

Update from the: **Pediatric Renal Nutrition Taskforce** (PRNT)

ASPN MULTIDISCIPLINARY SYMPOSIUM

NOVEMBER 14, 2025

NONNIE POLDERMAN AND CHRISTINA L NELMS



Learning Objectives

- Provide history/background for the PRNT
- Highlight newest CPRs from the PRNT
- Review future goals of the PRNT

History of the PRNT



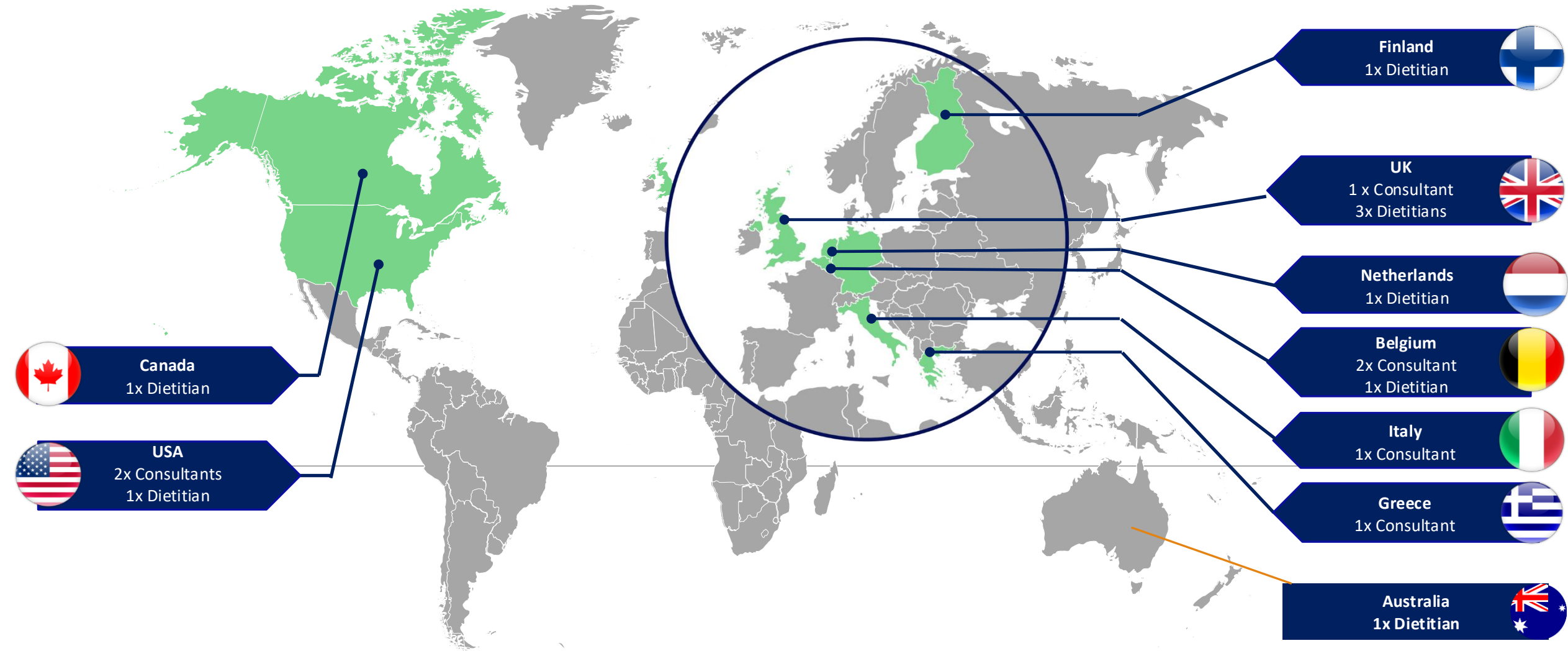
The **Pediatric Renal Nutrition Taskforce** members and alumni are pediatric renal dietitians and pediatric nephrologists from 9 countries across Europe and North America dedicated to improving the nutritional care of children with kidney diseases

Endorsed by ESPN and IPNA

ESPN: European Society of Pediatric Nephrology
IPNA: International Pediatric Nephrology Association



The Pediatric Renal Nutrition Taskforce



The PRNT alumni



Bradley Warady
Pediatric Nephrologist,
USA

Molly Vega,
Pediatric Renal Dietitian,
USA

Louise McAlister, Specialist
Pediatric Dietitian, UK

Leila Qizalbash, Pediatric
Renal Dietitian, UK



Michiel Oosterveld,
Pediatric Nephrologist,
Netherlands



Dr Dieter Haffner, Pediatric
Nephrologist, Germany



PRNT Mission and Vision

Our vision: To ensure best practice in the nutritional management of children with kidney diseases

Our mission:

- To formulate clinical practice recommendations to enable **best practice**
 - To provide **education and training resources** for Healthcare Professionals caring for children with kidney diseases
 - To devise **resources which offer practical support** to children with kidney diseases and their families
 - To **promote research** to expand the evidence base for nutritional intervention in pediatric kidney diseases
-

Our values:

- To encourage open and transparent discussion, based on the evidence base, where possible, and to seek the opinion of external experts and other stakeholders to validate the recommendations we produce

Development process for CPRs

PICO questions

- **Patient (or Population)** to whom the recommendation will apply
Children from birth to 18 years of age with CKD2-5D
- **Intervention** being considered
Nutritional requirements for energy and protein in children at different stages of CKD
- **Comparator** (which may be 'no action' or an alternative intervention)
Nutritional requirements for energy and protein in age-matched healthy children
- **Outcomes** affected by the interventions
Energy and protein requirements to support normal growth and development in children with CKD2-5D

Literature search – evidence tables

- Medline, PubMed, Embase, Cochrane library, CINAHL, manual searching
- Meta-analyses, RCTs, prospective studies with more than 20 children (no prospective studies in adults)
- No retrospective pediatric studies unless a paucity of papers

CPR Development process

AAP grading matrix 2004

Delphi process

At least a 70% level of consensus required for each statement, ‘strongly agree’ or ‘agree’, failing which the recommendation statement is adapted after discussion in the core group, and reviewed again by the voting panel until a consensus level of least 70% achieved

Delphi respondents

- doctor or dietitian *currently practicing in pediatric nephrology*
- at least **5 years'** experience with children and young people with CKD 2-5D
- currently *associated with a major pediatric renal center*

Aggregate Evidence Quality	Benefit or Harm Predominates	Benefit and Harm Balanced
Level A Intervention: Well-designed and conducted trials, meta-analyses on applicable populations Diagnosis: Independent gold standard studies of applicable populations	Strong Recommendation	Weak Recommendation (based on balance of benefit and harm)
Level B Trials or diagnostic studies with minor limitations; consistent findings from multiple observational studies	Moderate Recommendation	
Level C Single or few observational studies or multiple studies with inconsistent findings or major limitations.	Weak Recommendation (based on low quality evidence)	
Level D Expert opinion, case reports, reasoning from first principles		No recommendation may be made
Level X Exceptional situations where validating studies cannot be performed and benefit or harm clearly predominates	Strong Recommendation Moderate Recommendation	

AAP grading matrix (2004)

Clinical Practice Recommendations 2020

Practice Guideline > [Pediatr Nephrol. 2020 Mar;35\(3\):501-518. doi: 10.1007/s00467-019-04370-z.](#)
Epub 2019 Oct 30.

