**MEMORANDUM**

PROJECT: Balanced energy protein (BEP) on maternal and child health outcomes

FROM: Nicole Young

DATE: 25th May 2020

RE: Meta-analysis of birthweight shift of multi-micronutrients vs. iron and folic acid control

**BACKGROUND**: In order to model the effect of multi-micronutrients (MMN) supplementation of the pregnant mother on infant’s birthweight, we need to know the birthweight difference between those who had MMN and those who only had iron and folic-acid (IFA). The Cochrane review by Keats et al (2019) analyzed 18 trials and found a reduced risk of low birthweight among those supplemented with MMN and IFA vs. just IFA alone (pooled risk ratio 0.88 (0.85-0.91)). We went into these 18 trials and looked for reports of mean birthweight shifts to do our own meta-analysis of mean differences. Thirteen of 18 studies reported mean shifts.

**DATA**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Study** | **MMN with iron and folic acid** | | **Iron with or without folic acid** | |
|  | **N** | **Mean (SD)** | **N** | **Mean (SD)** |
| Friis 2004 | 564 | 3053 (500†) | 542 | 3004 (500†) |
| Osrin 2005 | 600 | 2810 (453) | 600 | 2733 (422) |
| Bhutta 2009 | 1,148 | 2950 (600) | 1,230 | 2880 (500) |
| Christian 2003 | 1,038 | 2659 (446) | 940 | 2652 (436) |
| Dewey 2009 | 354 | 3005 (435) | 349 | 2945 (442) |
| Kaestel 2005 | 360 | 3055 (483\*) | 366 | 3002 (532\*) |
| Ramakrishnan 2003 | 435 | 2981 (391) | 438 | 2977 (393) |
| Roberfroid 2008 | 526 | 2914 (450) | 526 | 2877 (424) |
| SUMMIT 2008 | 5,695 | 3198 (847\*) | 5,406 | 3176 (862\*) |
| Sunawang 2009 | 384 | 3094 (438) | 341 | 3054 (419) |
| West 2014 | 10,642 | 2585 (407) | 10,530 | 2531 (415) |
| Zagre 2007 | 1,328 | 3,092 (190) | 1,222 | 3,025 (205) |
| Zeng 2008 | 1,406 | 3,198 (438) | 1,470 | 3,174 (424) |
| † No standard deviations were reported, so used the SD they used for their sample size calculation  \*SDs were derived from 95%CIs with equation: | | | | |

**ANALYSIS**:

|  |
| --- |
| metan n\_mmn mean\_mmn sd\_mmn n\_ifa mean\_ifa sd\_ifa, fixed lcols(study) astext(80) texts(100) force xtitle("birthweight (g)",size(2)) nostandard |
| metan n\_mmn mean\_mmn sd\_mmn n\_ifa mean\_ifa sd\_ifa, random lcols(study) astext(80) texts(100) force xtitle("birthweight (g)",size(2)) nostandard  C:\Users\Nicoly\Downloads\image (8).png |