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NRVs-R for persons aged 6 – 36 months

(Prepared by the Electronic Working Group chaired by Ireland and co-chaired by the USA and Costa Rica)

Codex Members and Observers wishing to submit comments on the recommendations in this document should do so as instructed in CL 2024/51-NFSDU available on the Codex webpage/Circular Letters:

<https://www.fao.org/fao-who-codexalimentarius/resources/circular-letters/en/>

Background

1. At the 43rd session of CCFSDU the Committee agreed to:
 - i. Forward the proposed draft General Principles for establishing Nutrient Reference Values (NRVs-R) for persons aged 6 to 36 months to CAC46 for adoption at Step 5
 - ii. Re-establish the EWG open to all Members and Observers, chaired by Ireland, and co-chaired by Costa Rica and the USA, working in English and Spanish to complete work under the terms of reference outlined below.
2. The Terms of Reference (ToR) for the work of this 2023-24 EWG (REP2/NFSDU) were:
 - i. Revise the draft Stepwise Process taking into account the revisions to the draft General Principles and to develop an approach to propose NRVs-R for the combined age range of 6 to 36 months.
 - ii. Apply the revised draft Stepwise Process to propose NRVs-R for persons aged 6 – 12 months, 12-36 months and 6 – 36 months, for the following nutrients:
 - a. Vitamins A, D, C, K and E, thiamine, riboflavin, niacin, vitamins B6 and B12, folate, pantothenic acid and biotin;
 - b. Calcium, magnesium, iron, zinc, iodine, copper, selenium, manganese, phosphorus and potassium.
3. This Paper (describes revisions to the Stepwise Process, its application to all nutrients listed in ToR B, along with protein, and the resulting proposed NRVs-R.
4. This paper summarizes the work of the EWG, analysis of feedback from the consultations and presents the information to outline the DIRVs data (from FAO/WHO and the RASBs) used to establish potential NRVs-R for each nutrient on a case-by-case basis (Appendix II).
5. The data used for the establishment of the combined NRV-R for persons aged 6–36 months is also included in the tables in Appendix I, separately for each nutrient. The discussion of feedback received on this is, however, outlined in CX/NFSDU 24/44/4, Part A, because this is relevant to finalising agreement in the draft General Principles.

Presentation of EWG work undertaken to establish NRVs-R for persons aged 6 – 36 months

6. The Paper comprises **four sections**:
 - i. Revisions to finalise the **draft Stepwise Process**.
 - ii. **Application of the revised draft Stepwise Process** to propose NRVs-R for persons aged 6–12 months, 12–36 months and 6–36 months.
 - iii. Application of the revised draft Stepwise Process using **two approaches** and a comparison of the resulting NRVs-R.
 - iv. **Conclusions and Recommendations**

*NOTE: The NRVs-R recommended for Older Infants and Young Children are presented in **Summary Table 1 Appendix I** and the NRVs-R recommended for the combined age range 6-36 months are presented in **Summary Tables 2a and 2b, Appendix I***

Section 1 – Finalising the draft Stepwise Process

Revising the draft Stepwise Process based on feedback from Consultations

7. The draft Stepwise Process was revised to take account of revisions to the draft General Principles at CCNFSDU43 and applied in a pilot. This pilot included proposing draft NRVs-R for persons aged 6–12 months, 12–36 months and 6–36 months for seven nutrients previously examined. This work was outlined in **Consultation Paper 1 (CP1)** where feedback was collected from the EWG from August to October 2023.

8. Positive **feedback in the first consultation (CP1)** included that having this Stepwise Process provides consistency and clarity on how to implement Section 3 of the draft General Principles, which establishes the basis for the derivation of NRVs-R. The formal documentation of the Stepwise Process as a citable reference document would be welcomed.

9. There was **strong support for the role of FAO/WHO as the primary source** of data for establishing NRVs-R throughout all aspects of the feedback to CP1.

- The new Step 1 whereby new or updated DIRVs from FAO/WHO are selected for establishing NRVs-R was widely welcomed. A minority suggested that under certain circumstances, other data sources could be considered.
- There was support for referencing FAO/WHO as the data source wherever possible. Therefore, in situations where there is no physiological data available and the FAO/WHO DIRV is the same as the median DIRV from suitable RASBs at the same level of evidence, there was widespread support for selecting the FAO/WHO DIRV.

10. There was widespread support for the replacement of data from RASBs outlined in the 2021 FAO report when necessary. As outlined in CP1 this specifically relates to the replacement of data from Nordic Council of Ministers (NCM) based on the newly published update from this RASB.

11. Based on feedback, the **2021 FAO report is now referred to as a ‘starting point’** and reference to this report is removed from the Stepwise Process. As highlighted in feedback received, this has the advantage of avoiding future need to update the Stepwise Process when new data becomes available.

12. The importance of being consistent with how the NRVs-R for the general population older than 36 months were established, was also highlighted in the feedback received.

- Based on this feedback, the draft Stepwise Process was further revised and applied to propose draft NRVs-R for persons aged 6–12 months, 12–36 months and 6–36 months for all nutrients listed in ToR B. This work was outlined in **Consultation Paper 2 (CP2)** and feedback collected from the EWG from March to the end of April 2024.

13. **Feedback on Consultation Paper 2 (CP2)** on the further revised Stepwise Process while broadly positive, highlighted some areas that need further clarification (see table 2 in Appendix III). The specific areas included:

- The CMO expressed concerns that application of the draft Stepwise Process needed to equally consider all the elements outlined in the draft General Principles under 3.2 and not to prioritise any element. In particular this feedback identified as a major issue the failure of the approach used in CP2 (see Approach 2 in **Section 2** below) to address ‘recent’.
- This is now addressed through use of two approaches in the application of the Draft Stepwise process in this Agenda Paper, where Approach 1 specifically addresses these concerns (see **Section 2** below).

Revising the application of the draft Stepwise Process using two approaches

14. A late submission to CP1 disagreed with the inclusion of all relevant data from RASBs on the basis that 3.1 (and 3.2) in the draft General Principles specifically refers to *‘recent independent review of the science from RASBs’* (see para 2 of 3.1 draft General Principles for establishing NRVs-R in Appendix 1 of CX/NFSDU 24/44/4, Part A

15. This feedback maintained that failure to apply criteria to address *‘recent’* means other elements described in 3.2 of the draft General Principles will be prioritised. According to this submission, earlier reviews from RASBs, particularly those that pre-dated the primary source (FAO/WHO), should not be considered.

16. This submission differed from earlier views (2022) expressed by the EWG in feedback specifically asking

how 'recent' should be interpreted in relation to the growing number of reviews available from RASBs. At that time, only a few responses were received on this point and this feedback was in favour of including *all* data from RASBs regardless of date of publication on the basis that most reviews considered the same data.

17. Including *all* data from RASBs was consistent with the establishment of NRVs-R for the general population aged over 36 months, where data from RASBs that pre-dated the primary source (FAO/WHO), was used to establish NRVs-R for some nutrients (CXG 2-1985).

18. For these reasons the EWG Chair and Co-Chairs had considered *all* data from RASBs, regardless of date of publication, in CP1 and CP2 during 2023 and 2024.

The development of two approaches for application of the draft Stepwise Process

19. In response to the late submission urging an alternative interpretation of 'recent independent review of the science from RASBs', the EWG Chair examined this more thoroughly while CP2 was out for consultation. This exercise was also viewed as a means of taking account of more recent data that has become available over the past 10 years, including in 2023 (the NCM report).

20. **Firstly**, the wording in the draft Stepwise Process was scrutinised to identify any changes that may be required to clarify interpretation of 'recent'.

21. *No changes to the wording were identified as text in the Draft Stepwise Process was based on the draft General Principles, which does not specifically define 'recent'.*

22. **It was concluded, therefore, that the finalised draft Stepwise Process, presented in Appendix 1, can be used regardless of the approach used to interpret 'recent'.**

23. **Secondly**, the following two approaches were developed to represent different interpretations of 'recent':

- **Approach 1:** *The Stepwise Process is applied using data from FAO/WHO and data published by RASBs over the past 10 years. The choice of 10 years was selected as a threshold amount of time to allow for the generation of new evidence. This interpretation of 'more recent' limited RASB data to four sources publishing data within the past 10 years – NCM (2023), NASEM (2019), NIH (2015) and EFSA (2014-2017)*
- **Approach 2:** *The Stepwise Process is applied using data from FAO/WHO and ALL data published by RASBs. This includes consideration of data from all RASBs regardless of date of publication.*

Section 2 - Application of the revised draft Stepwise Process to propose NRVs-R for persons aged 6–12 months, 12–36 months and 6–36 months

24. Feedback from the application of the draft Stepwise Process to propose NRVs-R (using data from ALL RASBs – Approach 2) for all nutrients listed in ToR B was outlined in **Consultation Paper 2 (CP2)** was broadly positive. A summary of the main reservations are listed below:

- i. Rounding of values proposed as NRVs-R is required as was undertaken when establishing NRVs-R for the general population aged over 36 months. This is important to avoid giving the impression that the NRVs-R are very precise.

EWG Chair and Co-Chairs agree and this will be completed as part of the agreement process when finalising the NRVs-R to be established for 6-12 months, 12-36 months and 6-36 months.

- ii. Rejection of all NRVs-R presented for the two separate age groups (6-12 months and 12-36 months) by a CM wanting NRVs-R for the combined age group 6 – 36 months only.
- iii. Some reservations around the proposed NRVs-R for **calcium, vitamin D** and **zinc** as updated requirement data from FAO/WHO is expected shortly.

The EWG Chair and Co-Chairs have included proposed NRVs-R for calcium, vitamin D and zinc in the tables in Appendix I but confirm that updated FAO/WHO data will replace these proposed NRVs-R as is outlined in Step 1.

- iv. The data for folate needed to be re-calculated due to mistaken inclusion of data from one RASB that was based on folic acid in **CP2** (*only DFE folate data can be included to account for differential bioavailability of natural folate and folic acid*).
- v. An error in data in the table on iron presented in **CP2** needed to be corrected.
- vi. The need to account for bioavailability of iron in the data on requirements in the RASB reports is acknowledged – particularly when combining data from different sources.

This does not arise as physiological data on iron requirements is available from FAO/WHO.

- vii. Higher NRVs-R established for Older Infants compared with Young Children for pantothenic acid and copper was highlighted as an area requiring further investigation as the Stepwise Process did not work. The investigations and considerations for these two nutrients is outlined below, including the rationale behind the methods used to propose NRVs-R for older infants and young children and combined age 6-36months.

a. **Pantothenic acid:** *The application of the Stepwise Process selects the DIRVs derived by the strongest evidence.* However, for pantothenic acid there is a lack of data particularly for young children. Therefore, the DIRVs selected by application of the Stepwise Process were slightly higher for older infants than for young children. The following issues need to be considered:

- a) The older infants DIRVs for pantothenic acid provided by FAO/WHO and the RASBs are based on Category 2 evidence. In contrary to this only FAO/WHO and one RASB (IOM, 1998) provide young children DIRVs for pantothenic acid based on Category 2 evidence.
- b) Regardless of the use of more recent data from RASBs, or all of the data available from RASBs, the application of the Stepwise Process results in a higher NRV-R for older infants compared with the NRV-R provided for young children. This is an anomaly because when the DIRVs provided by FAO/WHO and all of the RASBs are considered separately, lower DIRVs are established for older infants compared with young children. The only exception is NIH/N which provides the same DIRV for both age groups.

The EWG Chair and Co-Chairs note that no upper level has been provided for pantothenic acid for any age group. **Given this, they propose establishing the NRV-R for young children as 3mg which is the same level as that established for older infants.**

b. **Copper:** *The application of the Stepwise Process selects the DIRVs derived by the strongest evidence.* There is a lack of data on copper DIRVs for person aged 6-36 months and the DIRVs selected by application of the Stepwise Process are slightly higher for older infants than for young children.

Furthermore, feedback to Consultation Paper 2 recommended using the same unit (μg) as was used for the General Population older than 36 months.

The following issues were identified for consideration:

- a) Of note, when considered separately FAO/WHO and four of the RASBs are consistent in providing a lower DIRV for older infants compared with young children. The only exception to this is NIH/N (2015), which proposes a higher older infant DIRV for copper ($400\mu\text{g}$) than the young children DIRV ($300\mu\text{g}$).
- b) Application of the Stepwise Process provides a higher older infant NRV-R for copper than that provided for young children. This occurs no matter whether more recent RASB data or all RASB data is used. This appears to be an anomaly (see point a. above).
- c) There was only one copper DIRV for older infants based on Category 2 evidence ($400\mu\text{g}$). However, the authors of this report noted limitations in the Category 2 data (balance study) and stated this was used for supporting evidence of the Category 3 data.
- d) Feedback from Consultation Paper 2 proposed that all copper DIRVs available for older infants should be considered equal and the median value selected. The rationale being that all DIRVs available are based on observed older infant nutrient intakes (Category 3). The most appropriate global value is thereby derived by utilising all available data - thus, only Approach 2 is appropriate so that global representation of intakes of this nutrient are considered. **The older infant NRV-R for copper is proposed as $220\mu\text{g}$ which reflects older infant intakes of this nutrient from all RASBs.**
- e) For young children, the copper DIRVs based on Category 2 evidence were $340\mu\text{g}$ and $300\mu\text{g}$ (provided by IOM, 2001 and NIH/N, 2015). Using Approach 1 (considering only more recent data over the past ten years) **the young children NRV-R for copper is proposed as $300\mu\text{g}$** (using Approach 2 the NRV-R is calculated as $320\mu\text{g}$).

Given these changes to the proposed copper NRVs-R for older infants and young children, the NRVs-R for all of the options for the combined age groups were recalculated. **The proposed NRV-R for the combined age group 6-36months using is $260\mu\text{g}$ (Option 3 using Approach 1 in the case of the NRV-R for young children).**

- viii. Amendments to Approaches 1 and 2 outlined for copper were undertaken to ensure similar units were used when applying the Stepwise Process on different data sources.

Section 3 - Application of the revised draft Stepwise Process using two approaches and a comparison of the resulting NRVs-R

Application of the revised draft Stepwise Process using two approaches

25. Application of the draft Stepwise process to propose NRVs-R for all nutrients listed in ToR B was revised to use the following two approaches to interpret 'recent':

- **Approach 1:** The *Stepwise Process* is applied using data from FAO/WHO and data published by RASBs over the past 10 years. This limited RASB data to four sources published within the past 10 years – NCM (2023), NASEM (2019), NIHN (2015) and EFSA (2014-2017).
- **Approach 2:** The *Stepwise Process* is applied using data from FAO/WHO and ALL data published by RASBs. This includes consideration of data from all RASBs regardless of date of publication.

26. The data used and the decisions made to establish NRVs-R for each nutrient on a case-by-case basis is outlined in the 24 tables included in Appendix II.

27. The steps taken and proposed NRVs-R are outlined separately using Approach 1 and Approach 2 in these nutrient tables.

28. The data used for the establishment of the combined NRV-R for persons aged 6–36 months is also included, separately for each nutrient, in these tables.

[NOTE: The discussion of feedback received on this is outlined in Part A, because this is relevant to finalising agreement in the draft General Principles].

Comparison of the resulting NRVs-R from using two approaches

29. The NRVs-R for Older Infants and Young Children using Approach 1 and Approach 2 are presented **Summary Table 1** (Appendix I). This shows:

- that very similar NRVs-R values are established for the majority of nutrients provided by the two Approaches examined;
- that restricting consideration of RASB data to more recently available publications makes very little difference to the NRVs-R established using the Stepwise Process;
- a strong validation of the Stepwise Process as it verifies the scientific reality that nutrient requirement data does not change much over time.

These findings provide confidence in the NRVs-R established using the draft Stepwise Process developed and in the draft General Principles upon which it was developed.

30. While there is very little variation in NRVs-R achieved using Approach 1 compared with Approach 2, exceptions to this include:

- Vitamin B12 for Older Infants and
- Biotin, magnesium and phosphorus for young Children

31. The NRVs-R for the combined age range 6 – 36 months using Approaches 1 and 2 for the three Options (Option 1, Option 2 and Option 3) are presented in **Summary Tables 2a** and **2b** (see **Appendix I**). This shows:

- that very similar NRVs-R values are established for the majority of nutrients provided by the two Approaches examined
- that restricting consideration of RASB data to more recently available publications makes very little difference to the NRVs-R established using the Stepwise Process;

32. This provides further validation of the decision to adopt Approach 1 and restrict use of RASB data more recently available publications.

33. **The decisions to recommend Option 3 is outlined in CX/NFSDU 24/44/4, Part A describing the General principles for the establishment of NRVs-R for persons aged 6 – 36 months**

Section 4 Conclusions and Recommendations

Conclusions on finalising the draft Stepwise Process

34. the Committee can be confident in the NRVs-R established using the draft Stepwise Process developed and, in the draft General Principles upon which it is based;

35. the work undertaken further validates the decision to adopt **Approach 1** and restrict use of RASB data

more recently available publications;

36. although 'recent' and 'more recent' was defined as a 10-year period, a specific definition of these terms should not be included in the Stepwise Process to allow for flexibility in the future so the most appropriate DIRV data from RASBs can be used.

