**Supplementary Information**

Asia: 2,403 records were collected, 2,021 unique records (de-duplicated) were identified. Of these, 1,502 were identified as irrelevant based on title, and removed. The following were removed: (73) general population, (144) children and adolescents, (75) mothers/infants, (15) men only, (45) women only, and (125) otherwise not applicable (study type or study population). The remaining studies represented four countries (Japan, South Korea, Singapore, and Taiwan). These studies were ranked for vitamin D deficiency and the top ranked study per country were included.

Africa: 1259 records were collected, 944 unique records (de-duplicated) were identified. Of these 944, 832 were identified as irrelevant based on title, and removed. Of the 112 remaining studies, the following were removed: (34) children and adolescents, (30) mothers/infants, (3) men only, (14) women only, and (21) otherwise not applicable (study type or study population). This left four studies with data on cohorts from three countries (Morocco, South Africa, and Egypt). These studies were ranked for appropriateness of evidence, and a total of three studies were included in the final dataset.

Australia: 1318 records were collected, 808 of which remained after removing duplicates. Of these 808, 694 studies were identified as irrelevant and removed based on title alone. Studies were examined in further detail and the following exclusion criteria were applied: (13) children and adolescents, (29) mothers/infants, (4) men only, (13) women only, (26) otherwise not applicable (study type or study population). 16 studies remained to represent Australia. The top ranked study was included in the final dataset.

South America: 328 records were collected, representing 283 unique studies. Of these, 218 were removed based on title. Additional studies were removed for the following reasons: (25) children and adolescents, (10) mothers/infants, (0) men only, (10) women only, and (7) otherwise not applicable (study type or study population). Two studies remained with data on two countries (Brazil and Ecuador). Both of these studies, were included in the final analysis.

Europe: 2616 records were collected, representing 2196 unique studies. Of these, 1789 were reviewed and removed for irrelevance, judged based on title. Remaining studies were then reviewed in greater detail (abstract/full manuscript) and were removed for the following reasons: (85) children and adolescents, (71) mothers/infants, (10) men only, (12) women only, and (100) otherwise not applicable (study type or study population). 28 studies representing 19 countries (Belgium, Denmark, England, Estonia, Finland, France, Germany, Greece ,Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, and Switzerland) remained. Studies were ranked, and a total of one study per country was included in the final dataset.

North America: 1958 records were collected, representing 1612 unique studies. Of these, 1369 were reviewed and removed for irrelevance, judged based on title. Remaining studies were then reviewed in greater detail (abstract/full manuscript) and the following exclusions were made: (54) children and adolescents, (47) mothers/infants, (5) men only, (19) women only, and (71) otherwise not applicable (study type or study population). 18 studies representing four countries (Canada, USA, Mexico, Greenland) remained; these studies were ranked for a final inclusion of one study per country.