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COVID-19 Job Exposure Matrix
From the Mat-O-Covid Design to Its Execution

***To the Editor*:**

The COVID-19 crisis has created many public health challenges that have yet to be solved, particularly in the field of prevention at work. Companies have a major role to play in this outbreak.[1] Even if occupational exposures are not the main source of contamination, future epidemiological researches may have to consider this factor to better characterize prevention in at work.[2–4] Assessing transmission in an occupational setting is difficult, but a possible first step is to compute a job-exposure matrix (JEM) for SARS-Cov2 exposure.[5]

Indeed, JEMs are frequently used in occupational research in the absence of individual level exposure data or historical data. JEMs allow to estimate an individual's exposures using coded job titles which are converted into mean exposure estimates for epidemiological studies, as well as for prevention. The aim of the job-exposure matrix for SARS-Cov2 is to obtain a probability of occupational exposure to SARS-Cov2. For this, a five-point checklist was elaborated by the method group to construct the JEM: (1) what are the sources available (data or experts based JEM)? (2) What type of job classification should be used (International or National Standard Classification of Occupations, additional activity sectors)? (3) What exposure variables should be considered (probability, intensity, frequency)? (4) Should time and/or locations be considered (date/year, region)? (5) What prevention methods are used (distancing, ventilation, protection, vaccination)?

First, in the project "Mat-O-Covid" (Matrix-Occupation-Covid), considering at this point the lack of large dataset with documented occupational exposure, we have decided to start with an expert driven JEM, and then confront this JEM with a real life large dataset of seroconversion provided by the population-based cohort Constances.[6] Second, the French Classification of Occupations (Profession et Catégorie Socioprofessionnelles PCS 2003) will be used because we have developed a transcoding through International Standard Classification of Occupations 2008 (ISCO 08) and Standard Occupational Classification (SOC) System.[7] A special focus will be done on Care and Health activities. Third, variables considered will be the probability of contact with people (public/colleague) with uncertain coronavirus status, including inside Care and Health activities, and the probability of contact with people/sample known to have coronavirus. Fourth, we will also consider location and time factors which are associated with the circulation of the virus. Last, prevention methods will be added to the JEM because they might affect the probability of exposure to SARS-Cov2.

In addition to the usual limitations of all JEMs (global evaluation, difference within job groups), the main limitation of such approach is related to the importance of non-occupational exposure to SARS-CoV2 and the difficulties to assess prevention method. However, it is important to be clear that the objective is to construct a JEM on probability of exposure to SARS-CoV2 at work and not to consider the potential work-related transmission.

A "Mat-O-Covid" JEM with a probability of occupational exposure to SARS-Cov2 will have implications for public health research, and probably be confronted to real life transmission and others JEM built.

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REFERENCES

1. Fadel M, Salomon J, Descatha A. Coronavirus outbreak: the role of companies in preparedness and responses. *Lancet Public Health*. 2020;5: e193.
2. Larochelle MR. 'Is It Safe for Me to Go to Work?' Risk stratification for workers during the Covid-19 pandemic. *N Engl J Med*. 2020;383:e28.
3. Koh D. Occupational risks for COVID-19 infection. *Occup Med (Lond)*. 2020;70:3–5.
4. Descatha A. [COVID-19: Tribute to Health Care Warriors, to their occupational health units, and to their strategists]. *Arch MalProf Environ*. 2020;3:171–172.
5. Fadel M, Evanoff BA, Andersen JH, et al. Not just a research method: if used with caution, can job-exposure matrices be a useful tool in the practice of occupational medicine and public health? *Scand J Work Environ Health*. 2020;46:552–553.
6. Goldberg M, Carton M, Descatha A, et al. CONSTANCES: a general prospective population-based cohort for occupational and environmental epidemiology: cohort profile. *Occup Environ Med*. 2017;74:66–71.
7. Evanoff B, Yung M, Buckner-Petty S, et al. Cross-national comparison of two general population job exposure matrices for physical work exposures. *Occup Environ Med*. 2019;76:567–572.