The dietary management of calcium and phosphate in children with CKD stages 2-5 and on dialysis-clinical practice recommendation from the Pediatric Renal Nutrition Taskforce

Louise McAlister ¹, Pearl Pugh ², Laurence Greenbaum ³, Dieter Haffner ⁴, Lesley Rees ¹, Caroline Anderson ⁵, An Desloovere ⁶, Christina Nelms ⁷, Michiel Oosterveld ⁸, Fabio Paglialonga ⁹, Nonnie Polderman ¹⁰, Leila Qizalbash ¹¹, José Renken-Terhaerd ¹², Jetta Tuokkola ¹³, Bradley Warady ¹⁴, Johan Vande Walle ⁶, Vanessa Shaw ¹ ¹⁵, Rukshana Shroff ¹⁶

Affiliations + expand

PMID: 31667620 PMCID: [PMC6969014](#) DOI: [10.1007/s00467-019-04370-z](#)

[Free PMC article](#)

Practice Guideline > [Pediatr Nephrol. 2020 Mar;35\(3\):519-531. doi: 10.1007/s00467-019-04426-0.](#)
Epub 2019 Dec 16.

Energy and protein requirements for children with CKD stages 2-5 and on dialysis-clinical practice recommendations from the Pediatric Renal Nutrition Taskforce

Vanessa Shaw ¹ ², Nonnie Polderman ³, José Renken-Terhaerd ⁴, Fabio Paglialonga ⁵, Michiel Oosterveld ⁶, Jetta Tuokkola ⁷, Caroline Anderson ⁸, An Desloovere ⁹, Laurence Greenbaum ¹⁰, Dieter Haffner ¹¹, Christina Nelms ¹², Leila Qizalbash ¹³, Johan Vande Walle ⁹, Bradley Warady ¹⁴, Rukshana Shroff ¹⁵ ¹⁶, Lesley Rees ¹⁵ ¹⁶

Affiliations + expand

PMID: 31845057 PMCID: [PMC6968982](#) DOI: [10.1007/s00467-019-04426-0](#)

[Free PMC article](#)

Clinical Practice Recommendations 2021

[Review](#) > [Pediatr Nephrol. 2021 Apr;36\(4\):995-1010. doi: 10.1007/s00467-020-04852-5.](#)

Epub 2020 Dec 14.

Assessment of nutritional status in children with kidney diseases-clinical practice recommendations from the Pediatric Renal Nutrition Taskforce

Christina L Nelms ¹, Vanessa Shaw ^{2 3}, Larry A Greenbaum ^{4 5}, Caroline Anderson ⁶, An Desloovere ⁷, Dieter Haffner ⁸, Michiel J S Oosterveld ⁹, Fabio Paglialonga ¹⁰, Nonnie Polderman ¹¹, Leila Qizlbash ¹², Lesley Rees ², José Renken-Terhaerd ¹³, Jetta Tuokkola ¹⁴, Johan Vande Walle ⁷, Rukshana Shroff ¹⁵, Bradley A Warady ¹⁶

Affiliations [+ expand](#)

PMID: 33319327 PMCID: [PMC7910229](#) DOI: [10.1007/s00467-020-04852-5](#)

[Free PMC article](#)

[Review](#) > [Pediatr Nephrol. 2021 Jan;36\(1\):187-204. doi: 10.1007/s00467-020-04623-2.](#)

Epub 2020 Jul 29.

Delivery of a nutritional prescription by enteral tube feeding in children with chronic kidney disease stages 2-5 and on dialysis-clinical practice recommendations from the Pediatric Renal Nutrition Taskforce

Lesley Rees ¹, Vanessa Shaw ^{2 3}, Leila Qizlbash ⁴, Caroline Anderson ⁵, An Desloovere ⁶, Laurence Greenbaum ⁷, Dieter Haffner ⁸, Christina Nelms ⁹, Michiel Oosterveld ¹⁰, Fabio Paglialonga ¹¹, Nonnie Polderman ¹², José Renken-Terhaerd ¹³, Jetta Tuokkola ¹⁴, Bradley Warady ¹⁵, Johan Van de Walle ⁶, Rukshana Shroff ², Pediatric Renal Nutrition Taskforce

Affiliations [+ expand](#)

PMID: 32728841 PMCID: [PMC7701061](#) DOI: [10.1007/s00467-020-04623-2](#)

[Free PMC article](#)

[Review](#) > [Pediatr Nephrol. 2021 Jun;36\(6\):1331-1346. doi: 10.1007/s00467-021-04923-1.](#)

Epub 2021 Mar 17.

The dietary management of potassium in children with CKD stages 2-5 and on dialysis-clinical practice recommendations from the Pediatric Renal Nutrition Taskforce

An Desloovere ¹, José Renken-Terhaerd ², Jetta Tuokkola ³, Vanessa Shaw ^{4 5}, Larry A Greenbaum ^{6 7}, Dieter Haffner ⁸, Caroline Anderson ⁹, Christina L Nelms ¹⁰, Michiel J S Oosterveld ¹¹, Fabio Paglialonga ¹², Nonnie Polderman ¹³, Leila Qizlbash ¹⁴, Bradley A Warady ¹⁵, Rukshana Shroff ¹⁶, Johan Vande Walle ¹

Affiliations [+ expand](#)

PMID: 33730284 PMCID: [PMC8084813](#) DOI: [10.1007/s00467-021-04923-1](#)

[Free PMC article](#)

Clinical Practice Recommendations 2022

Pediatric Nephrology (2022) 37:1–20
<https://doi.org/10.1007/s00467-021-05148-y>

GUIDELINES

Assessment and management of obesity and metabolic syndrome in children with CKD stages 2–5 on dialysis and after kidney transplantation—clinical practice recommendations from the Pediatric Renal Nutrition Taskforce