Recommendations on finalising the draft Stepwise Process

37. The Committee is **invited** to adopt the draft Stepwise Process, presented in **Appendix I**, is adopted for use to establish NRVs-R for R for persons aged 6–12 months, 12–36 months and 6–36 months.

Conclusions on NRVs-R for persons aged 6 – 36 months

38. As outlined in the draft General Principles under 3.1 and 3.2 (Appendix I, CX/NFSDU 24/44/4, Part A), more recent data from the primary source (FAO/WHO) and from the RASBs is preferable.

39. As described in **Section 3 above** using Approach 1 (more recent data only) performs well as an update to the inclusion of older data (Approach 2) in that established NRVs-R are very similar, as would be expected.

40. The NRVs-R using Approaches 1 and 2 are presented in **Summary Tables , Appendix I (Summary Table 1** for Older Infants and Young Children –, **Summary Tables 2a and 2b, Appendix I** (for the combined age range 6 – 36 months, which also includes the different outcomes for the three Options). This shows:

- that very similar NRVs-R values are established for the majority of nutrients provided by the two Approaches examined
- that restricting consideration of RASB data to more recently available publications makes very little difference to the NRVs-R established using the Stepwise Process;
- NRVs-R for the general Population, were rounded. This should be undertaken when establishing NRVs-R for Older Infants, Young Children and the combined age range 6-36 months to avoid indicating that these NRVs-R are very precise

41. This provides further validation of the decision to adopt Approach 1 and restrict use of RASB data more recently available publications.

Recommendations on NRVs-R for persons aged 6 – 36 months

42. The Committee is **invited** to:

- i. Agree that **Approach 1** should be used when applying the draft Stepwise Process so that more recent data from RASBs is used.
- ii. Consider the NRVs-R for all nutrients established through application of the Stepwise process using Approach 1 and presented in the **Summary Table 1, Appendix I**, and to be recommended as the established NRVs-R for
 - a. Older Infants and
 - b. Young Children.

43. The NRVs-R for all nutrients established through application of the Stepwise process using *Approach 1* and in *Option 3* (highlighted in the **Summary Tables 2 and 2b, Appendix I**) are recommended for

- the combined age range 6-36 months

Note: reasons for choosing Option 3 are outlined in CX/NFSDU 24/44/4, Part A as part of the draft General Principles

44. agree that as part of the process when finalising the NRVs-R to be established for 6-12 months, 12-36 months and 6-36 months, values should be rounded (as was undertaken when establishing NRVs-R for the general population).

This is important to avoid giving the impression that the NRVs-R are very precise.

Revised Stepwise process

(changes are in **bold/underlined** or ~~striketrough~~ mode).

Stepwise Process

Step 1: Identify new or updated daily intake reference values (DIRVs) from FAO/WHO for older infants and young children and select for establishing NRVs-R.

Step 2: Aligned with General Principle 3.1, when updated DIRVs have not been established by FAO/WHO for the nutrients relevant DIRVs that reflect recent independent review of the science from RASBs can be considered, with higher priority given to values where evidence has been evaluated by a systematic review.

Step 3: In the absence of updated daily intake reference values (DIRVs) from FAO/WHO, the establishment of the NRVs-R should involve consideration, on a case-by-case basis, of the derivation of DIRVs more recently established by RASBs along with existing data from FAO/WHO. This assessment shall take account of the rigour of scientific methods, the underlying data quality and strength of evidence used to derive the DIRVs in these data sources. DIRVs are selected based on the totality of this evidence as NRVs-R in the following priority order:

A. To be applied when DIRVs informed by relevant physiological evidence are available

DIRVs informed by relevant physiological evidence from the target group are selected to establish NRVs-R for persons aged 6–36 months. In cases where this includes the FAO/WHO DIRV, this is selected for the establishment of NRVs-R for persons aged 6–36 months. In cases where this does not include the FAO/WHO DIRV, the median of the DIRVs from the RASBs is determined and selected to establish NRVs-R for persons aged 6–36 months. In the absence of DIRVs informed by relevant physiological evidence, go to Step 3 B.

B.**B. To be applied when ~~there are no~~ DIRVs informed by relevant ~~physiological evidence~~ extrapolation from other age groups are available**

DIRVs informed by extrapolation of DIRVs from other age groups are selected to establish NRVs-R for persons aged 6–36 months. Suitable DIRVs are selected by considering how the original DIRVs established for these other age groups are derived.

B.1. If the FAO/WHO DIRV and the median of the RASBs DIRVs are the same, the FAO/WHO DIRV is selected for the establishment of NRVs-R for persons aged 6–36 months.

B.2. If the FAO/WHO DIRV and the median of the RASBs DIRVs are not the same, a new median of the DIRVs from the FAO/WHO and relevant RASBs is calculated and selected for the establishment of NRVs-R for persons aged 6–36 months.

B.3. If the FAO/WHO DIRV is not included, the median of the DIRVs from the RASBs is selected for the establishment of NRVs-R for persons aged 6–36 months.

C. To be applied when there are no DIRVs informed by either relevant physiological evidence or extrapolation from other age groups available

DIRVs informed by estimates of nutrient intake from the target group or interpolation, are selected to establish NRVs-R for persons aged 6–36 months.

C.1. If the FAO/WHO DIRV and the median of the RASBs DIRVs are the same, the FAO/WHO DIRV is selected for the establishment of NRVs-R for persons aged 6–36 months.

C.2. If the FAO/WHO DIRV and the median of the RASBs DIRVs are not the same, a new median of the DIRVs from the FAO/WHO and relevant RASBs is calculated and selected for the establishment of NRVs-R for persons aged 6–36 months.

Step 4: Estimate the NRVs-R for the combined 6–36month age group ~~according to the three options outlined below:~~

~~Option 1: The combined NRV-R value for persons aged 6–36 months should be determined by~~

~~selecting the higher value of the proposed NRVs-R for older infants and young children if it does not exceed the UL for older infants and/or young children, where available.~~

~~Option 2: The combined NRV-R value for persons aged 6–36 months should be determined by selecting the lower value of the proposed NRVs-R for older infants and young children.~~

~~Option 3: The combined NRV-R value for persons aged 6–36 months should be determined by calculating the mean value of the two age groups 6–12 months and 12–36 months.~~

~~The three optional NRVs-R for the combined age group (6–36 months) are considered relative to the NRVs-R established for the two age groups (6–12 months and 12–36 months) and any UL where available.~~

~~Option 1 (selecting the higher value of the proposed NRVs-R for older infants and young children that does not exceed the UL for either age group) as the NRV-R for the combined age range 6–36 months is selected.~~

Step 5: Consideration of ULs (where available) is given to ensure that the proposed NRVs-R do not exceed the lowest of the UL values available.

**Summary Tables of NRVs-R for Older Infants and Young Children and for the combined
age range 6-36 months
(for comments at Step 3)**

Summary Table 1: Proposed NRVs-R for older infants (6-12 months) and young children (12-36 months): on application of revised Stepwise Process using Approach 1 (consideration of data from FAO/WHO & 'more recent RASBs'¹ only) and Approach 2 (consideration of data from FAO/WHO + 'all RASBs'²)

Nutrient	Older Infants		Young Children		General Population NRV-R*
	Approach 1	Approach 2	Approach 1	Approach 2	
Vitamin A (µg RAE or RE)	250	250	300	300	800
Vitamin D (µg)	5	5	5	5	5-15
Vitamin C (mg)	30	25	30	23	100
Vitamin K (µg)	10	10	15	15	60
Vitamin E (mg)	5	5	7	6	9
Thiamin (mg)	0.3	0.3	0.5	0.5	1.2
Riboflavin (mg)	0.4	0.4	0.6	0.5	1.2
Niacin (mg NE)	4	4	6	6	15
Vitamin B6 (mg)	0.3	0.3	0.6	0.5	1.3
Folate ³ (µg DFE)	80	80	120	150	400
Vitamin B12 (µg)	1.5	0.5	1.2	0.9	2.4
Pantothenic Acid (mg)	3	3	3	3	5
Biotin (µg)	6	6	14	8	30
Calcium (mg)	400	400	450	450	1000
Magnesium (mg)	80	80	70	80	310
Iron (mg)	6.2 (15%) 9.3 (10%)	6.2 (15%) 9.3 (10%)	3.9 (15%) 5.8 (10%)	3.9 (15%) 5.8 (10%)	14 (15%) 22 (10%)
Zinc (mg)	2.5 (50%) 4.1 (30%) 8.4 (15%)	2.5 (50%) 4.1 (30%) 8.4 (15%)	2.4 (50%) 4.1 (30%) 8.3 (15%)	2.4 (50%) 4.1 (30%) 8.3 (15%)	11 (30%) 14 (22%)
Iodine (µg)	78	78	95	90	150
Copper (µg)		220	300	320	900
Selenium (µg)	15	15	15	18	60

¹ 'More recent RASBs' include those from 2014 onwards NASEM (2019), NCM (2024), Japan NIHN (2015) and EFSA (2014, 2015, 2016, 2017).

² 'All RASBs' include IOM (1998, 2011), NHMRC (2006), NIHN (2015), EFSA (2012, 2013, 2014, 2015, 2016, 2017) and NCM (2024).

³ Folate DIRV data was restricted to Dietary Folate Equivalents which excluded NIHN (2015) data based on folic acid

Manganese (mg)	0.3	0.3	1.0	0.5	3
Phosphorus (mg)	165	165	250	460	700
Potassium (mg)	725	725	850	850	-
Protein (g)	11.3	11.3	12.5	12.5	50

Summary Table 2a: Proposed NRVs-R for vitamins according to Options 1, 2 & 3⁴ for persons aged 6-36 months: on application of revised Stepwise Process using Approach 1 (consideration of data from FAO/WHO & 'more recent RASBs'⁵ only) and Approach 2 (consideration of data from FAO/WHO + 'all RASBs'⁶)

Nutrient	6–36-months age group Option 1		6–36-months age group Option 2		6–36-months age group Option 3		Lowest UL value for 6-36 months	General Population NRV-R ⁷
	Approach 1	Approach 2	Approach 1	Approach 2	Approach 1	Approach 2		
Vitamin A (µg RAE or RE)	300	300	250	250	275	275	600	800
Vitamin D (µg)	5	5	5	5	5	5	-	5-15
Vitamin C (mg)	30	25	30	23	30	24	400	100
Vitamin K (µg)	15	15	10	10	13	13	-	60
Vitamin E (mg)	7	6	5	5	6	6	-	9
Thiamine (mg)	0.5	0.5	0.3	0.3	0.4	0.4	-	1.2
Riboflavin (mg)	0.6	0.5	0.4	0.4	0.5	0.5	-	1.2
Niacin (mg NE)	6	6	4	4	5	5	10	15
Vitamin B6 (mg)	0.6	0.5	0.3	0.3	0.4	0.4	5	1.3
Folate (µg DFE)	120	150	80	80	100	115	200	400
Vitamin B12 (µg)	1.5	0.9	1.2	0.5	1.4	0.7	-	2.4
Pantothenic Acid (mg)	3	3	3	3	3	3	-	5
Biotin (µg)	14	8	6	6	10	7	-	30

⁴ *Option 1 = highest value without exceeding the UL for either age group, Option 2 = lowest value, Option 3 = mean value.

⁵ CXG 2-1985

⁶ More recent RASBs' include those from 2014 onwards NASEM (2019), NCM (2024), Japan NIHN (2015 with the exception of folate, where DIRV data was restricted to Dietary Folate Equivalents which excluded NIHN data on folic acid) and EFSA (2014, 2015, 2016, 2017)

⁷ All RASBs' include IOM (1998, 2011), NHMRC (2006), NIHN (2015 with the exception of folate, where DIRV data was restricted to Dietary Folate Equivalents which excluded NIHN data on folic acid), EFSA (2012, 2013, 2014, 2015, 2016, 2017) and NCM (2024).

Summary Table 2b: Proposed NRVs-R for minerals and protein according to Options 1, 2 & 3⁸ for persons aged 6-36 months: on application of revised Stepwise Process using Approach 1 (consideration of data from FAO/WHO & 'more recent RASBs'⁹ only) and Approach 2 (consideration of data from FAO/WHO + 'all RASBs'¹⁰)

Nutrient	6–36-months age group Option 1		6–36-months age group Option 2		6–36-months age group Option 3		Lowest UL value for 6-36 months	General Population NRV-R ¹¹
	Approach 1	Approach 2	Approach 1	Approach 2	Approach 1	Approach 2		
Calcium (mg)	450	450	400	400	425	425	2500	1000
Magnesium (mg)	80	80	70	80	75	80	-	310
Iron (mg)	6.2 (15%) 9.3 (10%)	6.2 (15%) 9.3 (10%)	3.9 (15%) 5.8 (10%)	3.9 (15%) 5.8 (10%)	5.1 (15%) 7.6 (10%)	5.1 (15%) 7.6 (10%)	20	14 (15%) 22 (10%)
Zinc (mg)	2.5(50%) 4.1 (30%) 8.4 (15%)	2.5(50%) 4.1 (30%) 8.4 (15%)	2.4(50%) 4.1 (30%) 8.3 (15%)	2.4(50%) 4.1 (30%) 8.3 (15%)	2.5 (50%) 4.1 (30%) 8.4 (15%)	2.5 (50%) 4.1 (30%) 8.4 (15%)	-	11 (30%) 14 (22%)
Iodine (µg)	95	90	78	78	86	84	200	150
Copper (µg)	300	320		220	260	270	1	900
Selenium (µg)	15	18	15	15	15	17	-	60
Manganese (mg)	1.0	0.5	0.3	0.3	0.6	0.4	-	3
Phosphorus (mg)	250	460	165	165	208	313	-	700
Potassium (mg)	850	850	725	725	788	788	-	-
Other								
Protein (g)	12.5	12.5	11.3	11.3	11.9	11.9	-	50

⁸ Option 1 = highest value without exceeding the UL for either age group, Option 2 = lowest value, Option 3 = mean value.

⁹ CXG 2-1985

¹⁰ 'More recent RASBs' include those from 2014 onwards NASEM (2019), NCM (2024), Japan NIHN (2015) and EFSA (2014, 2015, 2016, 2017).

¹¹ 'All RASBs' include IOM (1998, 2011), NHMRC (2006), NIHN (2015), EFSA (2012, 2013, 2014, 2015, 2016, 2017) and NCM (2024).

Appendix II

Tables summarizing application of the revised stepwise process to all nutrients

(for information)

Application of the revised Stepwise Process to all nutrients

Vitamin A

Table 1. Vitamin A Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 29 of the 2021 FAO report).

Vitamin A Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (µg RE)	INL50 (µg RE)	INL98 (µg RE)	UL	KEY	Age range (years)	AI	INL50 (µg RE)	INL98 (µg RE)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	430			600 µg*	3i	1-3		210	300	600 µg*	2d
United States & Canada IOM (2001) ^Δ	7-12	500			600 µg*	2c and 3i	1-3		210	300	600 µg*	2d
Europe EFSA (2015)	7-11		190	250	600	1a	1-3		205	250	800 µg*	1a
FAO/WHO (2004)	7-12		190	400	N/A	3j	1-3		200	400	N/A	3j
Japan NIHN (2015)	6-11	400**			600	2c	1-2		Boy 300 Girl 250	Boy 400 Girl 350	600 mg RE	1a
Nordic Council NCM (2023)	7-11			250	N/A	1a	1-3			300	N/A	1a

RE = retinol equivalents; 1 RE = 1 µg retinol or 6 µg β-carotene or 12 µg other pro-vitamin A carotenoids

RAE = retinol activity equivalents; 1 RAE = 1 µg retinol or 12 µg β-carotene or 24 µg other pro-vitamin A carotenoids

^Δ Single DIRV for general population NRVs-R**Derivation key**

1a Factorial method

2c Allometric scaling up from DIRV young infant

2d Allometric scaling down from DIRV adult

3i Nutrient intake estimate

3j Interpolation and: average of two specified methods

*The UL for Vitamin A applies to preformed vitamin A (e.g., retinol, the form of vitamin A found in animal foods, most fortified foods, and supplements). It does not apply to vitamin A derived from carotenoids.

