# KCOR review by epidemiologist

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I am an epidemiologist and have been working in the field for approximately 12 years.

The safety of covid-19 vaccines has been under the spotlight, as [re-analysis](https://doi.org/10.1016/j.vaccine.2022.08.036) of trial data shows evidence of increased harm in the treated compared to the placebo group and [meta-analysis](https://doi.org/10.1093/epirev/mxae007) has also shown 10-fold increases in rates of myocarditis following injection in certain age groups.

To investigate the effects at a population level, anonymized unit record data has become available from sources such as the [Czech government](https://www.nzip.cz/data/2135-covid-19-prehled-populace). This allows researchers to test hypotheses related to the purported safety of vaccine roll-out policies. This dataset has information such as year of birth, vaccination (dose and brand), date of vaccination, gender, limited comorbidity information, and date of subsequent death.

As an epidemiologist, my usual approach to analyzing such data would be to use routine survival methods, which illustrate differences in cumulative survival between groups. Log-rank or Cox proportional hazard models are the standard tools of choice, as they yield both the magnitude of association and whether any differences are likely to be due to chance.

One drawback of applying such methods to the Czech dataset is unmeasured confounding. Covariate information is limited to gender and age, and a “healthy vaccinee” effect is likely, especially given the selective workplace mandates and vaccine passes during the covid era. Such policies would be expected to selectively bias vaccinated cohorts toward relatively healthy workers compared with, for example, the unemployed. Therefore, standard survival methods have limitations in this context.

Mr Steve Kirsch has developed an alternative method of analysis (KCOR) which assumes that early mortality is an indicator of a population’s unmeasured confounders. This information is then used to produce a time-dependent mortality ratio adjusted for confounding. I have reviewed the method and conducted a simulation with the help of Claude Sonnet (v 4.0). The method correctly estimates the mortality difference between the cohorts to one decimal place.

I believe the method shows promise as a means of estimating differences between different health policies when covariate information is sparse. For analyzing data such as from Czech government sources, where detailed comorbidity and cause of death information is not available, I'm not aware of any method that is likely to yield a more accurate result than KCOR. Assumptions are made about differential, time varying effects of the treatment. However, these may be considered alongside other evidence. Further exploration is warranted, in particular, using datasets with richer covariate information, to assess whether KCOR produces results consistent with more conventional established methods.

In summary, I believe the method shows promise and is a valuable contribution to the field.