-prioritizing-uses-of-covid-19-vaccines-in-the-context-of-limited-supply, accessed 17 Feb 2021

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- Guidance on Preparing workplaces for COVID-19, www.osha.gov/Publications/OSHA3990.pdf accessed 17 Feb 2021

- Background paper on Covid-19 disease and vaccines (Draft), https://www.who.int/publications/i/item/background-paper-on-covid-19-disease-and-vaccines, accessed 17 Feb 2021

- The COVID-19 pandemic: major risks to healthcare and other workers on the front line, https://oem.bmj.com/content/77/5/281.long

- WFP/DHMOSH/IFAD Occupational Risk Matrix, https://www.nejm.org/doi/full/10.1056/NEJMp2013413