**refers to µg RAE= Retinol Activity Equivalent

<u>Older Infants</u>	<u>Young Children</u>
<u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u>	<u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u>
Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.	Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.
Step 2: FAO/WHO + consider DIRVs from RASBs.	Step 2: FAO/WHO + consider DIRVs from RASBs.
Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.	Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.
Step 3a: FAO/WHO Category 1 DIRV is not available so the mean of Category 1 DIRVs from	Step 3a: FAO/WHO Category 1 DIRV is not available so the median of Category 1 DIRVs

<p>EFSA (250µg) + NCM (250µg) is selected, <u>establishing the NRV-R as 250µg.</u></p> <p>Step 3b: Not Applicable. Step 3c: Not applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs. Step 3a: FAO/WHO Category 1 DIRV is not available so the mean of Category 1 DIRVs from EFSA (250µg) + NCM (250µg) is selected, <u>establishing the NRV-R as 250µg.</u> Step 3b: Not Applicable. Step 3c: Not Applicable.</p>	<p>from EFSA (250µg), NIHN (375µg) + NCM (300µg) is selected, <u>establishing the NRV-R as 300µg.</u></p> <p>Step 3b: Not Applicable. Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs. Step 3a: FAO/WHO Category 1 DIRV is not available so the median of Category 1 DIRVs from EFSA (250µg), NIHN (375µg), NCM (300µg) is selected, <u>establishing the NRV-R as 300µg.</u> Step 3b: Not Applicable. Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:
Option 1: The *higher* value of proposed NRVs-R for older infants and young children (300µg) is selected if it does not exceed any available UL.
Option 2: The *lower* value of proposed NRVs-R for older infants and young children (250µg) is selected.
Option 3: The *mean* of proposed NRVs-R for older infants and young children (275µg) is selected.
Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 275µg.
Step 5: The proposed NRVs-R do not exceed the UL values available NIHN (600µg), EFSA (800µg).

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:
Option 1: The *higher* value of proposed NRVs-R for older infants and young children (300µg) is selected if it does not exceed any available UL.
Option 2: The *lower* value of proposed NRVs-R for older infants and young children (250µg) is selected.
Option 3: The *mean* of proposed NRVs-R for older infants and young children (275µg) is selected.
Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 275µg.
Step 5: The proposed NRVs-R do not exceed the UL values available NIHN (600µg), EFSA (800µg).

Vitamin D

Table 2. Vitamin D Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 30 of the 2021 FAO report).

Vitamin D Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (µg)	INL50	INL98 (µg)	UL	KEY	Age range (years)	AI (µg)	INL50 (µg)	INL98 (µg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	5*			25	1b	1-3	5*			80	1b
United States & Canada IOM (2011) ^B	6-12	10*			38	1b	1-3		10*	15*	63	1b
Europe EFSA (2016) ^B	7-11	10*			35	1b	1-<3	15*			50	1b
FAO/WHO (2004) ^B	7-12			5*	N/A	1b	1-3			5*	N/A	1b
Japan NIHN (2015)	6-11	5**			N/A	1b	1-2	2**			N/A	2d
Nordic Council NCM (2023)	7-11			10*	N/A	1b	1-3			10*	N/A	1b

* limited/no sunlight including in winter with previous sun exposure in summer

**adequate & limited/no sunlight

B Multiple DIRVs for general population NRVs-R

Derivation key

1b Maintenance biomarker/absence deficiency;
2d Allometric scaling down from DIRVadult

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2016, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs. Step 3a: FAO/WHO Category 1 DIRV of 5µg is available + selected, <u>establishing the NRV-R as 5µg.</u> Step 3b: Not Applicable. Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs. Step 3a: FAO/WHO Category 1 DIRV of 5µg is available + selected, <u>establishing the NRV-R as 5µg.</u> Step 3b: Not Applicable. Step 3c: Not Applicable.</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2016, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs. Step 3a: FAO/WHO Category 1 DIRV of 5µg is available + selected, <u>establishing the NRV-R as 5µg.</u> Step 3b: Not Applicable. Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs. Step 3a: FAO/WHO Category 1 DIRV of 5µg is available + selected, <u>establishing the NRV-R as 5µg.</u> Step 3b: Not Applicable. Step 3c: Not Applicable.</p>

Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2016, NIH 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (5µg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (5µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (5µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 5µg.

Step 5: Not Applicable – no UL available.

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (5µg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (5µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (5µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 5µg.

Step 5: Not Applicable – no UL available.

Vitamin C

Table 3. Vitamin C Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 31 of the 2021 FAO report).

Vitamin C Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (mg)	INL50 (mg)	INL98 (mg)	UL	KEY	Age range (years)	AI	INL50 (mg)	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	30			N/A	2c	1-3		25	35	N/A	3j
United States & Canada IOM (2000)	7-12	50			N/A	2c and 3i	1-3		13	15	400 mg	2d
Europe EFSA (2013) ^B	7-11		Not set	20**	N/A	1b	1-3		15	20	N/A	2f
FAO/WHO (2004)	7-12			30	N/A	3j	1-3			30	N/A	3j
Japan NIHN (2015) ^B	6-11	40			N/A	2c and 2d	1-2		30	35	N/A	2d
Nordic Council NCM (2023)	7-11		25	30**	N/A	1b	1-3		20	25	N/A	2f

^BMultiple DIRVs for general population NRVs-R

**EFSA & NCM – 3 times amount to prevent scurvy (SCF, 1993)

Derivation key/scientific rigour

- 1b Maintenance biomarker/absence deficiency
- 2c Allometric scaling up from DIRVyoung infant
- 2d Allometric scaling down from DIRVadult
- 2f Isometric scaling down from DIRVadult
- 3i Nutrient intake estimate
- 3j Interpolation and: average of two specified methods

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: FAO/WHO Category 1 DIRV is not available so the Category 1 DIRV from NCM (30mg) is selected, <u>establishing the NRV-R as 30mg.</u></p> <p>Step 3b: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies.</p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: The median of Category 2 DIRVs from NIHN (35mg) and NCM (25mg) is selected, <u>establishing the NRV-R as 30mg.</u></p> <p>Step 3c: Not Applicable.</p>

<p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV and DIRVs from all RASBs.</p> <p>Step 3a: FAO/WHO Category 1 DIRV is not available so the median of Category 1 DIRVs from EFSA (20mg) and NCM (30mg) is selected, <u>establishing the NRV-R as 25mg.</u></p> <p>Step 3b: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV and DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies.</p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: The median of Category 2 DIRVs from IOM (15mg), EFSA (20mg), NIHN (35mg), NCM (25mg) is selected, <u>establishing the NRV-R as 22.5mg, rounded up to 23mg.</u></p> <p>Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (NIHN 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (30mg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (30mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (30mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 30mg.

Step 5: Not Applicable – no UL available.

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (25mg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (22.5mg, rounded to 23mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (23.8mg, rounded to 24mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 23.8mg, rounded up to 24mg.

Step 5: The proposed NRVs-R do not exceed the UL values available from IOM (400mg).

Vitamin K**Table 4.** Vitamin K Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 32 of the 2021 FAO report).

Vitamin K Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (µg)	INL50	INL98 (µg)	UL	KEY	Age range (years)	AI (µg)	INL50	INL98 (µg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	2.5			N/A	2c	1-3	25			N/A	3i
United States & Canada IOM (2001)	7-12	2.5			N/A	2c	1-3	30			N/A	3i
Europe EFSA (2017)	7-11	10			N/A	2g	1-3	12			N/A	2g
FAO/WHO (2004) ^Δ	7-12			10	N/A	2g	1-3			15	N/A	2g
Japan NIHN (2015)	6-11	7			N/A	3i	1-2	60			N/A	2d
Nordic Council NCM (2023)	7-11	10			N/A	2g	1-3	15			N/A	2g

^ΔSingle DIRV for general population NRVs-R

Derivation key

2c Allometric scaling up from DIRV young infant

2d Allometric scaling down from DIRV adult

2g Linear scaling down from DIRV adult

3i Nutrient intake estimate

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2017, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs. Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered. Step 3b.1: The FAO/WHO DIRV of 10µg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so is selected, <u>establishing the NRV-R as 10µg.</u> Step 3b.2: Not Applicable. Step 3b.3: Not Applicable. Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2017, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs. Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered. Step 3b.1: The FAO/WHO DIRV of 15µg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so is selected, <u>establishing the NRV-R as 15µg.</u> Step 3b.2: Not Applicable. Step 3b.3: Not Applicable. Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p>

<p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV and DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not the same</i> as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies</p> <p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (10µg) + NHMRC/MOH (2.5µg), IOM (2.5µg), EFSA (10µg), NCM (10µg) is selected, <u>establishing the NRV-R as 10µg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO and DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO DIRV of 15µg is <i>the same</i> as the median value of Category 2 DIRVs from RASBs so is selected, <u>establishing the NRV-R as 15µg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + **more recent** RASBs (EFSA 2017, NIH 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (15µg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (10µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (13µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 13µg.

Step 5: Not Applicable – no UL available.

Approach 2: FAO/WHO + **all** RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (15µg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (10µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (12.5µg, rounded to 13µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 12.5µg, rounded up to 13 µg.

Step 5: Not Applicable – no UL available.

Vitamin E

Table 5. Vitamin E Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 33 of the 2021 FAO report).

Vitamin E Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (mg α - toc)	INL50	INL98 (mg α - toc)	UL	KEY	Age range (years)	AI (mg α - toc)	INL50 (mg α - toc)	INL98 (mg α - toc)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	5*			N/A	2c	1-3	5*			N/A	3i
United States & Canada IOM (2000)	7-12	5			N/A	2c	1-3		5	5	N/A	2d
Europe EFSA (2015) ^g	7-11	5			N/A	2c	1-3	6			N/A	3i
FAO/WHO (2004) ^g	7-12			2.7*	N/A	3j	1-3			5*	N/A	3j
Japan NIHN (2015)	6-11	4			N/A	2d	1-2	3.5				3i
Nordic Council NCM (2023)	7-11	5			N/A	2c	1-3	7			N/A	2h

α -toc = α -tocopherol; 1 mg α -toc = 1 mg RRR- α -tocopherol (d- α -tocopherol)

α -TE = α -tocopherol equivalents; 1 mg α -TE = 1 mg α -tocopherol + 0.4 β -tocopherol + 0.1 γ -tocopherol + 0.01 δ -tocopherol

^gMultiple DIRVs for general population NRVs-R

Derivation key

2c Allometric scaling up from DIRV young infant

2d Allometric scaling down from DIRV adult

3i Nutrient intake estimate

3j Interpolation

*refers to α -TE

<u>Older Infants</u>	<u>Young Children</u>
<u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u>	<u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u>
Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.	Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.
Step 2: FAO/WHO + consider DIRVs from RASBs.	Step 2: FAO/WHO + consider DIRVs from RASBs.
Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.	Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.
Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.	Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.
Step 3b: DIRVs based on Category 2 data are considered.	Step 3b: DIRVs based on Category 2 data are considered.
Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not available</i> so Step 3.B.3 applies.	Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not available</i> so Step 3.B.3 applies.
Step 3b.2: Not Applicable.	Step 3b.2: Not Applicable.

<p>Step 3b.3: The median of Category 2 DIRVs from EFSA (5mg), NIHN (4mg), NCM (5mg) is selected, <u>establishing the NRV-R as 5mg.</u></p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV and DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies.</p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: The median of Category 2 DIRVs from NHMRC/MOH (5mg), IOM (5mg), EFSA (5mg), NIHN (4mg), NCM (5mg) is selected, <u>establishing the NRV-R as 5mg.</u></p> <p>Step 3c: Not Applicable.</p>	<p>Step 3b.3: The Category 2 DIRV from NCM (7mg) is selected, <u>establishing the NRV-R as 7mg.</u></p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO and DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies.</p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: The mean of Category 2 DIRVs from IOM (5mg), NCM (7mg) is selected, <u>establishing the NRV-R as 6mg.</u></p> <p>Step 3c: Not Applicable.</p>
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<p style="text-align: center;"><u>Combined age group (6-36 months)</u></p> <p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:</p> <p>Option 1: The higher value of proposed NRVs-R for older infants and young children (7mg) is selected if it does not exceed any available UL.</p> <p>Option 2: The lower value of proposed NRVs-R for older infants and young children (5mg) is selected.</p> <p>Option 3: The mean of proposed NRVs-R for older infants and young children (6mg) is selected.</p> <p>Recommendation: The mean NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, <u>establishing the NRV-R for 6 to 36 months as 6mg.</u></p> <p>Step 5: Not Applicable – no UL available.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:</p> <p>Option 1: The higher value of proposed NRVs-R for older infants and young children (6mg) is selected if it does not exceed any available UL.</p> <p>Option 2: The lower value of proposed NRVs-R for older infants and young children (5mg) is selected.</p> <p>Option 3: The mean of proposed NRVs-R for older infants and young children (5.5mg, rounded to 6mg) is selected.</p> <p>Recommendation: The mean NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, <u>establishing the NRV-R for 6 to 36 months as 5.5mg, rounded up to 6mg.</u></p> <p>Step 5: Not Applicable – no UL available.</p>

Thiamine

Table 6. Thiamine Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 34 of the 2021 FAO report).

Thiamine Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (mg)	INL50 (mg/MJ)	INL98 (mg)	UL	KEY	Age range (years)	AI	INL50	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	0.3			N/A	2d	1-3yr		0.4mg	0.5	N/A	2d
United States & Canada IOM (1998)	7-12	0.3			N/A	2d	1-3yr		0.4mg	0.5	N/A	2d
Europe EFSA (2016)*	7-11		0.072	6mo Boy 0.27 Girl 0.24 11mo Boy 0.31 Girl 0.28	N/A	2g	1-<3yr		0.072 mg/MJ	1yr Boy 0.33 Girl 0.30 2yr Boy 0.43 Girl 0.40	N/A	2g
FAO/WHO (2004) [^]	7-12			0.3	N/A	2c	1-3yr			0.5	N/A	2d
Japan NIHN (2015)	6-11	0.2			N/A	2c and 2d	1-2yr		0.4mg	0.5	N/A	2g
Nordic Council NCM (2023)	7-11		0.072	0.3**	N/A	2g	1-3		0.072 mg/MJ	0.5***	N/A	2g

[^]Single DIRV for general population NRVs-R

*Europe EFSA (2016)-No single value for age ranges; INL98 (OI) set by month and INL98 (YC) by year; 6 mo, 11 mo, 1 yr and 2 yr selected.

The DIRVs set by EFSA for older infants cover the age range 6–11 months for boys and girls separately. Using 0.27 mg and 0.24 mg for 6–month-old boys and girls respectively, and 0.31 mg and 0.28 mg for 11–month-old boys and girls respectively, the EFSA DIRV is estimated as follows:

$$(0.27 \text{ mg} + 0.24 \text{ mg} + 0.31 \text{ mg} + 0.28)/4 = 0.28 \text{ mg} \sim 0.3 \text{ mg}.$$

The DIRVs set by EFSA for young children cover the ages 1 year and 2 years separately and provide different values for boys and girls. Using 0.33 mg and 0.30 mg for 1 year-old boys and girls respectively, and 0.43 mg and 0.40 mg for 2 year-old boys and girls respectively, the EFSA DIRV is estimated as follows:

$$(0.33 \text{ mg} + 0.30 \text{ mg} + 0.43 \text{ mg} + 0.40)/4 = 0.37 \text{ mg} \sim 0.4 \text{ mg}.$$

**Reference body weight used for older infants was 9 kg and estimated energy requirement of 0.338 MJ/kg body weight (0.1 mg/MJ x 3 MJ = 0.3 mg). In the absence of specifics on how the DIRV was derived in the NCM 2023 report, the scientific ranking for the EFSA DIRV has been assigned to this value as the NCM report cite EFSA as the source.

***Reference body weight used for young children was 13.6 kg and estimated energy requirement of 4.6 MJ/day (NCM, 2023) (0.1 mg/MJ x 4.6 MJ/day = 0.46 mg). In the absence of specifics on how the DIRV was derived in the NCM 2023 report, the scientific ranking for the EFSA DIRV has been assigned to this value as the NCM report cite EFSA as the source.

Derivation key/scientific rigour

2c Allometric scaling up from DIRVyoung infant

2d Allometric scaling down from DIRVadult

2g Linear scaling down from DIRVadult

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2016, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs. Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered. Step 3b.1: The FAO/WHO DIRV of 0.3mg <i>is the same</i> as the median value of Category 2 DIRVs from recent RASBs [NCM (0.3mg), NIHN (0.2mg) and EFSA (0.28)] so it is selected, <u>establishing the NRV-R as 0.28mg, rounded up to 0.3mg.</u> Step 3b.2: Not Applicable. Step 3b.3: Not Applicable. Step 3c: Not Applicable.</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2016, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs. Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered. Step 3b.1: The FAO/WHO DIRV of 0.5mg <i>is the same</i> as the median value of Category 2 DIRVs from recent RASBs [NCM (0.5mg), NIHN (0.5mg) and EFSA (0.37)] so it is selected, <u>establishing the NRV-R as 0.5mg.</u> Step 3b.2: Not Applicable. Step 3b.3: Not Applicable. Step 3c: Not Applicable.</p>
<p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs. Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered. Step 3b.1: The FAO/WHO DIRV of 0.3mg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 0.3mg.</u> Step 3b.2: Not Applicable. Step 3b.3: Not Applicable. Step 3c: Not Applicable.</p>	<p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs. Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered. Step 3b.1: The FAO/WHO DIRV of 0.5mg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 0.5mg.</u> Step 3b.2: Not Applicable. Step 3b.3: Not Applicable. Step 3c: Not Applicable.</p>

<u>Combined age group (6-36 months)</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2016, NIHN 2015, NCM 2023)</u></p> <p>Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options: Option 1: The <i>higher</i> value of proposed NRVs-R for older infants and young children (0.5mg) is selected if it does not exceed any available UL.</p>

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (0.28mg, rounded to 0.3mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (0.39mg, rounded to 0.4mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.39mg, rounded up to 0.4mg.

