

EBMonFHIR to Make Evidence and Statistics Computable

The “Fast Healthcare Interoperability Resources (FHIR) for Evidence-Based Medicine (EBM) Knowledge Assets” (EBMonFHIR) project is an HL7 project to create an interoperability standard (standard for data exchange) to express biomedical evidence and statistics.

At the MCBK meeting on July 19, 2019 we shared the first working demonstration of how to create computable Evidence and Statistics summary. To “view” that demonstration please consider the following:

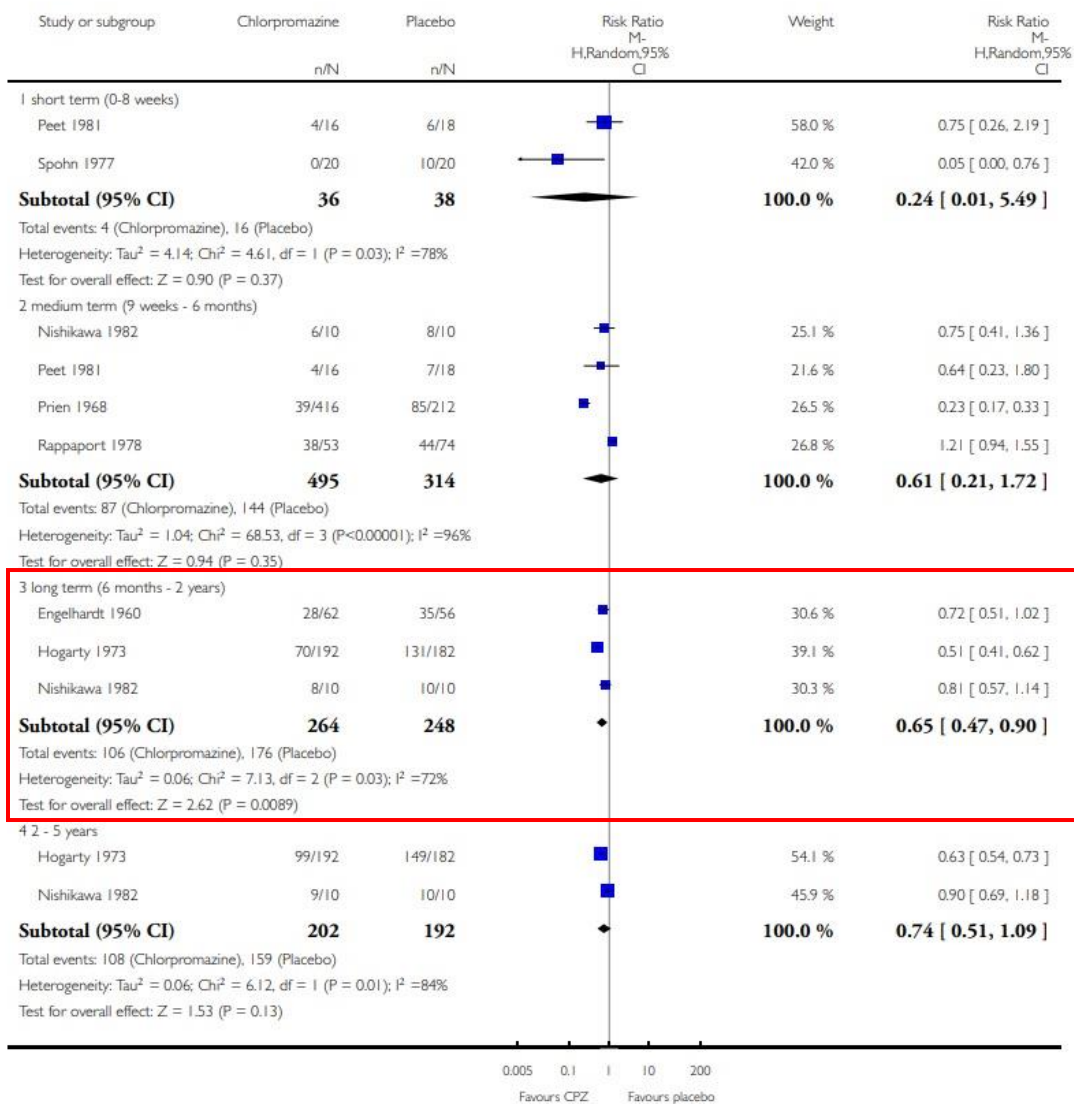
- 1) An example we demonstrated for data entry was Analysis 1.2 (part 3) from a Cochrane review (Study PMID: [24395698](https://pubmed.ncbi.nlm.nih.gov/24395698/)) comparing chlorpromazine to placebo in patients with schizophrenia and reporting effect estimates on long-term relapse rates at 6 months to 2 years.