Stella Stabouli¹  • Nonnie Polderman² • Christina L. Nelms³ • Fabio Paglialonga⁴ • Michiel J. S. Oosterveld⁵ • Larry A. Greenbaum^{6,7} • Bradley A. Warady⁸ • Caroline Anderson⁹ • Dieter Haffner¹⁰ • An Desloovere¹¹ • Leila Qizalbash¹² • José Renken-Terhaerd¹³ • Jetta Tuokkola¹⁴ • Johan Vande Walle¹⁵ • Vanessa Shaw¹⁶ • Mark Mitsnefes¹⁷ • Rukshana Shroff¹⁶

Clinical Practice Recommendations 2023

Pediatric Nephrology (2023) 38:3559–3580
<https://doi.org/10.1007/s00467-023-05884-3>

GUIDELINES

Nutritional management of children with acute kidney injury—clinical practice recommendations from the Pediatric Renal Nutrition Taskforce

Molly R. Wong Vega¹  · Dana Cerminara¹ · An Desloovere² · Fabio Paglialonga³ · José Renken-Terhaerd⁴ · Johan Vande Walle² · Vanessa Shaw⁵ · Stella Stabouli⁶ · Caroline Elizabeth Anderson⁷ · Dieter Haffner⁸ · Christina L. Nelms⁹ · Nonnie Polderman¹⁰ · Leila Qizalbash¹¹ · Jetta Tuokkola¹² · Bradley A. Warady⁹ · Rukshana Shroff⁵ · Larry A. Greenbaum^{13,14}

Received: 22 November 2022 / Revised: 9 January 2023 / Accepted: 10 January 2023 / Published online: 20 March 2023
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Clinical Practice Recommendations 2024

May 2024 in *JREN

The Management of Dietary Fiber Intake in Children With Chronic Kidney Disease – Clinical Practice Recommendations From the Pediatric Renal Nutrition Taskforce

An Desloovere,^{*,1} Nonnie Polderman, RD,^{†,1} José Renken-Terhaardt,^{‡,1}
Vanessa Shaw, MA, PG Diploma in Dietetics,[§] Caroline Anderson, PhD,^{||}
Larry A. Greenbaum, MD, PhD,[¶] Christina L. Nelms, MS, RDN,^{§§}
Leila Qizalbash, BSc (Hon) Nutrition and Dietetics, PG Dip,^{**} Stella Stabouli, MD, PhD,^{††}
Jetta Tuokkola, RD, PhD,^{‡‡} Bradley A. Warady, MD,^{§§} Johan Vande Walle, MD, PhD,^{*}
Fabio Paglialonga, MD, PhD,^{|||},⁻² Rukshana Shroff, MD, PhD,^{§,2} and Evelien Snauwaert, MD, PhD^{*,2}

Pediatric Nephrology (2024) 39:3103–3124
<https://doi.org/10.1007/s00467-024-06303-x>

GUIDELINES

Assessment and management of vitamin status in children with CKD stages 2–5, on dialysis and post-transplantation: clinical practice points from the Pediatric Renal Nutrition Taskforce

Caroline E. Anderson^{1,2,3} · Jetta Tuokkola^{4,5,6} · Leila Qizalbash⁷ · Matthew Harmer¹ · Christina L. Nelms⁸ · Stella Stabouli⁹ · Barry Toole⁷ · Nonnie Polderman¹⁰ · An Desloovere¹¹ · Jose Renken-Terhaardt¹² · Molly R. Wong Vega¹³ · Evelien Snauwaert¹¹ · Johan Vande Walle¹¹ · Dieter Haffner¹⁴ · Fabio Paglialonga¹⁵ · Rukshana Shroff¹⁶ · Vanessa Shaw¹⁶ · Larry A. Greenbaum^{17,18} · Bradley A. Warady⁸

January 2024

EDUCATIONAL REVIEW

Gutted: constipation in children with chronic kidney disease and on dialysis

Mandy Wan^{1,2} · Lillian King³ · Natasha Baugh³ · Zainab Arslan³ · Evelien Snauwaert⁴ · Fabio Paglialonga⁵ · Rukshana Shroff³

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REVIEW

The benefits of dietary fiber: the gastrointestinal tract and beyond

Evelien Snauwaert¹ · Fabio Paglialonga² · Johan Vande Walle¹ · Mandy Wan³ · An Desloovere¹ · Nonnie Polderman⁴ · José Renken-Terhaerd⁵ · Vanessa Shaw⁶ · Rukshana Shroff⁶



Nephrol Dial Transplant, 2024, 39, 341–366
<https://doi.org/10.1093/ndt/gfad185>
Advance access publication date: 11 September 2023

Recommended calcium intake in adults and children with chronic kidney disease—a European consensus statement

Pieter Evenepoel^{1,2} · Hanne Skou Jørgensen^{1,3,4} · Jordi Bover^{5,6} · Andrew Davenport⁷ · Justine Bacchetta^{10,8,9} · Mathias Haarhaus^{10,11,12} · Ditte Hansen^{13,14} · Carolina Gracia-Iguacel¹⁵ · Markus Ketteler¹⁶ · Louise McAlister¹⁷ · Emily White¹⁸ · Sandro Mazzaferro¹⁹ · Marc Vervloet^{20,21} and Rukshana Shroff^{22,23}; on behalf of European Renal Osteodystrophy (EUROD), an initiative of the Chronic Kidney Disease-Mineral and Bone Disorder (CKD-MBD) and the European Renal Nutrition (ERN) Working Groups of the European Renal Association (ERA) and the European Society of Pediatric Nephrology (ESPN)

SPECIAL REPORT

Related publications by the Pediatric Renal Nutrition Taskforce (PRNT)

EDUCATIONAL REVIEW

Nutritional management of the infant with chronic kidney disease stages 2–5 and on dialysis

Vanessa Shaw¹ · Caroline Anderson² · An Desloovere³ · Larry A. Greenbaum⁴ · Dieter Haffner⁵ · Christina L. Nelms⁶ · Fabio Paglialonga⁷ · Nonnie Polderman⁸ · Leila Qizalbash⁹ · José Renken-Terhaerd¹⁰ · Stella Stabouli¹¹ · Jetta Tuokkola¹² · Johan Vande Walle³ · Bradley A. Warady¹³ · Rukshana Shroff¹

Received: 2 February 2022 / Revised: 5 March 2022 / Accepted: 7 March 2022 / Published online: 5 April 2022
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EDUCATIONAL REVIEW

Nutritional management of the child with chronic kidney disease and on dialysis

Vanessa Shaw¹ · Caroline Anderson^{2,13} · An Desloovere³ · Larry A. Greenbaum⁴ · Lyndsay Harshman⁵ · Christina L. Nelms⁶ · Pearl Pugh⁷ · Nonnie Polderman⁸ · José Renken-Terhaerd⁹ · Evelien Snauwaert³ · Stella Stabouli¹⁰ · Jetta Tuokkola^{11,14} · Johan Vande Walle³ · Bradley A. Warady⁶ · Fabio Paglialonga¹² · Rukshana Shroff¹

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Most Recent work -2025

5-year update of PRNT CPRs

Practice Guideline > [Pediatr Nephrol. 2020 Mar;35\(3\):501-518. doi: 10.1007/s00467-019-04370-z.](#)

Epub 2019 Oct 30.