Step 5: Not Applicable – no UL available.

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (0.5mg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (0.3mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children is selected (0.4mg).

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.4mg.

Step 5: Not Applicable – no UL available.

Riboflavin

Table 7. Riboflavin Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 35 of the 2021 FAO report).

Riboflavin	Older Infants						Young Children						
	Country/ region RASB	Age range (months)	AI (mg)	INL50	INL98 (mg)	UL	KEY	Age range (years)	AI	INL50 (mg)	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	0.4				N/A	2c and 2d	1-3		0.4	0.5	N/A	2d
United States & Canada IOM (1998)	7-12	0.4				N/A	2c and 2d	1-3		0.4	0.5	N/A	2d
Europe EFSA (2017)	7-11	0.4				N/A	2c	1-3		0.5	0.6	N/A	2d
FAO/WHO (2004) ^A	7-12			0.4		N/A	2c	1-3			0.5	N/A	2d
Japan NIHN (2015)	6-11	0.4				N/A	2c and 2d	1-2		0.5	Boy 0.6 Girl 0.5*	N/A	2g
Nordic Council NCM (2023)	7-11	0.4				N/A	2c	1-3			0.6	N/A	2d

^ASingle DIRV for general population NRVs-R

*An average of boys and girls DIRVs was calculated as 0.55 mg

Derivation key/scientific rigour

2c Allometric scaling up from DIRVyounginfant

2d Allometric scaling down from DIRVadult

2g Linear scaling down from DIRVadult

and: average of two specified methods

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2017, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO DIRV of 0.4mg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 0.4mg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2017, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not the same</i> as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p> <p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (0.5mg) + EFSA (0.6mg), NIHN (0.55mg), NCM (0.6mg) is selected, <u>establishing the NRV-R as 0.575mg, rounded up to 0.6mg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>

<p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO DIRV of 0.4mg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 0.4mg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not the same</i> as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p> <p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (0.5mg) + all DIRVs from RASBs is selected, <u>establishing the NRV-R as 0.525mg, as rounded to 0.5mg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2017, NIHN 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (0.575mg, rounded to 0.6mg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (0.4mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (0.4875mg, rounded to 0.5mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.4875mg, rounded up to 0.5mg.

Step 5: Not Applicable – no UL available.

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (0.525mg, rounded as 0.5mg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (0.4mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (0.4625mg, rounded as 0.5mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.4625mg, as rounded to 0.5mg.

Step 5: Not Applicable – no UL available.

Niacin

Table 8. Niacin Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 36 of the 2021 FAO report).

Niacin	Older Infants						Young Children						
	Country/ region RASB	Age range (months)	AI (mg NE)	INL50 (mg/MJ NE)	INL98 (mg NE)	UL	KEY	Age range (years)	AI	INL50	INL98 (mg NE)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	4				N/A	2d	1-3		5 mg NE	6	10 mg as nicotinic acid 150 mg as nicotinamide**	2d
United States & Canada IOM (1998)	7-12	4				N/A	2d	1-3		5 mg NE	6	10 mg ***	2d
Europe EFSA* (2014)	7-11		1.3	6 mo Boy 4.2 Girl 3.7 11 mo Boy 4.8 Girl 4.4		N/A	2g	1-3		1.3 mg/ MJ NE	1yr Boy 5.1 Girl 4.6 2yr Boy 6.7 Girl 6.2	2 mg as nicotinic acid 150 mg as nicotinamide	2d
FAO/WHO (2004) ^A	7-12			4		N/A	2c	1-3			6	N/A	2d
Japan NIHN (2015)	6-11	3				N/A	2c and 2d	1-2		Boy 5 mg NE Girl 4 mg NE*	5	15 mg as nicotinic acid	2d
Nordic Council NCM (2023)	7-11		1.3	4.8****		N/A	2g	1-3		1.3 mg/ MJ	7.4*****	10 mg as nicotinic acid	2d

^ASingle DIRV for general population NRVs-R

NE means niacin equivalents; 1 mg NE = 1 mg niacin +60 mg tryptophan

Europe EFSA (2014)-No single value for age range; INL98 (OI) set by month and INL98 (YC) by year; 6 mo, 11 mo, 1 yr and 2 yr selected

*The DIRVs set by EFSA for older infants cover the age range 6–11 months for boys and girls separately. Using 4.2 mg and 3.7 mg for 6-month-old boys and girls respectively, and 4.8 mg and 4.4 mg for 11-month-old boys and girls respectively, the EFSA DIRV is estimated as follows: (4.2 mg + 3.7 mg + 4.8 mg + 4.4)/4 = 4.3 mg).

The DIRVs set by EFSA for young children cover the ages 1 year and 2 years separately and provide different values for boys and girls. Using 5.1 mg and 4.6 mg for 1 year-old boys and girls respectively, and 6.7 mg and 6.2 mg for 2 year-old boys and girls respectively, the EFSA DIRV is estimated as follows: (5.1 mg + 4.6 mg + 6.7 mg + 6.2 mg)/4 = 5.7 mg).

**Nicotinamide is not a vasodilator (so does not cause the flushing that occurs with nicotinic acid) and has potential therapeutic value.

***Here the UL for niacin applies to synthetic forms obtained from supplements, fortified foods, or a combination of the two. The UL is not expressed in NEs.

****Reference body weight in the NCM report used for older infants was 9 kg and estimated energy requirement of 0.338 MJ/kg body weight (NCM, 2023). (1.6 mg/MJ x 3.0 MJ=4.8 mg). In the absence of specifics on how the DIRV was derived in the NCM 2023 report, the scientific ranking for the EFSA DIRV has been assigned to this value as the NCM report cites EFSA as the source.

*****Reference body weight used in the NCM report for young children was 13.6 kg and estimated energy requirements of 4.6 MJ (NCM, 2023). (1.6 mg/MJ x 4.6 MJ=7.4 mg). In the absence of specifics on how the DIRV was derived in the NCM 2023 report, the scientific ranking for the EFSA DIRV has been assigned to this value as the NCM report cite EFSA as the source.

Derivation key/scientific rigour

2c Allometric scaling up from DIRVyoung infant

2d Allometric scaling down from DIRVadult

2g Linear scaling down from DIRVadult

<u>Older Infants</u>	<u>Young Children</u>
<u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2014, NIHN 2015, NCM 2023)</u>	<u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2014, NIHN 2015, NCM 2023)</u>
Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.	Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.
Step 2: FAO/WHO + consider DIRVs from RASBs.	Step 2: FAO/WHO + consider DIRVs from RASBs.

<p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not the same</i> as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p> <p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (4mg) + EFSA (4.275mg), NIHN (3mg), NCM (4.8mg) is selected, <u>establishing the NRV-R as 4.1375, rounded to 4mg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO DIRV of 4mg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 4mg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recent DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not the same</i> as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p> <p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (6mg) + EFSA (5.65mg), NIHN (5mg), NCM (7.4mg) is selected, <u>establishing the NRV-R as 5.825mg, rounded to 6mg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO DIRV of 6mg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 6mg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2014, NIHN 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (5.825mg, rounded to 6mg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (4.1375mg, rounded to 4mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (4.981mg, rounded to 5mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 4.981mg, rounded up to 5mg.

Step 5: The proposed NRVs-R do not exceed the UL values available EFSA (2mg as nicotinic acid, 150mg as nicotinamide), NIHN (15mg as nicotinic acid), NCM (10mg as nicotinic acid).

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (6mg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (4mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (5mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 5mg.

Step 5: The proposed NRVs-R do not exceed the UL values available NHMRC/MOH (10mg as nicotinic acid, 150mg as nicotinamide), IOM (10mg), EFSA (2mg as nicotinic acid, 150mg as nicotinamide), NIHN (15mg as nicotinic acid), NCM (10mg as nicotinic acid).

Vitamin B6

Table 9. Vitamin B6 Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 37 of the 2021 FAO report).

Vitamin B6 Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (mg)	INL50	INL98 (mg)	UL	KEY	Age range (years)	AI	INL50 (mg)	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	0.3			N/A	2c	1-3		0.4	0.5	15 mg	2d
United States & Canada IOM (1998)	7-12	0.3			N/A	2c and 2d	1-3		0.4	0.5	30 mg	2d
Europe EFSA (2016)	7-11	0.3			N/A	2c and 2d	1-3		0.5	0.6	5mg	2d
FAO/WHO (2004) [^]	7-12			0.3	N/A	2c	1-3			0.5	N/A	2d
Japan NIHN (2015)	6-11	0.3			N/A	2c and 2d	1-2		0.4	0.5	10 mg	2g
Nordic Council NCM (2023)	7-11	0.4			N/A	2c and 2d	1-3			0.6	N/A	2d

[^]Single DIRV for general population NRVs-R

Derivation key/scientific rigour

2c Allometric scaling up from DIRVyoung infant

2d Allometric scaling down from DIRVadult

2g Linear scaling down from DIRVadult and: average of two specified methods

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2016, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2016, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p>

<p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO DIRV of 0,3mg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 0.3mg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO DIRV of 0.3mg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 0.3mg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not the same</i> as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p> <p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (0.5mg) + EFSA (0.6mg), NIHN (0.5mg), NCM (0.6mg) is selected, <u>establishing the NRV-R as 0.55mg, rounded up to 0.6mg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO DIRV of 0.5mg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 0.5mg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2016, NIHN 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (0.55mg, rounded to 0.6mg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (0.3mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (0.425mg, rounded to 0.4mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.425mg, rounded to 0.4mg.

Step 5: The proposed NRVs-R do not exceed the UL values available EFSA (5mg), NIHN (10mg).

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children is selected (0.5mg) if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (0.3mg) is selected.

Option 3: The mean of proposed NRVs-R for older infants and young children (0.4mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.4mg.

Step 5: The proposed NRVs-R do not exceed the UL values available EFSA (5mg), NIHN (10mg), NHMRC/MOH (15mg), IOM (30mg).

Folate

Table 10. Folate Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 38 of the 2021 FAO report).

Folate Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (µg DFE)	INL50 (µg DFE)	INL98 (µg DFE)	UL	KEY	Age range (years)	AI	INL50 (µg DFE)	INL98 (µg DFE)	UL	KEY
Australia & New Zealand NHMRC/MOH (2006)	7-12	80			N/A	2c and 2d	1-3		120	150	300 µg DFE	2d
United States & Canada IOM (1998)	7-12	80			N/A	2c and 2d	1-3		120	150	300 µg DFE	2d
Europe EFSA (2015)	7-11	80			N/A	2c	1-3		90	120	200 µg DFE	2d
FAO/WHO (2004) ^Δ	7-12			80	N/A	2c and 2d	1-3		120	150	N/A	2d
Japan NIHN (2015)	6-11	60*			N/A	2c and 2d	1-2		70*	90*	200*	2d
Nordic Council NCM (2023)	7-11		70	90	N/A	2c	1-3		90	120	N/A	2d

**1µg dietary folate equivalents (DFE)= 1 µg food folate

0.6 µg folic acid added to food or as supplement consumed with food

0.5 µg folic acid as supplement taken on an empty stomach

^ΔSingle DIRV for general population NRVs-R

Derivation key

2c Allometric scaling up from DIRV young infant

2d Allometric scaling down from DIRV adult

*refers to µg folic acid

**Guidelines on Nutrition Labelling CAC/GL 2-1985

<u>Older Infants</u>	<u>Young Children</u>
<p><i>Approach 1: FAO/WHO + more recent RASBs (EFSA 2017, NCM 2023). Folate DIRV data was restricted to Dietary Folate Equivalents which excluded NIHN (2015) data based on folic acid</i></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not the same as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p>	<p><i>Approach 1: FAO/WHO + more recent RASBs (EFSA 2017, NCM 2023). Folate DIRV data was restricted to Dietary Folate Equivalents which excluded NIHN (2015) data based on folic acid</i></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not the same as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p>

<p>Step 3b.2: The FAO/WHO DIRV of 80µg is not same as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 80µg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs (except Japan NIHN 2015) (NHMRC /MOH 2006, IOM 1998, EFSA 2017, NCM 2023). Folate DIRV data was restricted to Dietary Folate Equivalents which excluded NIHN (2015) data based on folic acid</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRVs along with DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: 10</p> <p>Step 3b.1: The FAO/WHO DIRV of 80µg is the same as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 80µg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (150µg) + EFSA (120µg), and NCM (120µg) is selected, <u>establishing the NRV-R as 120µg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs (except Japan NIHN 2015) (NHMRC /MOH 2006, IOM 1998, EFSA 2017, NCM 2023). Folate DIRV data was restricted to Dietary Folate Equivalents which excluded NIHN (2015) data based on folic acid</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not the same as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p> <p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (150µg) + EFSA (120µg), IOM (150 µg), NHMRC/MOH (150 µg), NCM (120µg) is selected, <u>establishing the NRV-R as 150µg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2017, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (120µg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (80µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (100µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 100µg.

Step 5: The proposed NRVs-R do not exceed the UL values available EFSA (200µg).

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (150µg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (80µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (115µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 115µg.

Step 5: The proposed NRVs-R do not exceed the UL values available NHMRC (300µg), IOM (300µg), EFSA (200µg), NIHN (200µg).

Vitamin B12

Table 11. Vitamin B12 Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 39 of the 2021 FAO report)

Vitamin B12 Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (µg)	INL50 (µg)	INL98 (µg)	UL	KEY	Age range (years)	AI (µg)	INL50 (µg)	INL98 (µg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	0.5			N/A	2c	1-3		0.7	0.9	N/A	2d
United States & Canada IOM (1998)	7-12	0.5			N/A	2c	1-3		0.7	0.9	N/A	2d
Europe EFSA (2015)	7-11	1.5			N/A	2d	1-3	1.5			N/A	2d
FAO/WHO (2004) ^a	7-12		0.6	0.7	N/A	3j	1-3		0.7	0.9	N/A	2d
Japan NIHN (2015)	6-11	0.5			N/A	2c and 2d	1-2		0.7	0.9	N/A	2d
Nordic Council NCM (2023)	7-11	1.5			N/A	2d	1-3	1.5			N/A	2d

^aSingle DIRV for general population NRVs-R

Derivation key/scientific rigour

2c Allometric scaling up from DIRV young infant

2d Allometric scaling down from DIRV adult

3j Interpolation

Older Infants	Young Children
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies.</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The median of Category 2 DIRVs from EFSA (1.5µg), NIHN (0.5µg), NCM (1.5µg) is selected, <u>establishing the NRV-R as 1.5µg.</u></p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not the same as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p> <p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (0.9µg) + EFSA (1.5µg), NIHN (0.9µg), NCM (1.5µg) is selected, <u>establishing the NRV-R as 1.2µg.</u></p> <p>Step 3b.3: Not Applicable</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p>

<p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not available</i> so Step 3.B.3 applies.</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The median of Category 2 DIRVs from RASBs is selected, <u>establishing the NRV-R as 0.5µg.</u></p> <p>Step 3c: Not Applicable.</p>	<p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO DIRV of 0.9µg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so it is selected, <u>establishing the NRV-R as 0.9µg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable</p> <p>Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIH 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (1.5µg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (1.2µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (1.35µg, rounded to 1.4 µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 1.35µg, rounded to 1.4µg.

Step 5: Not Applicable – no UL available.

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (0.9µg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (0.5µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (0.7µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.7µg.

Step 5: Not Applicable – no UL available.

Pantothenic Acid

Table 12. Pantothenic acid Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 40 of the 2021 FAO report).

Pantothenic Acid Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (mg)	INL50	INL98 (mg)	UL	KEY	Age range (years)	AI (mg)	INL50	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC/MOH (2006)	7-12	2.2			N/A	2c	1-3	3.5			N/A	3i
United States & Canada IOM (1998)	7-12	1.8				2c and 2d	1-3	2			N/A	2d
Europe EFSA (2014)	7-11	3			N/A	2c	1-3	4			N/A	3i
FAO/WHO (2004) ^A	7-12			1.8	N/A	2c	1-3			2	N/A	2d
Japan NIHN (2015)	6-11	3			N/A	2c and 2d	1-2	3			N/A	3i
Nordic Council NCM (2023)	7-11	3			N/A	2c	1-3	4			N/A	3i

^A Single DIRV for general population NRVs-R

Derivation Key

2c Allometric scaling up from DIRV young infant

2d Allometric scaling down from DIRV adult

3i Nutrient intake estimate and: average of two specified methods

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2014, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not the same as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p> <p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (1.8mg) + EFSA (3mg), NIHN (3mg), NCM (3mg) is selected, <u>establishing the NRV-R as 3mg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2014, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is selected, <u>establishing the NRV-R as 2mg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>

<p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not the same</i> as the median of Category 2 DIRVs from RASBs so Step 3.B.2 applies.</p> <p>Step 3b.2: The median of Category 2 DIRVs from FAO/WHO (1.8mg) + NHMRC/MOH (2.2mg), IOM (1.8mg), EFSA (3mg), NIH (3mg), NCM (3mg) is selected, <u>establishing the NRV-R as 2.6mg, rounded up to 3mg.</u></p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along DIRVs from all RASBs.</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO DIRV of 2mg <i>is the same</i> as the value of Category 2 DIRV from IOM so it is selected, <u>establishing the NRV-R as 2mg.</u></p> <p>Step 3b.2: Not Applicable.</p> <p>Step 3b.3: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2014, NIH 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (3mg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (2mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (3mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 3mg.