Analysis 1.2. Comparison 1 CHLORPROMAZINE versus PLACEBO, Outcome 2 Relapse.

Review: Chlorpromazine versus placebo for schizophrenia

Comparison: 1 CHLORPROMAZINE versus PLACEBO

Outcome: 2 Relapse



2) To view this summary in computable form (JSON), click [here](#).

URL: <https://khalid-shahin.github.io/JSON-Tree-Writer/EBMonFHIR-EvidenceExamplesAndEtcExamples.html>

3) To experience how to create the data entry and convert to JSON, click [here](#).

URL: <https://khalid-shahin.github.io/JSON-Tree-Writer/DataEntryForm.html>

This Data Entry Form has been tested and developed in Chrome, so Chrome is the recommended browser.

To see the example data used in this data entry form, click the “Load Demo Sample Data” button.

To use the data entry form, one caveat is that all Identifier fields throughout the form are required and must be unique. This will allow the form to reference those elements.

The First Page

You can click the “Load Demo Sample Data” button to automatically load the form with sample data to see how the form would look like when completely filled with data.

Study Fields:

The Study Name is a requirement. Picking whether it is a Synthesis or a Single Study is required.

The PMID can be entered and when you click “Load PMID Info” it will automatically populate the other fields with as much as it can from PubMed.

Population, Exposure, Outcome:

Exposures include both Interventions and Comparators, for example Chlorpromazine and Placebo.

Both the “Short Display Name” and “Identifier” are required. And you must pick between “Actual” and “Intended.” An “Intended” population is one that the evidence is intended to inform (eg patients with schizophrenia), and an “Actual” population represents the actual group of individuals studied (eg a cohort of patients at a specific institution who were enrolled).

Once that’s all filled out you can click the “Next Page to Create Study Results.”

The Second Page

A result row is a unique Study-Population-Intervention-Comparator combination. You can make a result by picking a Study and the other dropdown fields will appear. You can report results for Comparative statistics (Exposure 1 vs Exposure 2, eg Exposure 2 could be a Placebo), or you could report results for Univariate statistics (Exposure 1 vs. none, where you’d select “none” in the Comparator dropdown).

For each Study-Population-Intervention-Comparator combination you can click the “Create Study Results” / “Create Synthesis Results” / “Edit Study Results” / “Edit Synthesis Results” button to get to the Results Page for that combination.

The Results Pages

A Single Study Result Page:

You can declare the Actual Population, Intervention, Comparator, and Outcome(s). Actual is just a text string for now to describe the actual members of the population, actual drug administered, or actual outcome observed.

A Synthesis Result Page:

You don’t declare the Actual PICO, but you must define the contributing studies. The Contributing Studies that populate this drop down are ones that share the same Study-Population-Intervention-Comparator-Outcome population that have an “Evidence Identifier.” Each of these dropdown options are selected by default.

Once you’re done with a result page you can save and go back and fill out the rest of the Results. Once you’re done with all the results you can click the “Next Page to Create Report” button on the second page to go to the Report Page.

The Report Page

Currently the Report Page is only a JSON export of all the information you entered in the form. The is the computer interpretable format. You can copy the JSON on the right and copy and save it to your computer. And then when you start off with a fresh Evidence Data Entry Form you can paste it in the “EBMonFHIR JSON Input” text box on the first page and click “Load JSON Data” to load the data from your JSON.

Questions: Contact

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