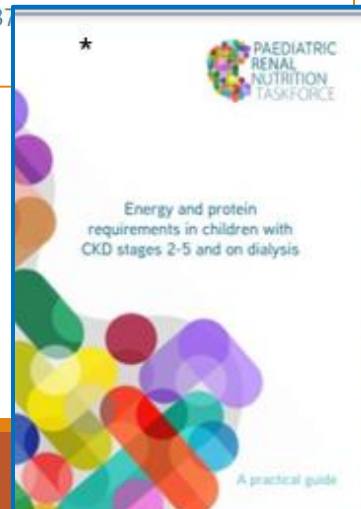
The dietary management of calcium and phosphate in children with CKD stages 2-5 and on dialysis—clinical practice recommendation from the Pediatric Renal Nutrition Taskforce

Louise McAlister¹, Pearl Pugh², Laurence Greenbaum³, Dieter Haffner⁴, Lesley Rees¹, Caroline Anderson⁵, An Desloovere⁶, Christina Nelms⁷, Michiel Oosterveld⁸, Fabio Paglialonga⁹, Nonnie Polderman¹⁰, Leila Qizalbash¹¹, José Renken-Terhaerd¹², Jetta Tuokkola¹³, Bradley Warady¹⁴, Johan Vande Walle⁶, Vanessa Shaw¹¹⁵, Rukshana Shroff¹⁶

Affiliations + expand

PMID: 31667620 PMCID: PMC6969014 DOI: 10.1007/s00467-019-04370-z

[Free PMC article](#)



Practice Guideline > [Pediatr Nephrol. 2020 Mar;35\(3\):519-531. doi: 10.1007/s00467-019-04426-0.](#)

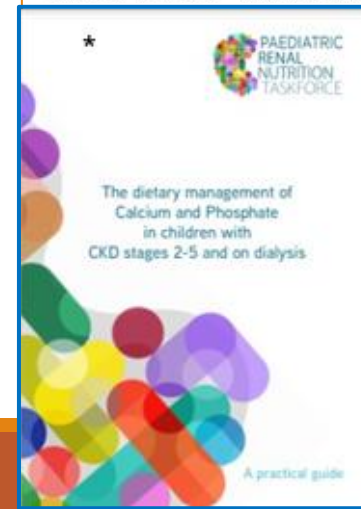
Epub 2019 Dec 16.

Energy and protein requirements for children with CKD stages 2-5 and on dialysis—clinical practice recommendations from the Pediatric Renal Nutrition Taskforce

Vanessa Shaw¹², Nonnie Polderman³, José Renken-Terhaerd⁴, Fabio Paglialonga⁵, Michiel Oosterveld⁶, Jetta Tuokkola⁷, Caroline Anderson⁸, An Desloovere⁹, Laurence Greenbaum¹⁰, Dieter Haffner¹¹, Christina Nelms¹², Leila Qizalbash¹³, Johan Vande Walle⁹, Bradley Warady¹⁴, Rukshana Shroff¹⁵¹⁶, Lesley Rees¹⁵¹⁶

Affiliations + expand

PMID: 31845057 PMCID: PMC6968982 DOI: 10.1007/s00467-019-04426-0



Clinical Practice Recommendations 2025

Accepted, not yet in print

The dietary management of sodium in children with kidney diseases—clinical practice recommendations from the Pediatric Renal Nutrition Taskforce

Renken-Terhaerd J¹, Desloovere A², Oosterveld MJS³, Polderman N⁴, Snauwaert E², Stabouli S⁵, Vande Walle J², Anderson C⁶, Collins S⁷, Greenbaum LA⁸, Harmer M⁸, Harshman L⁹, Nelms CL¹⁰, Pugh P¹¹, Shaw V¹², Tuokkola J¹³, Vega MRW¹⁴, Warady BA¹⁵, Shroff R¹², Paglialonga F¹⁶

Pediatric Nephrology (2025) 40:3301–3323
<https://doi.org/10.1007/s00467-025-06759-5>

GUIDELINES



Assessment and management of magnesium and trace element status in children with CKD stages 2–5, on dialysis and post-transplantation: Clinical practice **points** from the Pediatric Renal Nutrition Taskforce

Jetta Tuokkola^{1,2} · Caroline E. Anderson³ · Sheridan Collins⁴ · Pearl Pugh⁵ · Molly R. Wong Vega⁶ · Matthew Harmer³ · Lyndsay A. Harshman⁷ · Christina L. Nelms⁸ · Barry Toole⁹ · An Desloovere¹⁰ · Fabio Paglialonga¹¹ · Nonnie Polderman¹² · José Renken-Terhaerd¹³ · Rukshana Shroff¹⁴ · Evelien Snauwaert¹⁰ · Stella Stabouli¹⁵ · Johan Vande Walle¹⁰ · Bradley A. Warady⁸ · Vanessa Shaw¹⁴ · Larry A. Greenbaum¹⁶

Highlights of the most recent CPRs

Nonnie - Sodium

Chris – Mg and trace elements

Sodium CPR highlights

The dietary management of sodium in children with kidney diseases—clinical practice

recommendations from the Pediatric Renal Nutrition Taskforce

Renken-Terhaerd J¹, Desloovere A², Oosterveld MJS³, Polderman N⁴, Snauwaert E², Stabouli S⁵, Vande Walle J², Anderson C⁶, Collins S⁷, Greenbaum LA⁸, Harmer M⁶, Harshman L⁹, Nelms CL¹⁰, Pugh P¹¹, Shaw V¹², Tuokkola J¹³, Vega MRW¹⁴, Warady BA¹⁵, Shroff R¹², Paglialonga F¹⁶

1. Main dietary sodium sources

Sodium intake varies by region, culture, and food practices

Major sources: processed and ultra-processed foods with added salt and sodium-containing additives

Natural sodium in foods (meat, fish, vegetables, water) is minor

Highest sodium intake usually at dinner → lunch → snacks → breakfast

Adolescents and lower socioeconomic groups tend to consume more high-sodium foods