Step 5: Not Applicable – no UL available.

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (2.6mg, rounded to 3mg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (2mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (2.3mg, rounded to 2mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 2.3mg, rounded to 2mg.

Step 5: Not Applicable – no UL available.

As shown the Tables 12 for Pantothenic Acid above, higher NRVs-R established for Older Infants compared with Young Children indicated the Stepwise Process did not work in proposing NRVs-R for this nutrient. The investigations and considerations on how to proceed are outlined below, including the rationale behind the methods used to propose copper NRVs-R for older infants and young children and combined age 6-36months.

Pantothenic acid: The application of the Stepwise Process selects the DIRVs derived by the strongest evidence. However, for pantothenic acid there is a lack of data particularly for young children. Therefore, the DIRVs selected by application of the Stepwise Process were slightly higher for older infants than for young children. The following issues need to be considered:

- a. *The older infants DIRVs for pantothenic acid provided by FAO/WHO and the RASBs are based on Category 2 evidence. In contrary to this only FAO/WHO and one RASB (IOM, 1998) provide young children DIRVs for pantothenic acid based on Category 2 evidence.*
- b. *Regardless of the use of more recent data from RASBs, or all of the data available from RASBs, the application of the Stepwise Process results in a higher NRV-R for older infants compared with the NRV-R provided for young children. This is an anomaly because when the DIRVs provided by FAO/WHO and all of the RASBs are considered separately, lower DIRVs are established for older infants compared with young children. The only exception is NIHN which provides the same DIRV for both age groups.*

*The EWG Chair and Co-Chairs note that no upper level has been provided for pantothenic acid for any age group. **Given this, they propose establishing the NRV-R for young children as 3mg which is the same level as that established for older infants.***

Biotin

Table 13. Biotin Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 41 of the 2021 FAO report).

Biotin	Older Infants						Young Children						
	Country/ region RASB	Age range (months)	AI (µg)	INL50	INL98 (µg)	UL	KEY	Age range (years)	AI (µg)	INL50	INL98 (µg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	6				N/A	2c	1-3	8			N/A	2c
United States & Canada IOM (1998)	7-12	6				N/A	2c	1-3	8			N/A	2c
Europe EFSA (2014)	7-11	6				N/A	2c	1-3	20			N/A	3i
FAO/WHO (2004) ^A	7-12			6		N/A	2c	1-3			8	N/A	2d
Japan NIHN (2015)	6-11	10				N/A	2c and 2d	1-2	20			N/A	2d
Nordic Council NCM (2023)	7-11	5				N/A	2c	1-3	20			N/A	3i

^A Single DIRV for general population NRVs-R

Derivation Key

2c Allometric scaling up from DIRV young infant

2d Allometric scaling down from DIRV adult

3i Nutrient intake estimate and: average of two specified methods

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2014, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO DIRV of 6µg is the same as the median value of Category 2 DIRVs from recent RASBs [EFSA (6µg), NIHN (10µg) and NCM (5µg)] so is selected, <u>establishing the NRV-R as 6µg</u></p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: Not Applicable</p> <p>Step 3c: Not Applicable</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2014, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is not the same as the median of Category 2 DIRVs from recent RASBs so Step 3.B.2 applies</p> <p>Step 3b.2: The mean of Category 2 DIRVs from FAO/WHO (8µg) + NIHN (20µg) is selected, <u>establishing the NRV-R as 14µg.</u></p> <p>Step 3b.3: Not Applicable</p>

<p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO DIRV of 6µg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so is selected, <u>establishing the NRV-R as 6µg</u></p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: Not Applicable</p> <p>Step 3c: Not Applicable</p>	<p>Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO DIRV of 8µg <i>is the same</i> as the median value of Category 2 DIRVs from RASBs so is selected, <u>establishing the NRV-R as 8µg</u></p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: Not Applicable</p> <p>Step 3c: Not Applicable</p>
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Combined age group (6-36 months)

<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2014, NIH 2015, NCM 2023)</u></p> <p>Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options</p> <p>Option 1: The higher value of proposed NRVs-R for older infants and young children (14µg) is selected if it does not exceed any UL available for either group</p> <p>Option 2: The lower value of proposed NRVs-R for older infants and young children (6µg) is selected.</p> <p>Option 3: The mean of proposed NRVs-R for older infants and young children (10µg) is selected.</p> <p>Recommendation: The <i>mean</i> NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, <u>establishing the NRV-R for 6 to 36 months as 10µg.</u></p> <p>Step 5: Not applicable - no UL available</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options</p> <p>Option 1: The higher value of proposed NRVs-R for older infants and young children (8µg) is selected if it does not exceed any UL available for either group</p> <p>Option 2: The lower value of proposed NRVs-R for older infants and young children (6µg) is selected.</p> <p>Option 3: The mean of proposed NRVs-R for older infants and young children (7µg) is selected.</p> <p>Recommendation: The <i>mean</i> NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, <u>establishing the NRV-R for 6 to 36 months as 7µg.</u></p> <p>Step 5: Not applicable - no UL available</p>
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Calcium

Table 14. Calcium Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 18 of the 2021 FAO report).

Calcium Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (mg)	INL50	INL98 (mg)	UL	KEY	Age range (years)	AI	INL50 (mg)	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC/MOH (2006)	7-12	270			N/A	3i	1-3		360	500	2500 mg	1a
United States & Canada IOM (2011)	7-12	260			1500	3i	1-3		500	700	2500 mg	1a
Europe EFSA (2015)	7-11	280			N/A	2e	1-3		390	450	N/A	1a
FAO/WHO (2004) ^Δ	7-12			400	N/A	1a	1-3			500	N/A	3j
Japan NIHN (2015)	6-11	250			N/A	3i	1-2		350	Boys 450 Girls 400	N/A	1a
Nordic Council NCM (2023)	7-11			310	N/A	2e	1-3			450	N/A	1a

^Δ Single DIRV for general population NRVs-R

The DIRVs set by NIHN for young children for boys and girls separately. Using 450 mg and 400 mg for boys and girls respectively, the NIHN DIRV is estimated as follows: $(450\text{mg} + 400\text{mg}/2 = 425\text{mg})$.

Derivation key

1a Factorial method;

2e Isometric/linear scaling up from DIRV young infant

3i Nutrient intake estimate

3j Interpolation

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs</p> <p>Step 3a: FAO/WHO Category 1 DIRV of 400mg is available and is selected, <u>establishing the NRV-R as 400mg.</u></p> <p>Step 3b: Not Applicable</p> <p>Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs</p> <p>Step 3a: FAO/WHO Category 1 DIRV is not available so the median of Category 1 DIRVs from RASBs EFSA (450mg), NIHN (425mg), NCM (450mg) is selected, <u>establishing the NRV-R as 450mg.</u></p> <p>Step 3b: Not Applicable</p> <p>Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>

<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: FAO/WHO Category 1 DIRV of 400mg <i>is available</i> and is selected, <u>establishing the NRV-R as 400mg.</u></p> <p>Step 3b: Not Applicable</p> <p>Step 3c: Not Applicable</p>	<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: FAO/WHO Category 1 DIRV <i>is not available</i> so the median of Category 1 DIRVs from RASBs is selected, <u>establishing the NRV-R as 450mg.</u></p> <p>Step 3b: Not Applicable</p> <p>Step 3c: Not Applicable</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + **more recent** RASBs (EFSA 2015, NIH 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The higher value of proposed NRVs-R for older infants and young children (450mg) is selected if it does not exceed any available UL.

Option 2: The lower value of proposed NRVs-R for older infants and young children (400mg) is selected.

Option 3: The mean of proposed NRVs-R for older infants and young children (425mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 425mg.

Step 5: Not applicable - no UL available

Approach 2: FAO/WHO + **all** RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The higher value of proposed NRVs-R for older infants and young children (450mg) is selected if it does not exceed any available UL.

Option 2: The lower value of proposed NRVs-R for older infants and young children (400mg) is selected.

Option 3: The mean of proposed NRVs-R for older infants and young children (425mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 425mg.

Step 5: The proposed NRVs-R do not exceed the UL values available NHMRC/MOH (2500mg), IOM (2500mg)

Magnesium

Table 15. Magnesium Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 19 of the 2021 FAO report)

Magnesium Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (mg)	INL50	INL98 (mg)	UL	KEY	Age range (years)	AI (mg)	INL50 (mg)	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC/MOH (2006)	7-12	75			N/A	3i	1-3		65	80	65	2h
United States & Canada IOM (1997) ^B	7-12	75			N/A	3i	1-3		65	80	65	2h
Europe EFSA (2015)	7-11	80			N/A	2e and 3i	1-<3	170			N/A	3i
FAO/WHO (2004) ^B	7-12			54	N/A	3j	1-3			60	N/A	3j
Japan NIHN (2015) ^B	6-11	60			N/A	3i	1-2		60	70	N/A	2h
Nordic Council NCM (2023)	7-11	80			N/A	2e	1-3	170			N/A	3i

^B Multiple DIRVs for general population NRVs-R

Derivation key/scientific rigour

2e Isometric/linear scaling up from DIRV young infant

2h Linear scaling from unit measure

3i Nutrient intake estimate

3j Interpolation

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered. Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies. Step 3b.2: Not Applicable Step 3b.3: The mean of Category 2 DIRVs from EFSA (80mg) + NCM (80mg) is selected, <u>establishing the NRV-R as 80mg.</u> Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered. Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies. Step 3b.2: Not Applicable Step 3b.3: The Category 2 DIRV from NIHN (70mg) is selected, <u>establishing the NRV-R as 70mg.</u> Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>

<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not available</i> so Step 3.B.3 applies.</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The mean of Category 2 DIRVs from EFSA (80mg) + NCM (80mg) is selected, <u>establishing the NRV-R as 80mg.</u></p> <p>Step 3c: Not Applicable</p>	<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered.</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not available</i> so Step 3.B.3 applies.</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The median of Category 2 DIRVs from NHMRC/MOH (80mg), IOM (80mg), NIH (70mg) is selected, <u>establishing the NRV-R as 80mg.</u></p> <p>Step 3c: Not Applicable</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIH 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The higher value of proposed NRVs-R for older infants and young children (80mg) is selected if it does not exceed any UL available for either group.

Option 2: The lower value of proposed NRVs-R for older infants and young children (70mg) is selected.

Option 3: The mean of proposed NRVs-R for older infants and young children (75mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 75mg.

Step 5: Not applicable - no UL is available

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (80mg) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (80mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (80mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 80mg.

Step 5: Not applicable - no UL is available

Iron

Table 16. Iron Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 20 of the 2021 FAO report)

Iron	Older Infants						Young Children						
	Country/ region RASB	Age range (months)	AI	INL50 (mg)	INL98 (mg)	UL	KEY	Age range (years)	AI	INL50 (mg)	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12		7	11	20 mg	1a		1-3		4	9	20 mg	1a
United States & Canada IOM (2001)	7-12		6.9	11	40 mg	1a		1-3		3	7	40 mg	1a
Europe EFSA (2015)	7-11		8	11	N/A	1a		1-3		5	7	N/A	1a
FAO/WHO (2004) ^A (% bioavailability range 15– 5%)	7-12			6.2 (15%) 7.7 (12%) 9.3 (10%) 18.6 (5%)	N/A	1a		1-3			3.9 (15%) 4.8 (12%) 5.8 (10%) 11.6 (5%)	N/A	1a
Japan NIHN (2015)	6-11			B) 5 mg G) 4.5 mg	N/A	1a		1-2		3	4.5	20 mg	1a
Nordic Council NCM (2023)	7-11			10	N/A	1a		1-3			7	N/A	1a

^ASingle DIRV for general population NRVs-R

Bioavailability Used by RASBs:

MHMRC/MOH (2006) = upper limit of 10% iron absorption (7-12 months) and upper limit of 14% iron absorption (1-3 years)

IOM (2001) = a bioavailability of 10% was assumed (<1 year) and a bioavailability of 18% for >1 years.

EFSA (2015) = 10 % absorption (older infants and young children)

FAO/WHO = % bioavailability range 15-5% (older infants and young children)

NIHN = 15% bioavailability (older infants and young children)

NCM = bioavailability of 10 % was assumed for children up to 11 years

B = Boys

G = Girls

Derivation key/scientific rigour

1a Factorial method

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: FAO/WHO Category 1 DIRV of 6.2mg (15% bioavailability) + 9.3mg (10% bioavailability) is available and is selected, <u>establishing the NRV-R as</u></p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: FAO/WHO Category 1 DIRV of 3.9mg (15% bioavailability) + 5.8mg (10% bioavailability) is available and is selected, <u>establishing the NRV-R as</u></p>

<p><u>6.2mg (15% bioavailability) + 9.3mg (10% bioavailability)</u> Step 3b: Not Applicable Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs Step 3a: FAO/WHO Category 1 DIRV of 6.2mg (15% bioavailability) + 9.3mg (10% bioavailability) is available and is selected, <u>establishing the NRV-R as 6.2mg (15% bioavailability) + 9.3mg (10% bioavailability)</u> Step 3b: Not Applicable Step 3c: Not Applicable</p>	<p><u>3.9mg (15% bioavailability) + 5.8mg (10% bioavailability)</u> Step 3b: Not Applicable Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs Step 3a: FAO/WHO Category 1 DIRV of 3.9mg (15% bioavailability) + 5.8mg (10% bioavailability) is available and is selected, <u>establishing the NRV-R as 3.9mg (15% bioavailability) + 5.8mg (10% bioavailability)</u> Step 3b: Not Applicable Step 3c: Not Applicable</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children 6.2mg (15% bioavailability) + 9.3mg (10% bioavailability) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children 3.9mg (15% bioavailability) + 5.8mg (10% bioavailability) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children 5.05mg (15% bioavailability) + 7.55mg (10% bioavailability), rounded to 5.1mg (15% bioavailability) and 7.6mg (10% bioavailability) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 5.05mg rounded up to 5.1mg (15% bioavailability) and 7.55mg rounded up to 7.6mg (10% bioavailability)

Step 5: The proposed NRVs-R do not exceed the UL values available NIHM (20mg).

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children 6.2mg (15% bioavailability) + 9.3mg (10% bioavailability) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children 3.9mg (15% bioavailability) + 5.8mg (10% bioavailability) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children 5.05mg (15% bioavailability) + 7.55mg (10% bioavailability), rounded to 5.1mg (15% bioavailability) and 7.6mg (10% bioavailability) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 5.05mg rounded up to 5.1mg (15% bioavailability) and 7.55mg rounded up to 7.6mg (10% bioavailability)

Step 5: The proposed NRVs-R do not exceed the UL values available NHMRC/MOH (20mg), IOM (40mg), NIHM (20mg).

Zinc

Table 17. Zinc Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 21 of the 2021 FAO report)

Zinc	Older Infants						Young Children						
	Country/ region RASB	Age range (months)	AI (mg)	INL50 (mg)	INL98 (mg)	UL	KEY	Age range (years)	AI (mg)	INL50 (mg)	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12		2.5	3	5	1a		1-3		2.5	3	7	1a
United States & Canada IOM (2001)	7-12		2.5	3	5	1a		1-3		2.5	3	7	1a
Europe EFSA (2015)	7-11		2.4	2.9	N/A	1a		1-3		3.6	4.3	7	1a
FAO/WHO (2004) (% bioavailability range 50–15%)	7-12			2.5 (50%) 4.1 (30%) 8.4 (15%)	N/A	1a		1-3			2.4 (50%) 4.1 (30%) 8.3 (15%)	N/A	1a
Japan NIHN (2015)	6-11	3			N/A	3i and 2c		1-2		3	3	N/A	2d
IZiNCG (2004) ^A	6-11		3-4	4-5	N/A	1a		1-3		2	3	N/A	1a
Nordic Council NCM (2023)	7-11			3	N/A	1a		1-3			4.5	N/A	1a

A Single DIRV for general population NRVs-R

Derivation key

1a Factorial method;

2c Allometric scaling up from DIRV young infant

2d Allometric scaling down from DIRV adult

3i Nutrient intake estimate and: average of two specified methods

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: FAO/WHO Category 1 DIRV of 2.5mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.4mg (15% bioavailability) <i>is available</i> and is selected, <u>establishing the NRV-R as 2.5mg (50% bioavailability), 4.1mg (30% bioavailability) and 8.4mg (15% bioavailability)</u> Step 3b: Not Applicable Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: FAO/WHO Category 1 DIRV of 2.4mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.3mg (15% bioavailability) <i>is available</i> and is selected, <u>establishing the NRV-R as 2.4mg (50% bioavailability), 4.1mg (30% bioavailability) and 8.3mg (15% bioavailability)</u> Step 3b: Not Applicable Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs</p>

<p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: FAO/WHO Category 1 DIRV of 2.5mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.4mg (15% bioavailability) <i>is available</i> and is selected, <u>establishing the NRV-R as 2.5mg (50% bioavailability), 4.1mg (30% bioavailability) and 8.4mg (15% bioavailability)</u></p> <p>Step 3b: Not Applicable</p> <p>Step 3c: Not Applicable</p>	<p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: FAO/WHO Category 1 DIRV of 2.4mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.3mg (15% bioavailability) <i>is available</i> and is selected, <u>establishing the NRV-R as 2.4mg (50% bioavailability), 4.1mg (30% bioavailability) and 8.3mg (15% bioavailability)</u></p> <p>Step 3b: Not Applicable</p> <p>Step 3c: Not Applicable</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIH 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children 2.5mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.4mg (15% bioavailability) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children 2.4mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.3mg (15% bioavailability) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children 2.45mg, rounded to 2.5mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.35mg, rounded to 8.4mg (15% bioavailability) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 2.45mg rounded up to 2.5mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.35mg rounded up to 8.4mg (15% bioavailability)

Step 5: Not applicable - no UL is available

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children 2.5mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.4mg (15% bioavailability) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children 2.4mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.3mg (15% bioavailability) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children 2.45mg, rounded to 2.5mg (50% bioavailability), 4.1mg (30% bioavailability) + 8.35mg, rounded to 8.4mg (15% bioavailability) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 2.45mg rounded up to 2.5mg (50% bioavailability) 4.1mg (30% bioavailability) + 8.35mg rounded up to 8.4mg (15% bioavailability)

Step 5: Not applicable - no UL is available

Iodine

Table 18. Iodine Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 22 of the 2021 FAO report).

