# Minutes of the Population-Level Estimation Workgroup

March 30, 2016, Western Hemisphere meeting

Sbusiso Mkhondwane, Jamie Weaver, Katherine Ryan, Patrick Ryan, Jon Duke

Martijn reopened the workgroup discussion by presenting his slides. In summary, Martijn argued that the results produced by observational research so far as reported in scientific literature are highly suspect. The primary reasons are (1) study bias, (2) publication bias, and (3) p-hacking. The objective of this workgroup is to clean up this mess, or more formally:

*Develop scientific methods for observational research leading to population level estimates that are accurate, reliable, and reproducible, and facilitate the use of these methods by the community.*

Martijn emphasizes that this objective extends beyond just the statistical methods and design used in a study, and also includes the process by which we select hypotheses to study, discipline in reporting multiple testing, and ways to communicate result to the end users.

Martijn listed many topics of interest for the workgroup, including:

* Best practices for estimation studies
* How to present and interpret results from estimation studies
* Should we not do single studies anymore?
* Should humans make analysis choices, or do we let the data decide?
* Overview of the current methods library
* Evaluation of methods
* Training on methods
* Funding and collaboration opportunities
* Whatever comes up for discussion

The definition of best practices is something that is expected to grow over time. Martijn has created a framework document that we expect to fill in through discussions in the workgroup:

<http://www.ohdsi.org/web/wiki/doku.php?id=development:best_practices_estimation>

Patrick noted that the definition of bias used by Martijn is broader than what most epidemiologists would use. We should be clear in communicating that we consider bias to be any systematic tendency of estimates to deviate from the truth.

Patrick also noted that Martijn’s original objective did not include the fact that we do not only want to develop new methods, but we also want to enable the community to use them. The objective has been modified to reflect this.

Jamie noted that if we can restore confidence in observational research we may see more journals accept papers where p > 0.05.

Patrick noted that Adler Perotte (Columbia University) is leading an effort to see whether we can replicate results from RCTs in observational studies, and this would also be an interesting topic for discussion in the workgroup.

Jon suggested we use some very concrete examples (e.g. diabetes studies, safety studies) to make the discussions in the workgroup more tangible. Perhaps we could create a recurrent theme throughout our meetings?