

1. Methods for signal detection in spontaneous reporting systems should be chosen with knowledge of the population of interest, the exposures under study, and the composition of the database. No one combination of methodology and signal detection algorithm unilaterally outperforms others. (This thesis)
2. While ecological methods can be useful in the rapid assessment of vaccine safety, the ecological approach may fail to detect increased risk unless both coverage and the true relative risk of the event associated with exposure are high. (This thesis)
3. Single database studies, while relatively easy to implement, lack power to assess associations in sparse strata and to estimate the risk of rare events. (This thesis)
4. To increase transparency and efficiency and minimize heterogeneity, collaborative multi-database studies should be implemented using a common data model, common protocol, common analytics, and common case definitions. (This thesis)
5. In the absence of a causal association between a vaccine and an adverse event, presence of detection bias and differential exposure misclassification could partially account for elevated risk estimates in association studies. (This thesis)
6. The responsibility of the scientist is to move toward a truth with integrity, and to communicate this process as completely and honestly as possible. Only by behaving with this type of intellectual modesty can we hope to improve the lives of others through scientific research.
7. "Every explanation is after all a hypothesis."— Ludwig Wittgenstein
8. "Science can be described as the art of systematic simplification" — Karl Popper
9. "In 1736 I lost one of my sons, a fine boy of four years old, by the small-pox, taken in the common way. I long regretted bitterly, and still regret that I had not given it to him by inoculation. This I mention for the sake of parents who omit that operation, on the supposition that they should never forgive themselves if a child died under it; my example showing that the regret may be the same either way, and that, therefore, the safer should be chosen." — Benjamin Franklin
10. "The only way to the truth is through blasphemy."— Flannery O'Connor
11. "Ever tried. Ever failed. No matter. Try again. Fail again. Fail better."— Samuel Beckett