Iodine Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (µg)	INL50	INL98 (µg)	UL	KEY	Age range (years)	AI (µg)	INL50 (µg)	INL98 (µg)	UL	KEY
Australia & New Zealand NHMRC /MOH (2006)	7-12	110			N/A	2c	1-3		65	90	200 µg	1b
United States & Canada IOM (2001)	7-12	130			N/A	2c	1-3		65	90	200 µg	1b
Europe EFSA (2015)	7-11	70			N/A	1b	1-<3	90			200 µg	1b
FAO/WHO (2004) ^A Recommendation for 0<5 yrs from (UNU/FAO/WHO/ UNICEF(2007)	7-12			90	140 µg/ kg/ day	3j	1-3			90	50 µg/ kg/ day	3j
Japan NIHN (2015)	6-11	130			250 µg/ day	2c	1-2		35	50	250 µg	2d
Nordic Council NCM (2023)	7-11	80-90			N/A	1b	1-3	100			N/A	1b

^ASingle DIRV for general population NRVs-R

Derivation key/scientific rigour

- 1b Maintenance biomarker/absence deficiency
- 2c Allometric scaling up from DIRVyoung infant
- 2d Allometric scaling down from DIRVadult
- 3j Interpolation

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs. Step 3a: FAO/WHO Category 1 DIRV is not available so the mean of Category 1 DIRVs from EFSA (70µg) + NCM (80µg -90µg) is selected, <u>establishing the NRV-R as 77.5µg rounded to 78µg.</u> Step 3b: Not Applicable. Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs.</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs. Step 3a: FAO/WHO Category 1 DIRV is not available so the mean of Category 1 DIRVs from EFSA (90µg) + NCM (100µg) is selected, <u>establishing the NRV-R as 95µg.</u> Step 3b: Not Applicable. Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies. Step 2: FAO/WHO + consider DIRVs from RASBs. Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with from all RASBs.</p>

<p>Step 3a: FAO/WHO Category 1 DIRV is not available so the median of Category 1 DIRVs from RASBs EFSA (70µg) + NCM (80µg -90µg) is selected, <u>establishing the NRV-R as 77.5µg, rounded up to 78µg.</u></p> <p>Step 3b: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p>Step 3a: FAO/WHO Category 1 DIRV is not available so the median of Category 1 DIRVs from NHMRC/MOH (90µg), IOM (90µg), EFSA (90µg), NCM (100µg) is selected, <u>establishing the NRV-R as 90µg.</u></p> <p>Step 3b: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (95µg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (77.5µg, rounded to 78µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (86.3µg, rounded to 86µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 86.3 µg, rounded to 86µg.

Step 5: The proposed NRVs-R do not exceed the UL values available FAO/WHO (50µg + 140µg), EFSA (200µg), NHN (250µg).

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (90µg) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (77.5µg, rounded to 78µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (83.8µg, 84 µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 83.8 µg, rounded up to 84µg.

Step 5: The proposed NRVs-R do not exceed the UL values available from FAO/WHO (50µg/day + 140µg/day), EFSA (200µg/day), IOM (200µg/day), NHN (250µg/day), NHMRC/MOH (250µg/day).

Copper

Table 19. Copper Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 23 of the 2021 FAO report)

Copper	Older Infants						Young Children						
	Country/ region RASB	Age range (months)	AI (µg)	INL50	INL98 (µg)	UL	KEY	Age range (years)	AI (µg)	INL50 (µg)	INL98 (µg)	UL (µg)	KEY
Australia & New Zealand NHMRC/MOH (2006)	7-12	220				N/A	3i	1-3	700			1000	3i
United States & Canada IOM (2001) ^A	7-12	220				N/A	3i	1-3		260	340	1000	2d
Europe EFSA (2015)	7-11	400				N/A	2c and 3i	1-<3	700			1000	3i
FAO/WHO (2004)	7-12				Not Set	N/A	--	1-3			Not Set	N/A	--
Japan NIHN (2015)	6-11	400				N/A	3i	1-2		200	300	N/A	2d
Nordic Council NCM (2023)	7-11				220	N/A	3i	1-3			340	N/A	3i

^ASingle DIRV for general population NRVs-R

Derivation key

2c Allometric scaling up from DIRVyoung infant

2d Allometric scaling down from DIRVadult

3i Nutrient intake estimate and: average of two specified methods

Older Infants	Young Children
<p>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023) <i>In the Stepwise Process, all data will be presented in milligrams (mg).</i></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies. Step 3b.2: Not Applicable Step 3b.3: The Category 2 DIRV from EFSA (0.4mg) is selected, <i>establishing the NRV-R as 0.4mg</i> Step 3c: Not Applicable</p> <p>Approach 2: FAO/WHO + all RASBs <i>In the Stepwise Process, all data will be presented in milligrams (mg).</i></p>	<p>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023) <i>In the Stepwise Process, all data will be presented in milligrams (mg).</i></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies. Step 3b.2: Not Applicable Step 3b.3: The Category 2 DIRV from NIHN (0.3mg) is selected, <i>establishing the NRV-R as 0.3mg</i> Step 3c: Not Applicable</p> <p>Approach 2: FAO/WHO + all RASBs <i>In the Stepwise Process, all data will be presented in milligrams (mg).</i></p>

<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not available</i> so Step 3.B.3 applies.</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The Category 2 DIRV from EFSA (0.4mg) is selected, <u>establishing the NRV-R as 0.4mg</u></p> <p>Step 3c: Not Applicable</p>	<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not available</i> so Step 3.B.3 applies.</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The mean of Category 2 DIRVs from IOM (340µg), NIHN (0.3mg) is selected, <u>establishing the NRV-R as 0.32mg rounded up to 0.3mg.</u></p> <p>Step 3c: Not Applicable</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)

In the Stepwise Process, all data will be presented in milligrams (mg).

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (0.4mg) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (0.3mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (0.35mg, rounded to 0.4mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.35mg rounded up to 0.4mg.

Step 5: The proposed NRVs-R do not exceed the UL values available EFSA (1mg).

Approach 2: FAO/WHO + all RASBs

In the Stepwise Process, all data will be presented in milligrams (mg).

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The higher value of proposed NRVs-R for older infants and young children (0.4mg) is selected if it does not exceed any UL available for either group.

Option 2: The lower value of proposed NRVs-R for older infants and young children (0.32mg, rounded to 0.3mg) is selected.

Option 3: The mean of proposed NRVs-R for older infants and young children (0.36mg, rounded to 0.4mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.36mg rounded up to 0.4mg.

Step 5: The proposed NRVs-R do not exceed the UL values available NHMRC/MOH (1mg), IOM (1mg), EFSA (1mg)

As shown the Tables 19 for Copper above, higher NRVs-R established for Older Infants compared with Young Children indicated the Stepwise Process did not work in proposing NRVs-R. The investigations and considerations on how to proceed are outlined below, including the rationale behind the methods used to propose copper NRVs-R for older infants and young children and combined age 6-36months..

Copper: The application of the Stepwise Process selects the DIRVs derived by the strongest evidence. There is a lack of data on copper DIRVs for person aged 6-36 months and the DIRVs

selected by application of the Stepwise Process are slightly higher for older infants than for young children.

Furthermore, feedback to Consultation Paper 2 recommended using the same unit (μg) as was used for the General Population older than 36 months.

The following issues were identified for consideration:

- a. Of note, when considered separately FAO/WHO and four of the RASBs are consistent in providing a lower DIRV for older infants compared with young children. The only exception to this is NIHN (2015), which proposes a higher older infant DIRV for copper ($400\mu\text{g}$) than the young children DIRV ($300\mu\text{g}$).
- b. Application of the Stepwise Process provides a higher older infant NRV-R for copper than that provided for young children. This occurs no matter whether more recent RASB data or all RASB data is used. This appears to be an anomaly (see point a. above).
- c. There was only one copper DIRV for older infants based on Category 2 evidence ($400\mu\text{g}$). However, the authors of this report noted limitations in the Category 2 data (balance study) and stated this was used for supporting evidence of the Category 3 data.
- d. Feedback from Consultation Paper 2 proposed that all copper DIRVs available for older infants should be considered equal and the median value selected. The rationale being that all DIRVs available are based on observed older infant nutrient intakes (Category 3). The most appropriate global value is thereby derived by utilising all available data - thus, only Approach 2 is appropriate so that global representation of intakes of this nutrient are considered. **The older infant NRV-R for copper is proposed as $220\mu\text{g}$ which reflects older infant intakes of this nutrient from all RASBs.**
- e. For young children, the copper DIRVs based on Category 2 evidence were $340\mu\text{g}$ and $300\mu\text{g}$ (provided by IOM, 2001 and NIHN, 2015). Using Approach 1 (considering only more recent data over the past ten years) **the young children NRV-R for copper is proposed as $300\mu\text{g}$** (using Approach 2 the NRV-R is calculated as $320\mu\text{g}$).

Given these changes to the proposed copper NRVs-R for older infants and young children, the copper NRVs-R for all of the options for the combined age groups were recalculated. **The proposed copper NRV-R for the combined age group 6-36months using is $260\mu\text{g}$ (Option 3 using Approach 1 in the case of the NRV-R for young children).**

Selenium

Table 20. Selenium Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 24 of the 2021 FAO report)

Selenium Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (µg)	INL50 (µg)	INL98 (µg)	UL	KEY	Age range (years)	AI (µg)	INL50 (µg)	INL98 (µg)	UL	KEY
Australia & New Zealand NHMRC/MOH (2006) ^B	7-12	15			60	2c	1-3		20	25	90	2d
United States & Canada IOM (2000) ^B	7-12	20			60	2c and 3i	1-3		17	20	90	2d
Europe EFSA (2015) ^B	7-11	15			N/A	2e	1-3	15			60	2f
FAO/WHO (2004)	7-12		8.2	10	N/A	3j	1-3		13.6	17	N/A	3j
Japan NIHN (2015) ^B	6-11	15			N/A	2c	1-2		10	10	N/A	2d
Nordic Council NCM (2023)	7-11	20			N/A	2e	1-3	18*			N/A	2f

^BMultiple DIRVs for general population NRVs-R

*NCM provided a DIRV of 15 µg for 1 year olds, 20 µg for 2 year olds and 20 µg for 3 year olds. A DIRV for 1-3 years olds was calculated as follows: $(15+20+20)/3 = 18$ µg.

Derivation key

2c Allometric scaling up from DIRV young infant

2d Allometric scaling down from DIRV adult

2e Isometric scaling up from DIRV young infant

2f Isometric scaling down from DIRV adult

3i Nutrient intake estimate

3j Interpolation and average of two specified methods

Older Infants	Young Children
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies Step 3b.2: Not Applicable Step 3b.3: The median of Category 2 DIRVs from EFSA (15µg), NIHN (15µg), NCM (20µg) is selected, <u>establishing the NRV-R as 15µg.</u> Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies Step 3b.2: Not Applicable Step 3b.3: The median of Category 2 DIRVs from EFSA (15µg), NIHN (10µg), NCM (18µg) is selected, <u>establishing the NRV-R as 15µg.</u> Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>

<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not available</i> so Step 3.B.3 applies</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The median of Category 2 DIRVs from relevant RASBs is selected, <u>establishing the NRV-R as 15µg.</u></p> <p>Step 3c: Not Applicable</p>	<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not available</i> so Step 3.B.3 applies</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The median of Category 2 DIRVs from relevant RASBs is selected, <u>establishing the NRV-R as 18µg.</u></p> <p>Step 3c: Not Applicable</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + **more recent** RASBs (EFSA 2015, NIH 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (15µg) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (15µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (15µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 15µg.

Step 5: Not applicable - no UL available

Approach 2: FAO/WHO + **all** RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (18µg) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (15µg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (16.5µg, rounded to 17µg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 16.5µg rounded up to 17µg.

Step 5: Not applicable - no UL available

Manganese

Table 21. Manganese Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 25 of the 2021 FAO report)

Manganese Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (mg)	INL50	INL98 (mg)	UL	KEY	Age range (years)	AI (mg)	INL50	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC/MOH (2006)	7-12	0.6			N/A	3i	1-3	2			N/A	3i
United States & Canada IOM (2001) ^B	7-12	0.6			N/A	3i	1-3	1.2			2	3i
Europe EFSA (2013) ^B	7-11	0.02-0.5			N/A	2e	1-3	0.5			N/A	2g
FAO/WHO (2004)	7-12			Not Set	N/A		1-3			Not Set	N/A	
Japan NIHN (2015)	6-11	0.5			N/A	3i	1-2	1.5			N/A	2d
Nordic Council NCM (2023)	7-11	0.02-0.5			N/A	2e	1-3	0.5			N/A	2g

^B Multiple DIRVs for general population NRVs-R

Derivation key

2d Allometric scaling down from DIRV adult

2e Isometric scaling up from DIRV young infant

2g Linear scaling down from DIRV adult

3i Nutrient intake estimate and average of two specified methods

Older Infants	Young Children
<p><u>Approach 1: FAO/WHO + more recent RASBs (NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies Step 3b.2: Not Applicable Step 3b.3: The only Category 2 DIRV from NCM (0.02-0.5mg) is selected, the mean of which is 0.26mg, <u>establishing the NRV-R as 0.3mg</u> Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies Step 3b.2: Not Applicable Step 3b.3: The mean of Category 2 DIRVs from NIHN (1.5mg), NCM (0.5mg) is selected, <u>establishing the NRV-R as 1.0mg</u> Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>

<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable, so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not available</i> so Step 3.B.3 applies</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The mean of Category 2 DIRVs from EFSA (0.02-0.5mg), NCM (0.02-0.5mg) is selected, <u>establishing the NRV-R as 0.26mg, rounded to 0.3mg</u></p> <p>Step 3c: Not Applicable</p>	<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable, so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV is <i>not available</i> so Step 3.B.3 applies</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The median of Category 2 DIRVs from EFSA (0.5mg), NIHN (1.5mg), NCM (0.5mg) is selected, <u>establishing the NRV-R as 0.5mg</u></p> <p>Step 3c: Not Applicable</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (NIHN 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (1.0mg) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (0.26mg, rounded to 0.3mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (0.63mg, rounded to 0.6mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.63mg rounded up to 0.6mg.

Step 5: Not applicable - no UL available

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (0.5mg) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (0.26mg, rounded to 0.3mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (0.38mg rounded up to 0.4mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 0.38mg, rounded to 0.4mg.

Step 5: Not applicable - no UL available

Phosphorus

Table 22. Phosphorus Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 26 of the 2021 FAO report)

Phosphorus Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (mg)	INL50	INL98 (mg)	UL	KEY	Age range (years)	AI (mg)	INL50 (mg)	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC/MOH (2006)	7-12	275			N/A	3i	1-3		380	460	3000	1a
United States & Canada IOM (1997) ^A	7-12	275			N/A	3i	1-3		380	460	3000	1a
Europe EFSA (2015)	7-11	160			N/A	2g	1-3	250			N/A	2g
FAO/WHO (2004)	7-12			Not Set	N/A		1-3			Not Set	N/A	
Japan NIHN (2015)	6-11	260				3i	1-2	500			N/A	3i
Nordic Council NCM (2023)	7-11	170			N/A	2g	1-3	250			N/A	2g

^A Single DIRV for general population NRVs-R

Derivation key

1a Factorial method

2g Linear scaling down from DIRV adult

3i Nutrient intake estimate

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not available</i> so Step 3.B.3 applies Step 3b.2: Not Applicable Step 3b.3: The mean of Category 2 DIRVs from EFSA (160mg), NCM (170mg) is selected, <u>establishing the NRV-R as 165mg.</u> Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies Step 3b: DIRVs based on Category 2 data are considered Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not available</i> so Step 3.B.3 applies Step 3b.2: Not Applicable Step 3b.3: The mean of Category 2 DIRVs from EFSA (250mg), NCM (250mg) is selected, <u>establishing the NRV-R as 250mg</u> Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p>

<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not available</i> so Step 3.B.3 applies</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The mean of Category 2 DIRVs from EFSA (160mg), NCM (170mg) is selected, <u>establishing the NRV-R as 165mg.</u></p> <p>Step 3c: Not Applicable</p>	<p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs</p> <p>Step 3a: FAO/WHO Category 1 DIRV <i>is not available</i> so the mean of Category 1 DIRVs from NHMRC/MOH (460mg), IOM (460mg) is selected, <u>establishing the NRV-R as 460mg</u></p> <p>Step 3b: Not Applicable</p> <p>Step 3c: Not Applicable</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (EFSA 2015, NIHN 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (250mg) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (165mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (207.5mg, rounded to 208mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 207.5mg rounded up to 208mg.