CKD children: processed foods, fast foods, and cheese major contributors

2. Assessment of dietary sodium

Use **24-h diet recall** or **food frequency questionnaires** for main sources; ***3-day diet diary** for detailed assessment

Serum and urinary sodium **not recommended** to estimate intake

3. Non-dietary factors

Medications: sodium-containing drugs can significantly increase intake

Dialysis: can remove or add sodium depending on modality/prescription

Renal/extra-renal losses: infants and young children at risk (eg. cystic fibrosis, ileostomy, salt-wasting kidney diseases)



Sodium CPR highlights

4. Sodium requirements

Infants <1 yr: use **Adequate Intake (AI)** as starting point

Children >1 yr: target below **Chronic Disease Risk Reduction (CDRR)**

Strict adherence in children with:

- hypertension, CKD stage 2–4 with elevated BP, albuminuria, corticosteroid therapy

Increase sodium in:

- sodium-wasting conditions, hypotension, hypovolemia, infants with growth failure, PD with high sodium losses

Children with high energy needs may require higher sodium for adequate caloric intake

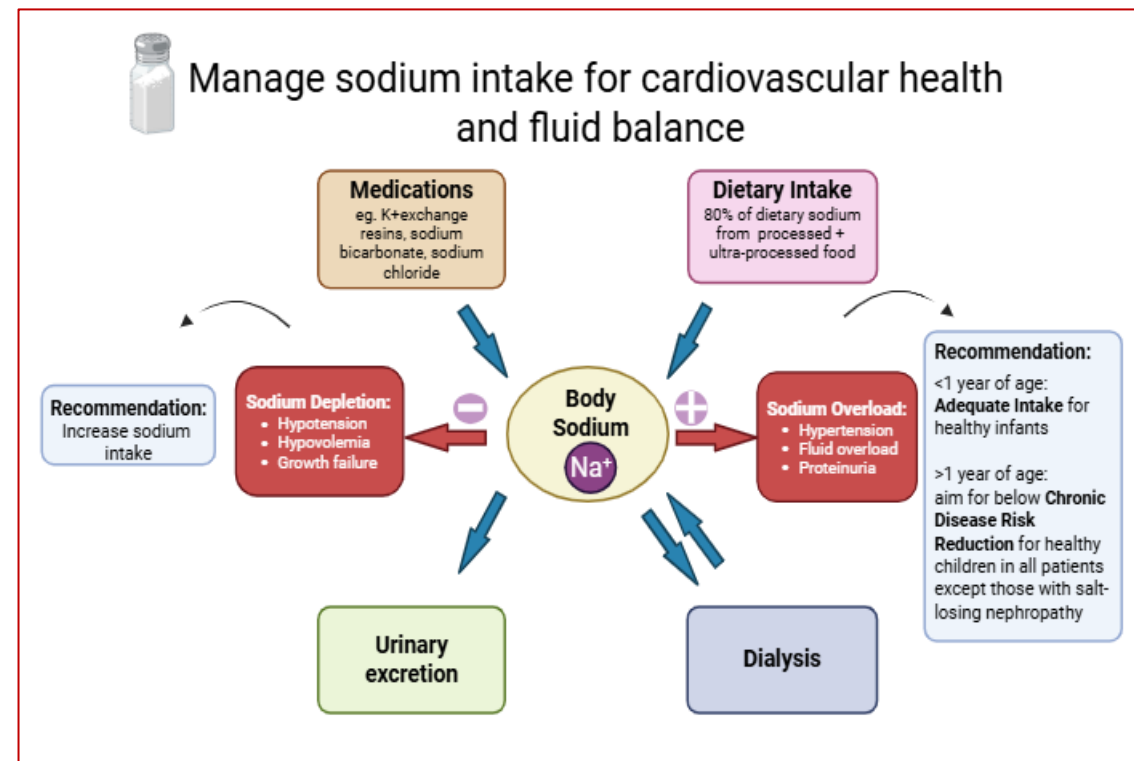


Image used with permission from F Paglialonga

Sodium CPR highlights

5. Sodium reduction strategies

Early education for families and children

Reduce processed/ultra-processed foods; favor home-cooked meals

Teach label reading to select lower-sodium options

Avoid potassium-based salt substitutes in CKD

Adaptation period: taste preference changes within 4–6 weeks

Monitor iodine intake in countries with iodized salt

6. Achieving adequate intake when increased

Adjust dialysis prescriptions

Increase dietary sodium while maintaining a varied, balanced diet

Use sodium supplements if needed (oral or enteral)

Monitor for euvoemia and growth



Sodium CPR highlights

Research Gaps

Validate sodium intake assessment methods in CKD children

Understand non-adherence to sodium restriction

Investigate effect of sodium restriction on CKD progression

Determine minimum sodium needs

Optimize dialysate sodium and sodium removal in PD

Safety and efficacy of low-sodium salt substitutes (LSSS) in early CKD

Delphi Survey Results

45 respondents (dietitians & peds nephrologists from 24 countries)

Overall consensus:

- 89.9% agreement
- 22 of 24 statements $\geq 70\%$ agreement



Magnesium & Trace Elements

Reviews:

- Requirements
 - For most children, same as healthy children, some have needs higher or lower
- Sources
 - Varied diet or complete formulas
- Effect of diet changes
 - Diet restrictions or changes in food preparation methods to reduce renal-specific nutrients may alter Mg++ or trace elements
- Other factors influencing status
 - Kidney function, polyuria, dialysis modality, medical comorbidities, medications, exogenous sources, environmental sources
- Clinical assessment and monitoring
- When modification or supplementation is needed

Pediatric Nephrology (2025) 40:3301–3323
<https://doi.org/10.1007/s00467-025-06759-5>

GUIDELINES



Assessment and management of magnesium and trace element status in children with CKD stages 2–5, on dialysis and post-transplantation: Clinical practice points from the Pediatric Renal Nutrition Taskforce

Jetta Tuokkola^{1,2} · Caroline E. Anderson³ · Sheridan Collins⁴ · Pearl Pugh⁵ · Molly R. Wong Vega⁶ · Matthew Harmer³ · Lyndsay A. Harshman⁷ · Christina L. Nelms⁸ · Barry Toole⁹ · An Desloovere¹⁰ · Fabio Paglialonga¹¹ · Nonnie Polderman¹² · José Renken-Terhaerd¹³ · Rukshana Shroff¹⁴ · Evelien Snauwaert¹⁰ · Stella Stabouli¹⁵ · Johan Vande Walle¹⁰ · Bradley A. Warady⁸ · Vanessa Shaw¹⁴ · Larry A. Greenbaum¹⁶

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Mg++ and Trace Elements, cont.

5.0 Clinical assessment and monitoring:

- Biochemical assessment
 - Evaluate Mg++ if hypoK+, hypoCa++, or signs and sx deficiency
 - Routine assessment not recommended; consider if signs/sx of excess or deficiency
 - Consider biochemical assessment if RISK factors
 - Assessment fasting, when well, before HD
- Physical assessment
 - Evaluate for physical signs and clinical symptoms
- Dietary assessment
 - Comprehensive dietary review
 - Assess diet history/food records – consider formula, supplements and medications

6.0 Supplementation/modification

- Optimize nutritional intake before supplementing
- Use age-appropriate formulas and supplements
- Zinc, copper, selenium can be supplemented when clinical or biochemical deficiency
- Avoid co-administration of those that compete
- Avoid regular intake of seaweed
- Avoid excess dietary and supplemental iodine
- Keep Mg++ in a safe range which could include modest elevation
 - Space Mg++ supplementation to avoid diarrhea
 - Trend Mg++ levels

Key nutrient points

Magnesium: magnesium excretion declines with decreased kidney function; medications affect; consider biochemical evaluation when there is risk, low levels associated with CVD and mortality; low intake common

Chromium: can accumulate; watch dialysis fluids; minimal data on consequences of excess

Copper: Risk for loss with kidney decline; inflammation or anemia associated with decline

Fluoride: accumulates early in CKD, children more susceptible, consider water evaluation if needed, avoid supplementation

Iodine: accumulation possible, avoid supplementation

Manganese: Minimal and varied data

Selenium: often low levels, but difficult to measure

Zinc: competes with calcium; keep zinc and copper in balance, losses possible

Future of the PRNT



“Current Projects” in the works by PRNT

1. Transplant – work in progress
2. Kidney Stones – work in progress

Webinar program: 2026

**Vitaflo™ Renal Nutrition Webinar Schedule 2025**
All times displayed are UK times

**28th January 2025 1pm - 2:30pm**
The dietary management of sodium in children with CKD
Dr Fabio Pagliarone, Paediatric Nephrologist,
Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico Milan, Italy
José Renken-Terhaardt, Paediatric Renal Dietitian, Wilhelmina Children's Hospital,
University Medical Center Utrecht, Utrecht, The Netherlands
Chaired by Nonnie Polderman, Paediatric Renal Dietitian, British Columbia Children's Hospital, Vancouver, Canada

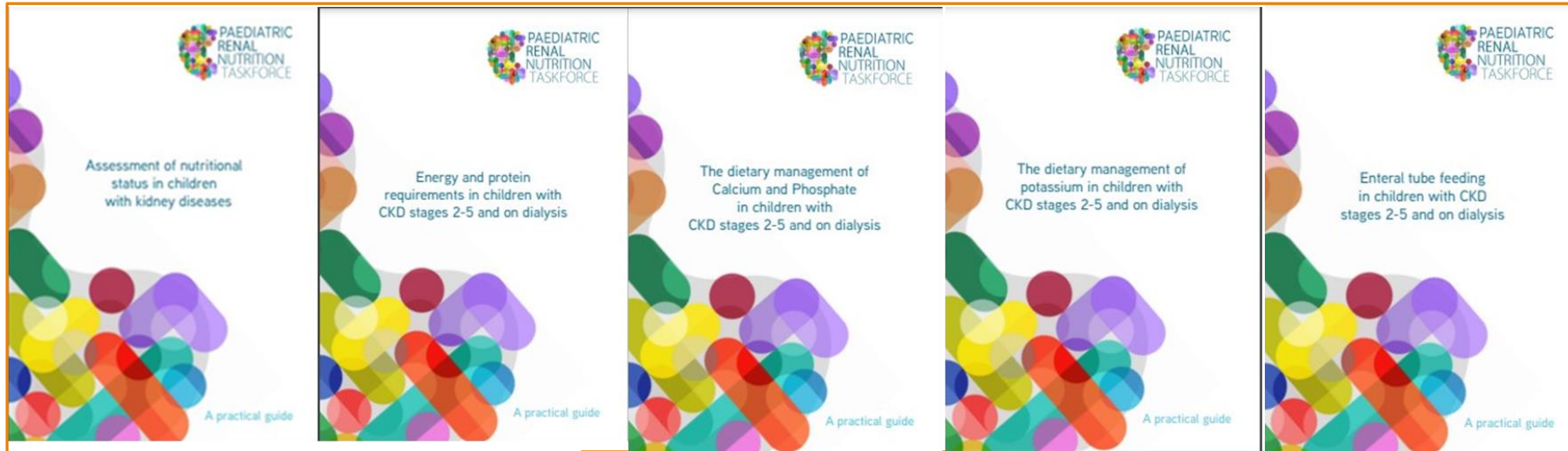
**26th February 2025 1pm - 2:30pm**
Assessment and management of mineral and trace element status in children with CKD stages 2-5, on dialysis and post-transplantation - clinical practice points from the Paediatric Renal Nutrition Taskforce
Caroline Anderson, Paediatric Renal Dietitian, Southampton Children's Hospital, Southampton, UK
Jetta Tuokkula, Clinical Lecturer (Nutrition Therapy), University of Eastern Finland, Finland
Chaired by Professor Larry Greenbaum, Paediatric Nephrologist, Emory University and Children's Healthcare of Atlanta, Atlanta, USA

24th March 2025 1pm - 2pm
Part 1: Interpreting renal biochemistry
Dr Evelien Snaauwaert, Paediatric Nephrologist, Ghent University Hospital, Belgium
Chaired by Vanessa Shaw, UCL Great Ormond Street Institute of Child Health, University College London, UK

10th April 2025 1pm-2pm
Part 2: Key medicines in paediatric kidney disease
Professor Rukshana Shroff, Paediatric Nephrologist, Great Ormond Street Hospital for Children, London, UK
Dr Mandy Wan, Lead Paediatric Research Pharmacist, Evelina London Children's Hospital, London, UK
Chaired by Vanessa Shaw, UCL Great Ormond Street Institute of Child Health, University College London, UK