Step 5: Not applicable - no UL available

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (460mg) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (165mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (31 312.5mg, rounded to 313mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 312.5mg rounded up to 313mg.

Step 5: Not applicable - no UL available

Potassium

Table 23. Potassium Dietary Intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 27 of the 2021 FAO report)

Potassium Country/ region RASB	Older Infants						Young Children					
	Age range (months)	AI (mg)	INL50	INL98 (mg)	UL	KEY	Age range (years)	AI (mg)	INL50 (mg)	INL98 (mg)	UL	KEY
Australia & New Zealand NHMRC/MOH (2006)	7-12	700			N/A	3i	1-3	2000			N/A	3i
United States & Canada NASEM (2019)	7-12	860			N/A	3i	1-3	2000			N/A	3i
Europe EFSA (2016)	7-11	750			N/A	2f	1-3	800			N/A	2f
FAO/WHO (2004)	7-12			Not Set	N/A		1-3			Not Set	N/A	
Japan NIHN (2015)	6-11	700			N/A	3i	1-2	Boys 900 Girls 800			N/A	2d
Nordic Council NCM (2023)	7-11	700			N/A	2f	1-3	850			N/A	2f

Derivation key

2d Allometric scaling down from DIRV adult

2f Isometric scaling down from DIRV adult

3i Nutrient intake estimate

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs</u> (NASEM 2019, EFSA 2016, NIHN 2015, NCM 2023)</p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies Step 3b.2: Not Applicable Step 3b.3: The mean of Category 2 DIRVs from EFSA (750mg), NCM (700mg) is selected, <u>establishing the NRV-R as 725mg.</u> Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs</u> (NASEM 2019, EFSA 2016, NIHN 2015, NCM 2023)</p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies. Step 3b: DIRVs based on Category 2 data are considered Step 3b.1: The FAO/WHO Category 2 DIRV is not available so Step 3.B.3 applies Step 3b.2: Not Applicable Step 3b.3: The median of Category 2 DIRVs from EFSA (800mg), NIHN (850mg), NCM (850mg) is selected, <u>establishing the NRV-R as 850mg.</u> Step 3c: Not Applicable</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not applicable - no updated FAO/WHO DIRVs so Step 2 applies Step 2: FAO/WHO + consider DIRVs from RASBs</p>

<p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not available</i> so Step 3.B.3 applies</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The mean of Category 2 DIRVs from EFSA (750mg), NCM (700mg) is selected, <u>establishing the NRV-R as 725mg.</u></p> <p>Step 3c: Not Applicable</p>	<p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs</p> <p>Step 3a: No DIRVs based on Category 1 data available so this step is not applicable so Step 3.B applies.</p> <p>Step 3b: DIRVs based on Category 2 data are considered</p> <p>Step 3b.1: The FAO/WHO Category 2 DIRV <i>is not available</i> so Step 3.B.3 applies</p> <p>Step 3b.2: Not Applicable</p> <p>Step 3b.3: The median of Category 2 DIRVs from EFSA (800mg), NIHN (850mg), NCM (850mg) is selected, <u>establishing the NRV-R as 850mg.</u></p> <p>Step 3c: Not Applicable</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (NASEM 2019, EFSA 2017/ other years if applicable), NIHN 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (850mg) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (725mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (787.5mg, rounded to 788mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 787.5mg rounded up to 788mg.

Step 5: Not applicable - no UL available

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (850mg) is selected if it does not exceed any UL available for either group.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (725mg) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (787.5mg, rounded to 788mg) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 787.5mg rounded up to 788mg.

Step 5: Not applicable - no UL available

Protein

Table 24. Protein Dietary intake Reference Values (DIRVs) for Older Infants and Young Children (adapted from Page 16 of the 2021 FAO report)

Protein	Country/ region RASB	Older Infants					Young Children							
		Age range [body wt]	AI	INL50 (g/kg body wt)	INL98 (g/kg body wt) g/day	UL	KEY	Age range [body wt]	AI	INL50 (g/kg body wt)	INL98 (g/kg body wt) g/day	UL	KEY	
	Australia & New Zealand NHMRC/MOH (2006)	7-12mo	1.6 g/kg=14g					3i		1-3yr	0.92 g/kg	14 g		1a
	United States & Canada IOM (2002/2005)	7-12mo		1 g/kg	11 g			1a		-3yr	0.87 g/kg	13 g		1a
	Europe EFSA (2012)	6-12 mo		1.12 g/kg	(1.31g/kg bw per day x bw 8.6kg [9mo]) 11.3g***			1a		1-3 yrs	0.86 g/kg bw	1.05g/kg bw/day** **x bw 11.9kg [2yrs]) 12.5g****		1a
	FAO/WHO (2004)	6-12 mo		1.12g/kg	(1.31g/kg bw per day x bw 8.6kg [9mo]) 11.3g			1a		1-3yrs	0.86 g/kg bw	1.05g/kg bw/day** **x bw 11.9kg [2yrs]) 12.5g****		1a
	Japan NIHN (2015) * DIRVs given 6-8 mo; 9-11 mo	6-8mo [Boy 8.4 kg Girl 7.8 kg] 9-11mo [Boy 9.1 kg Girl 8.4 kg]	8 12.5g** 15.2g*** 25 g 22.0g** 23.8g***					3i		1-2yr	15 g	20 g		1a
	Nordic Council NCM (2023)	7-11 mo		1.04g/kg bw	(1.23g/kg bw x 9kg [average weight 7- 11mo]) 11.1g			1a		1-3 yrs	0.82g/kg bw/day	(1.05g/kg bw/day x 13.6kg [average weight 1- 3years]) 14.3		1a

Table was amended in red to apply body weight kg to apply the WHO growth standards for EFSA and FAO/WHO DIRVs at 9 months
<https://www.who.int/tools/child-growth-standards/standards/weight-for-age>

*[Body weights for specific ages] in age range columns, Japan NIHN, **breast fed Japan NIHN;***formula fed Japan NIHN

****WHO median weight at 2 years is 1.05g/kg/day (average of DIRVs at 3 age points: 1.14 at 1 year+ 1.03 at 1.5 years + 0.97 at 2years/3)

In the absence of specifics on how the DIRV was derived in the NCM 2023 report, the scientific ranking for the EFSA DIRV has been assigned to this value as the NCM report cites EFSA as the source.

Derivation key

1a Factorial method;

3i Nutrient intake estimate

<u>Older Infants</u>	<u>Young Children</u>
<p><u>Approach 1: FAO/WHO + more recent RASBs (NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: FAO/WHO Category 1 DIRV of 11.3g and selected, <u>establishing the NRV-R as 11.3g.</u></p> <p>Step 3b: Not Applicable.</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs.</p>	<p><u>Approach 1: FAO/WHO + more recent RASBs (NIHN 2015, NCM 2023)</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p> <p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with more recently established DIRVs from RASBs.</p> <p>Step 3a: FAO/WHO Category 1 DIRV of 12.5g is available + selected, <u>establishing the NRV-R as 12.5g.</u></p> <p>Step 3b: Not Applicable.</p> <p>Step 3c: Not Applicable.</p> <p><u>Approach 2: FAO/WHO + all RASBs</u></p> <p>Step 1: Not Applicable - no updated FAO/WHO DIRVs so Step 2 applies.</p> <p>Step 2: FAO/WHO + consider DIRVs from RASBs.</p>

<p>Step 3a: FAO/WHO Category 1 DIRV of 11.3g is available + selected, <u>establishing the NRV-R as 11.3g.</u></p> <p>Step 3b: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>	<p>Step 3: Case-by-case consideration of derivation of FAO/WHO DIRV along with DIRVs from all RASBs.</p> <p>Step 3a: FAO/WHO Category 1 DIRV of 12.5g is available + selected, <u>establishing the NRV-R as 12.5g.</u></p> <p>Step 3b: Not Applicable.</p> <p>Step 3c: Not Applicable.</p>
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Combined age group (6-36 months)

Approach 1: FAO/WHO + more recent RASBs (NIHN 2015, NCM 2023)

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (12.5g) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (11.3g) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (11.9g) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 11.9g.

Step 5: Not Applicable – no UL available.

Approach 2: FAO/WHO + all RASBs

Step 4: NRV-R for the combined age group (6-36 months) estimated according to 3 options:

Option 1: The *higher* value of proposed NRVs-R for older infants and young children (12.5g) is selected if it does not exceed any available UL.

Option 2: The *lower* value of proposed NRVs-R for older infants and young children (11.3g) is selected.

Option 3: The *mean* of proposed NRVs-R for older infants and young children (11.9g) is selected.

Recommendation: The *mean* NRV-R value proposed for older infants or young children covers the needs of all children and is selected for the combined age group, establishing the NRV-R for 6 to 36 months as 11.9g.

Step 5: Not Applicable – no UL available.

QUANTITATIVE ANALYSIS

(for information)

Quantitative analysis of feedback received on Consultation Paper 1

Table 1. Feedback from Codex Members (CMs), Codex Member Organisation (CMO) and Codex Observers (COs) on the draft Stepwise Process (presented in CP1)

Question	CMs	CMO	COs
	(n) %	(n) %	(n) %
Question 1:			
<i>Step 1: Identify new or updated daily intake reference values (DIRVs) from FAO/WHO for older infants and young children and select for establishing NRVs-R."</i>			
Do you agree with the amended text of Step 1 of the stepwise process and why?			
Yes	(16) 88.9%	(1) 100%	(2) 66.7%
No	(1) 5.6%		
Don't Know			
No Answer Given	(1) 5.6%		(1) 33.3%
Question 2:			
<i>Step 2: When new or updated DIRVs have not been established by FAO/WHO for the vitamins and minerals under consideration, the 2021 FAO report is used to identify DIRVs previously established by FAO/WHO and the RASBs. In addition, any newly updated DIRVs from any of the RASBs since publication of the 2021 FAO report are identified and considered as a suitable data source.</i>			
Do you agree with the proposed Step 2 of the stepwise process and why?			
Yes	(16) 88.9%		(2) 66.7%
No	(1) 5.6%	(1) 100%	
Don't Know			
No Answer given	(1) 5.6%		(1) 33.3%
Question 3:			
<i>Step 3: The totality of the evidence (rigour of scientific methods, underlying data quality and strength of evidence) used to derive the DIRVs in these data sources (RASBs and older reviews from FAO/WHO) are assessed. Using the 2021 FAO report, DIRVs are selected as data sources for establishing NRVs-R based on totality of the evidence in the following priority order:</i>			
<i>Step 3a – to be applied when DIRVs informed by relevant physiological evidence are available.</i>			
<i>Step 3b – to be applied when there are no DIRVs informed by relevant physiological evidence available.</i>			
<i>Step 3c – to be applied when there are no DIRVs informed by relevant physiological evidence or extrapolation from other age groups available.</i>			
Do you agree with Step 3 of the stepwise process and why?			
Yes	(15) 83.3%		(2) 66.7%
No	(1) 5.6%	(1) 100%	
Don't Know	(1) 5.6%		
No answer given	(1) 5.6%		(1) 33.3%
Question 4:			
<i>"Step 4: Estimate the NRVs-R for the combined 6–36 month age group according to the three options outlined below:</i>			
<i>Option 1: The combined NRV-R value for persons aged 6–36 months should be determined by selecting the higher value of the proposed NRVs-R for older infants and young children if it does not exceed the UL for older infants and/or young children, where available.</i>			
<i>Option 2: The combined NRV-R value for persons aged 6–36 months should be determined by selecting the lower value of the proposed NRVs-R for older infants and young children.</i>			
<i>Option 3: The combined NRV-R value for persons aged 6–36 months should be determined by calculating the mean value of the two age groups 6–12 months and 12–36 months."</i>			
Do you agree with Step 4 of the stepwise process and why?			
Yes	(13) 72.2%		(2) 66.7%

No	(1) 5.6%	(1) 100%	
Don't Know	(3) 16.7%		
No Answer given	(1) 5.6%		(1) 33.3%
Question 5: Step 5: Consideration of ULs (where available) is given to ensure that the proposed NRVs-R do not exceed the lowest of the UL values available." Do you agree with Step 5 of the stepwise process and why?			
Yes	(17) 94.4%	(1) 100%	(2) 66.7%
No			
Don't Know			
No Answer given	(1) 5.6%		(1) 33.3%

Table 2. Feedback from Codex Members (CMs), Codex Member Organisation (CMO) and Codex Observers (COs) on the pilot application of the revised draft Stepwise Process (using data from ALL RASBs) to propose NRVs-R for seven nutrients (presented in CP1).

Question	CMs (n) %	CMO (n) %	COs (n) %
Question 6: B12			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Vitamin B12?			
Yes	(14) 77.8%		(2) 66.7%
No		(1) 100%	
Don't Know	(1) 5.6%		
No Answer given	(3) 16.7%		(1) 33.3%
B. Do you agree with the proposed NRV-R for older infants of 0.5 µg?			
Yes	(14) 77.6%		(2) 66.7%
No		(1) 100%	
Don't Know	(1) 5.6%		
No Answer given	(3) 16.7%		(1) 33.3%
C. Do you agree with the proposed NRV-R for young children of 0.9 µg?			
Yes	(14) 77.6%		(2) 66.7%
No		(1) 100%	
Don't Know	(1) 5.6%		
No Answer given	(3) 16.7%		(1) 33.3%
D. Do you agree with the proposed NRV-R for the combined age group of 0.9 µg?			
Yes	(11) 61.1%		(2) 66.7%
No		(1) 100%	
Don't Know	(2) 11.1%		
No Answer given	(5) 27.8%		(1) 33.3%
Question 7: Iodine			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Iodine?			
Yes	(14) 77.8%		(2) 66.7%
No		(1) 100%	
Don't Know	(1) 5.6%		
No Answer given	(3) 16.7%		(1) 33.3%
B. Do you agree with the proposed NRV-R for older infants of 78 µg?			
Yes	(12) 66.7%		(2) 66.7%
No	(1) 5.6%	(1) 100%	
Don't Know	(1) 5.6%		
No Answer given	(3) 16.7%		(1) 33.3%
Yes and No	(1) 5.6%		
C. Do you agree with the proposed NRV-R for young children of 90 µg?			
Yes	(14) 77.8%		(2) 66.7%
No		(1) 100%	
Don't Know	(1) 5.6%		
No Answer given	(3) 16.7%		(1) 33.3%
D. Do you agree with the proposed NRV-R for the combined age group of 90 µg?			
Yes	(12) 66.7%		(2) 66.7%
No	(1) 5.6%	(1) 100%	
Don't Know	(2) 11.1%		
No Answer given	(3) 16.7%		(1) 33.3%
Question 8: B6			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Vitamin B6?			