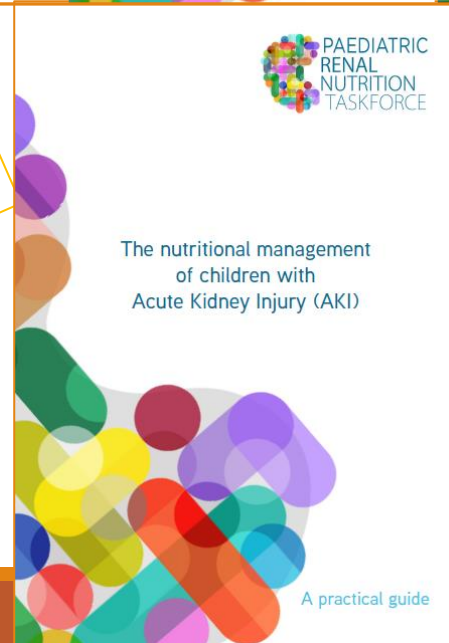
September 2025
Thinking practical - making positive dietary changes for children with CKD
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Practical guides for healthcare professionals



* 5-year review and revisions

NEWEST



Coming soon

Vitamin/Mineral Practical Guide
Fibre Practical Guide

Healthcare professionals: Practical guides



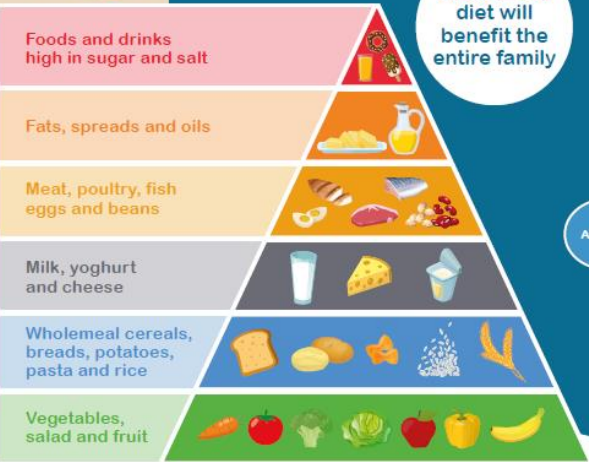
* 5-year review and revisions

New dissemination material: sodium



How to reduce dietary sodium/salt

A balanced diet will benefit the entire family



At the store

- Read nutrition labels to compare products and choose the lowest sodium/salt option
- Choose packaged foods labeled "low sodium/salt" or "no added sodium/salt" when possible
- Use more naturally low sodium/salt foods like fruits and vegetables - fresh, frozen, or canned. Ensure canned vegetables have no salt or sauce added
- Select lean cuts of meat, poultry or fish rather than processed foods like deli meats

At school

- Pack Homemade Lunches: prepare homemade meals for your lunchbox. This allows you to control the sodium/salt content and include nutritious options like whole grains, lean proteins, and fresh produce
- Include Snacks Wisely: opt for low sodium/salt snacks such as fresh fruit, vegetable sticks with hummus, or unsalted nuts instead of packaged snacks that are often high in sodium/salt
- Communicate with School Cafeteria: if you have school meals, enquire about the sodium/salt content of the meals offered. Encourage healthier options and provide feedback to the cafeteria staff if necessary

Small changes add up to big differences!

At home

- Read Labels: check the nutrition labels on packaged foods. Opt for products labeled "low sodium/salt" or "no added sodium/salt"
- Choose Fresh Produce: add fresh fruits and vegetables to your shopping cart
- Go for Lean Proteins: look for lean cuts of meat, chicken or fish - these are lower in sodium/salt than deli meats and sausages
- Beware of Condiments: minimize the use of condiments like soy sauce, ketchup, and salad dressings, or choose low sodium/salt alternatives
- Use Herbs and Spices: flavour your meals with herbs, spices, and citrus juices instead of salt

At the restaurant

- Check Nutritional Information: many restaurants provide nutritional information for their menu items. Look for lower sodium/salt options or ask for dishes to be prepared without added salt
- Request Modifications: don't hesitate to ask the server to make modifications to your meal, such as requesting sauces and dressings on the side or asking for dishes to be prepared with less salt
- Choose Wisely: opt for dishes that are grilled, steamed, or baked rather than fried, as they tend to be lower in sodium/salt. Also, prioritize meals that include plenty of vegetables and lean proteins
- Occasional Treats: keep takeout and fast foods such as burgers, fried chicken and pizza for an occasional treat




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Salt Swaps

Following a lower salt diet can be challenging. To reduce your salt intake, cook at home with fresh ingredients instead of using ready meals, takeaways or processed foods. Check food labels and choose items without added salt or sodium. The table below shows simple swaps to help lower your salt intake.

High salt foods	Alternative lower salt foods
 Sausages, hot dogs, salami, ham and other deli meats	 Fresh meat, poultry and egg
 Meat, fish and seafood canned or dried with salt	 Fresh meat, fish and seafood or lower salt options
 Cheeses	 Mozzarella or cream cheese
 Vegetables canned with salt	 Fresh or frozen vegetables or canned in water only
 Baked beans canned with salt	 Lower salt brands
 Packaged rice/noodle/pasta meals and side dishes	 Homemade pasta, rice and noodles with fresh meat/poultry/fish/egg and vegetables
 Frozen meals, ready to eat meals	 Meals prepared with fresh ingredients and salt free seasonings
 Tomato ketchup and other sauces	 Lower salt brands
 Salad dressings, soy sauce, salt-based seasonings	 Oil, vinegar, lemon juice, garlic, homemade dressing, spices, herbs and seasonings not based on salt
 Soups, stock cubes	 Soup made with low salt stock or broth
 Shop bought breads, bagels and wraps	 Homemade bread or fresh bread from a baker with no additives
 Breakfast cereals	 Wholegrain cereals such as breakfast wheat biscuits and oats
 Shop bought sandwiches	 Sandwiches with lower salt fillings - grilled/roasted meats, fish, egg, hummus and salad
 Pizza	 Homemade pizza with vegetables and mozzarella
 Olives, pickles	 Vegetable sticks, salad or fruit
 Crisps	 Unsalted popcorn or nuts