Yes	(15) 83.3%		(2) 66.7%
No		(1) 100%	
Don't Know			
No Answer given	(3) 16.7%		(1) 33.3%
B. Do you agree with the proposed NRV-R for older infants of 0.3 mg?			
Yes	(15) 83.3%		(2) 66.7%
No		(1) 100%	
Don't Know			
No Answer given	(3) 16.7%		(1) 33.3%
C. Do you agree with the proposed NRV-R for young children of 0.5 mg?			
Yes	(15) 83.3%		(2) 66.7%
No		(1) 100%	
Don't Know			
No Answer given	(3) 16.7%		(1) 33.3%
D. Do you agree with the proposed NRV-R for the combined age group of 0.5 mg?			
Yes	(13) 72.2%		(2) 66.7%
No		(1) 100%	
Don't Know	(2) 11.1%		
No Answer given	(3) 16.7%		(1) 33.3%
Question 9: Riboflavin			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Riboflavin?			
Yes	(15) 83.3%		(2) 66.7%
No		(1) 100%	
Don't Know			
No Answer given	(3) 16.7%		(1) 33.3%
B. Do you agree with the proposed NRV-R for older infants of 0.4 mg?			
Yes	(15) 83.3%		(2) 66.7%
No		(1) 100%	
Don't Know			
No Answer given	(3) 16.7%		(1) 33.3%
C. Do you agree with the proposed NRV-R for young children of 0.5 mg?			
Yes	(15) 83.3%		(2) 66.7%
No		(1) 100%	
Don't Know			
No Answer given	(3) 16.7%		(1) 33.3%
D. Do you agree with the proposed NRV-R for the combined age group of 0.5 mg?			
Yes	(13) 72.2%		(2) 66.7%
No		(1) 100%	
Don't Know	(1) 5.6%		
No Answer given	(4) 22.2%		(1) 33.3%
Question 10: Thiamine			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Thiamine?			
Yes	(15) 83.3%		(2) 66.7%
No		(1) 100%	
Don't Know			
No Answer given	(3) 16.7%		(1) 33.3%
B. Do you agree with the proposed NRV-R for older infants of 0.3 mg?			
Yes	(15) 83.3%		(2) 66.7%
No		(1) 100%	
Don't Know			

<i>No Answer given</i>	(3) 16.7%		(1) 33.3%
C. Do you agree with the proposed NRV-R for young children of 0.5 mg?			
<i>Yes</i>	(15) 83.3%		(2) 66.7%
<i>No</i>		(1) 100%	
<i>Don't Know</i>			
<i>No Answer given</i>	(3) 16.7%		(1) 33.3%
D. Do you agree with the proposed NRV-R for the combined age group of 0.5 mg?			
<i>Yes</i>	(12) 66.7%		(2) 66.7%
<i>No</i>		(1) 100%	
<i>Don't Know</i>	(2) 11.1%		
<i>No Answer given</i>	(4) 22.2%		(1) 33.3%
Question 11: Niacin			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Niacin?			
<i>Yes</i>	(15) 83.3%		(2) 66.7%
<i>No</i>		(1) 100%	
<i>Don't Know</i>			
<i>No Answer given</i>	(3) 16.7%		(1) 33.3%
B. Do you agree with the proposed NRV-R for older infants of 4 mg NE?			
<i>Yes</i>	(15) 83.3%		(2) 66.7%
<i>No</i>		(1) 100%	
<i>Don't Know</i>			
<i>No Answer given</i>	(3) 16.7%		(1) 33.3%
C. Do you agree with the proposed NRV-R for young children of 6 mg NE?			
<i>Yes</i>	(15) 83.3%		(2) 66.7%
<i>No</i>		(1) 100%	
<i>Don't Know</i>			
<i>No Answer given</i>	(3) 16.7%		(1) 33.3%
D. Do you agree with the proposed NRV-R for the combined age group of 6 mg NE?			
<i>Yes</i>	(13) 72.2%		(2) 66.7%
<i>No</i>		(1) 100%	
<i>Don't Know</i>	(2) 11.1%		
<i>No Answer given</i>	(3) 16.7%		(1) 33.3%
Question 12: Vitamin C			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Vitamin C?			
<i>Yes</i>	(12) 66.7%		(2) 66.7%
<i>No</i>	(1) 5.6%	(1) 100%	
<i>Don't Know</i>	(1) 5.6%		
<i>No Answer given</i>	(4) 22.2%		(1) 33.3%
B. Do you agree with the proposed NRV-R for older infants of 25 mg?			
<i>Yes</i>	(12) 66.7%		(2) 66.7%
<i>No</i>	(2) 11.1%	(1) 100%	
<i>Don't Know</i>	(1) 5.6%		
<i>No Answer given</i>	(3) 16.7%		(1) 33.3%
C. Do you agree with the proposed NRV-R for young children of 23 mg?			
<i>Yes</i>	(11) 61.1%		(2) 66.7%
<i>No</i>	(1) 5.6%	(1) 100%	
<i>Don't Know</i>	(2) 11.1%		
<i>No Answer given</i>	(3) 16.7%		(1) 33.3%
<i>Yes and No</i>	(1) 5.6%		
D. Do you agree with the proposed NRV-R for the combined age group of 25 mg?			

<i>Yes</i>	(12) 66.7%		(2) 66.7%
<i>No</i>		(1) 100%	
<i>Don't Know</i>	(3) 16.7%		
<i>No Answer given</i>	(3) 16.7%		(1) 33.3%

Quantitative analysis of feedback received on Consultation Paper 2

Table 1. Feedback from Codex Members (CMs), Codex Member Organisation (CMO) and Codex Observers (COs) on the revised draft Stepwise Process (presented in CP2)

Question	CMs	CMO	COs
	(n) %	(n) %	(n) %
Question 1: Step 1: Identify new or updated daily intake reference values (DIRVs) from FAO/WHO for older infants and young children and select for establishing NRVs-R." Do you agree with the amended text of Step 1 of the stepwise process and why?			
Yes	(12) 92.3%	(1) 100%	(2) 100%
No	(1) 7.7%		
Don't Know			
No Answer Given			
Question 2: Step 2: When new or updated DIRVs have not been established by FAO/WHO for the vitamins and minerals under consideration, the 2021 FAO report is used to identify DIRVs previously established by FAO/WHO and the RASBs. In addition, any newly updated DIRVs from any of the RASBs since publication of the 2021 FAO report are identified and considered as a suitable data source. Do you agree with the proposed Step 2 of the stepwise process and why?			
Yes	(12) 92.3%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know			
No Answer given			
Question 3: Step 3: The totality of the evidence (rigour of scientific methods, underlying data quality and strength of evidence) used to derive the DIRVs in these data sources (RASBs and older reviews from FAO/WHO) are assessed. Using the 2021 FAO report, DIRVs are selected as data sources for establishing NRVs-R based on totality of the evidence in the following priority order: Step 3a – to be applied when DIRVs informed by relevant physiological evidence are available. Step 3b – to be applied when there are no DIRVs informed by relevant physiological evidence available. Step 3c – to be applied when there are no DIRVs informed by relevant physiological evidence or extrapolation from other age groups available. Do you agree with Step 3 of the stepwise process and why?			
Yes	(9) 69.2%		(2) 100%
No	(3) 23.1%	(1) 100%	
Don't Know	(1) 7.7%		
No answer given			
Question 4: Step 4: Estimate the NRVs-R for the combined 6–36 month age group according to the three options outlined below: Option 1: The combined NRV-R value for persons aged 6–36 months should be determined by selecting the higher value of the proposed NRVs-R for older infants and young children if it does not exceed the UL for older infants and/or young children, where available. Option 2: The combined NRV-R value for persons aged 6–36 months should be determined by selecting the lower value of the proposed NRVs-R for older infants and young children. Option 3: The combined NRV-R value for persons aged 6–36 months should be determined by calculating the mean value of the two age groups 6–12 months and 12–36 months." Do you agree with Step 4 of the stepwise process and why?			
Yes	(9) 69.2%		
No	(3) 23.1%	(1) 100%	(2) 100%
Don't Know			
No Answer given	(1) 7.7%		

Question 5:			
<i>Step 5: Consideration of ULs (where available) is given to ensure that the proposed NRVs-R do not exceed the lowest of the UL values available."</i>			
Do you agree with Step 5 of the stepwise process and why?			
Yes	(13) 100%	(1) 100%	(1) 50%
No			(1) 50%
Don't Know			
No Answer given			

Table 2. Feedback from Codex Members (CMs), Codex Member Organisation (CMO) and Codex Observers (COs) on the application of the revised draft Stepwise Process (using data from ALL RASBs) to propose NRVs-R for ALL nutrients (presented in CP2).

Question	CMs (n) %	CMO (n) %	COs (n) %
Question 6: B12			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Vitamin B12?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 0.5 µg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 0.9 µg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 0.9 µg?			
Yes	(10) 76.9%		(2) 100%
No		(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
Yes and No	(1) 7.7%		
Question 7: Iodine			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Iodine?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 80 µg?			
Yes	(9) 75%		
No	(1) 8.3%	(1) 100%	
Don't Know	(1) 8.3%		
No Answer given	(1) 8.3%		
Yes and No			
C. Do you agree with the proposed NRV-R for young children of 90 µg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 90 µg?			
Yes	(10) 76.9%		(2) 100%
No		(1) 100%	
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		
Question 8: B6			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Vitamin B6?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		

B. Do you agree with the proposed NRV-R for older infants of 0.3 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 0.5 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 0.5 mg?			
Yes	(10) 76.9%		(2) 100%
No		(1) 100%	
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		
Question 9: Riboflavin			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Riboflavin?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 0.4 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 0.5 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 0.5 mg?			
Yes	(10) 76.9%		(2) 100%
No		(1) 100%	
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		
Question 10: Thiamine			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Thiamine?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 0.3 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 0.5 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 0.5 mg?			
Yes	(9) 69.2%		(2) 100%

No		(1) 100%	
Don't Know	(3) 23.1%		
No Answer given	(1) 7.7%		
Question 11: Niacin			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Niacin?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 4 mg NE?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 6 mg NE?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 6 mg NE?			
Yes	(10) 76.9%		(2) 100%
No		(1) 100%	
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		
Question 12: Vitamin C			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Vitamin C?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 25 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 25 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
Yes and No			
D. Do you agree with the proposed NRV-R for the combined age group of 25 mg?			
Yes	(10) 76.9%		(2) 100%
No		(1) 100%	
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		
Question 13: Vitamin A			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Vitamin A?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		

B. Do you agree with the proposed NRV-R for older infants of 250 µg RE?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 300 µg RE?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 300 µg RE?			
Yes	(10) 76.9%		(2) 100%
No		(1) 100%	
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		
Question 14: Vitamin D			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Vitamin D?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 5 µg?			
Yes	(9) 69.2%		(1) 50%
No	(2) 15.4%	(1) 100%	(1) 50%
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 5 µg?			
Yes	(9) 69.2%		(1) 50%
No	(2) 15.4%	(1) 100%	(1) 50%
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 5 µg?			
Yes	(10) 76.9%		(1) 50%
No		(1) 100%	(1) 50%
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		
Question 15: Vitamin K			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Vitamin K?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 10 µg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 15 µg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		

No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 15 µg?			
Yes	(9) 69.2%		(2) 100%
No		(1) 100%	
Don't Know	(3) 23.1%		
No Answer given	(1) 7.7%		
Question 16: Vitamin E			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Vitamin E?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 5 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 6 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 6 mg?			
Yes	(9) 69.2%		(2) 100%
No		(1) 100%	
Don't Know	(3) 23.1%		
No Answer given	(1) 7.7%		
Question 17: Folate			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Folate?			
Yes	(11) 84.6%		(2) 100%
No		(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 80 µg DFE?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 150 µg DFE?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 150 µg DFE?			
Yes	(10) 76.9%		(2) 100%
No		(1) 100%	
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		
Question 18: Pantothenic Acid			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Pantothenic acid?			
Yes	(10) 76.9%		(1) 50%

No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		(1) 50%
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 3 mg?			
Yes	(8) 61.5%		(1) 50%
No	(1) 7.7%	(1) 100%	
Don't Know	(3) 23.2%		(1) 50%
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 2 mg?			
Yes	(7) 53.8%		(1) 50%
No	(2) 15.4%	(1) 100%	
Don't Know	(3) 23.2%		(1) 50%
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 3 mg?			
Yes	(9) 69.2%		(1) 50%
No		(1) 100%	
Don't Know	(3) 23.2%		(1) 50%
No Answer given	(1) 7.7%		
Question 19: Biotin			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Biotin?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 6 µg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 8 µg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 8 µg?			
Yes	(9) 69.2%		(2) 100%
No		(1) 100%	
Don't Know	(3) 23.2		
No Answer given	(1) 7.7%		
Question 20: Calcium			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Calcium?			
Yes	(11) 84.6%		(1) 50%
No		(1) 100%	
Don't Know	(1) 7.7%		(1) 50%
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 400 mg?			
Yes	(9) 69.2%		(1) 50%
No	(1) 7.7%	(1) 100%	
Don't Know	(2) 15.4%		(1) 50%
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 450 mg?			
Yes	(9) 69.2%		(1) 50%

No	(2) 15.4%	(1) 100%	
Don't Know	(1) 7.7%		(1) 50%
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 450 mg?			
Yes	(10) 76.9%		(1) 50%
No		(1) 100%	
Don't Know	(2) 15.4%		(1) 50%
No Answer given	(1) 7.7%		
Question 21: Magnesium			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Magnesium?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 80 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 80 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 80 mg?			
Yes	(11) 84.6%		(2) 100%
No		(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
Question 22: Iron			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Iron?			
Yes	(11) 84.6%		(2) 100%
No		(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 6 mg (15% bioavailability) and 9 mg (10% bioavailability)?			
Yes	(9) 69.2%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 4 mg (15% bioavailability) and 6 mg (10% bioavailability)?			
Yes	(9) 69.2%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 9 mg?			
Yes	(10) 76.9%		(2) 100%
No		(1) 100%	
Don't Know	(2) 15.4%		
No Answer given	(1) 7.7%		

Question 23: Zinc			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Zinc?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 5 mg?			
Yes	(7) 53.8%		(2) 100%
No	(2) 15.4%	(1) 100%	
Don't Know	(3) 23.1%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 3 mg?			
Yes	(6) 46.2%		(2) 100%
No	(3) 23.1%	(1) 100%	
Don't Know	(3) 23.1%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 5 mg?			
Yes	(8) 61.5%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(3) 23.1%		
No Answer given	(1) 7.7%		
Question 24: Copper			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Copper?			
Yes	(10) 76.9%		(1) 50%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		(1) 50%
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 0.4 mg?			
Yes	(8) 61.5%		(1) 50%
No	(2) 15.4%	(1) 100%	
Don't Know	(2) 15.4%		(1) 50%
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 0.3 mg?			
Yes	(7) 53.8%		(1) 50%
No	(2) 15.4%	(1) 100%	
Don't Know	(3) 23.1%		(1) 50%
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 0.4 mg?			
Yes	(9) 69.2%		(1) 50%
No	(1) 7.7%	(1) 100%	
Don't Know	(2) 15.4%		(1) 50%
No Answer given	(1) 7.7%		
Question 25: Selenium			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Selenium?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 15 µg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		

No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 18 µg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 18 µg?			
Yes	(9) 69.2%		(2) 100%
No		(1) 100%	
Don't Know	(3) 23.1%		
No Answer given	(1) 7.7%		
Question 26: Manganese			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Manganese?			
Yes	(12) 92.3%		(2) 100%
No		(1) 100%	
Don't Know			
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 0.3 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 0.5 mg?			
Yes	(10) 76.9%		(2) 100%
No	(1) 7.7%	(1) 100%	
Don't Know	(1) 7.7%		
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 0.5 mg?			
Yes	(9) 69.2%		(2) 100%
No		(1) 100%	
Don't Know	(3) 23.1%		
No Answer given	(1) 7.7%		
Question 27: Phosphorus			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Phosphorus?			
Yes	(11) 84.6%		(1) 50%
No		(1) 100%	
Don't Know	(1) 7.7%		(1) 50%
No Answer given	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 165 mg?			
Yes	(9) 69.2%		(1) 50%
No	(1) 7.7%	(1) 100%	
Don't Know	(2) 15.4%		(1) 50%
No Answer given	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 460 mg?			
Yes	(9) 69.2%		(1) 50%
No	(1) 7.7%	(1) 100%	
Don't Know	(2) 15.4%		(1) 50%
No Answer given	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 460 mg?			
Yes	(8) 61.5%		
No		(1) 100%	
Don't Know	(3) 23.1%		(2) 100%

<i>No Answer given</i>	(2) 15.4%		
Question 28: Potassium			
A. Do you agree with the application of the Stepwise Process to establish NRVs-R for Potassium?			
<i>Yes</i>	(12) 92.3%		(2) 100%
<i>No</i>		(1) 100%	
<i>Don't Know</i>			
<i>No Answer given</i>	(1) 7.7%		
B. Do you agree with the proposed NRV-R for older infants of 725 mg?			
<i>Yes</i>	(10) 76.9%		(2) 100%
<i>No</i>	(1) 7.7%	(1) 100%	
<i>Don't Know</i>	(1) 7.7%		
<i>No Answer given</i>	(1) 7.7%		
C. Do you agree with the proposed NRV-R for young children of 850 mg?			
<i>Yes</i>	(10) 76.9%		(2) 100%
<i>No</i>	(1) 7.7%	(1) 100%	
<i>Don't Know</i>	(1) 7.7%		
<i>No Answer given</i>	(1) 7.7%		
D. Do you agree with the proposed NRV-R for the combined age group of 850 mg?			
<i>Yes</i>	(9) 69.2%		(2) 100%
<i>No</i>		(1) 100%	
<i>Don't Know</i>	(3) 23.1%		
<i>No Answer given</i>	(1) 7.7%		
Question 29:			
Do you have any other comments?			
<i>Yes</i>	(5) 38.5%		(1) 50%
<i>No</i>	(8) 61.5%	(1) 100%	(1) 50%
<i>Don't Know</i>			
<i>No Answer given</i>			

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Argentina	Germany	Mexico	Paraguay
Australia	Grenada	Morocco	Saudi Arabia
Brazil	Guatemala	Myanmar	Sweden
Canada	Honduras	Netherlands	Switzerland
Chile	India	New Zealand	Thailand
China	Indonesia	Nigeria	Uganda
Costa Rica			
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