Dissemination material: translation and adaptation

Arabic renal food guide

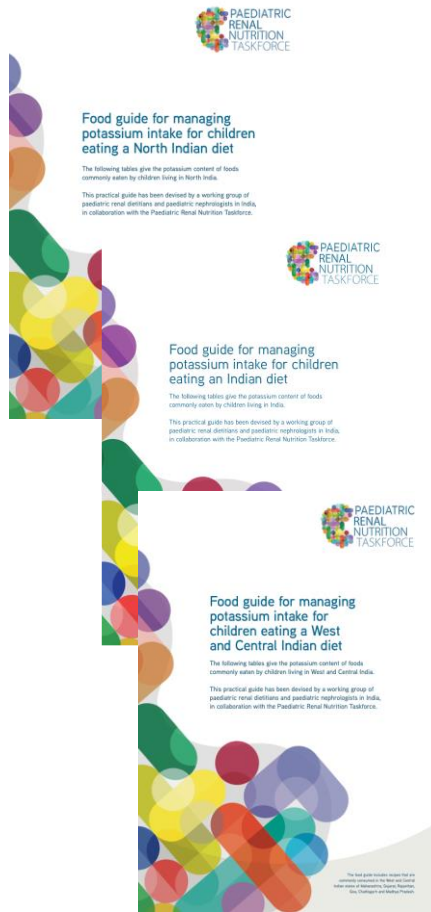
Arabic K posters and swap list



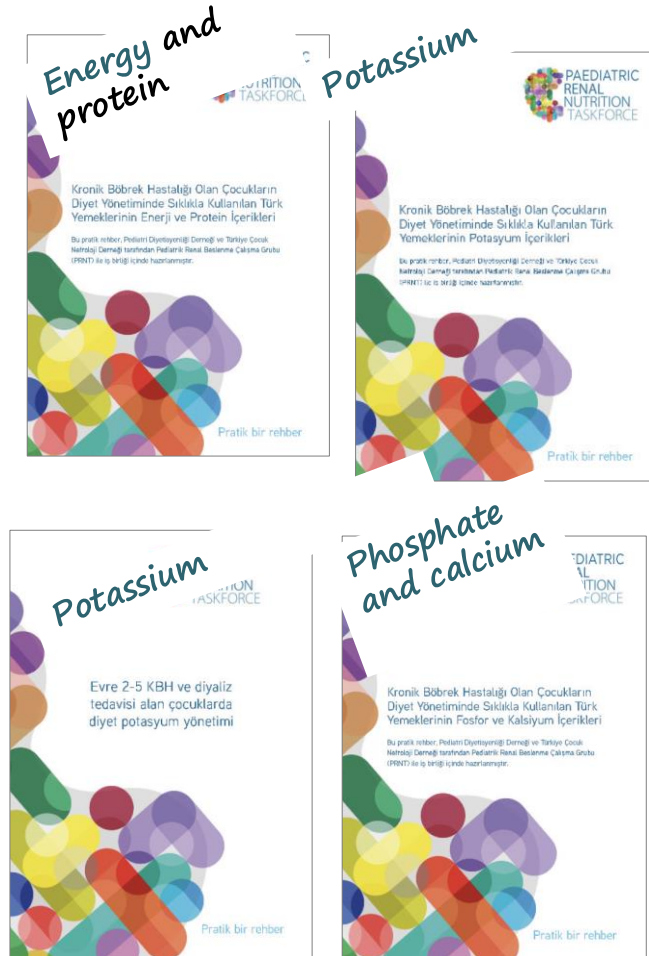
Diet booklets and posters in Hebrew



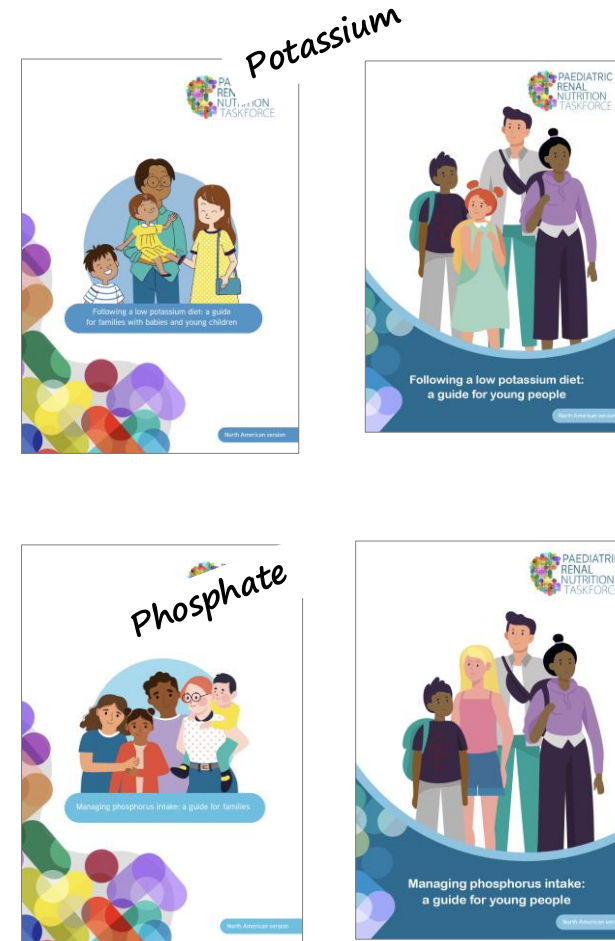
Indian renal food guides for K



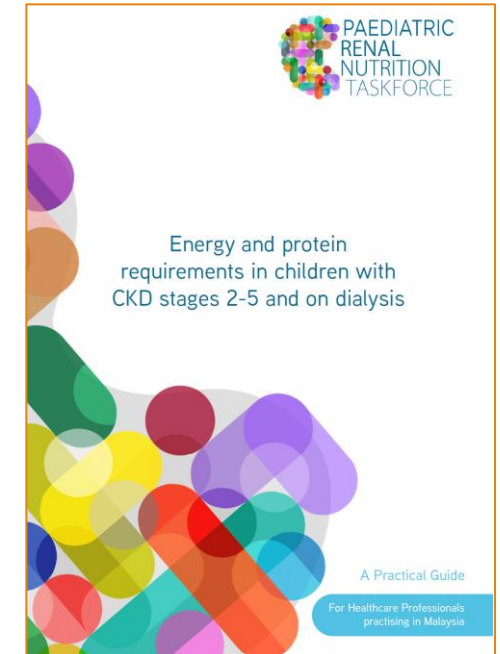
Turkish renal food guides



Diet booklets for North America



HCP guide and menu plans for Malaysia



Diet booklets

Lithuanian

Potassium



Polish

Potassium



Dutch

Potassium



German posters



Phosphate



Phosphate



Diet booklets & posters

Italian

Spanish

Work streams
for 2025:

Portugal

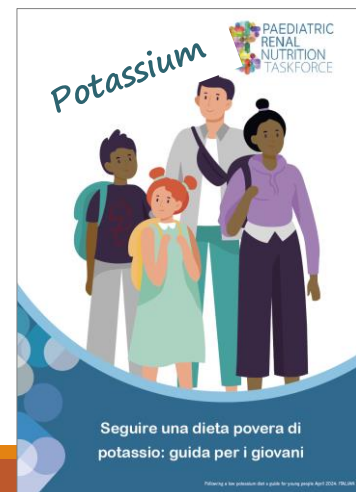
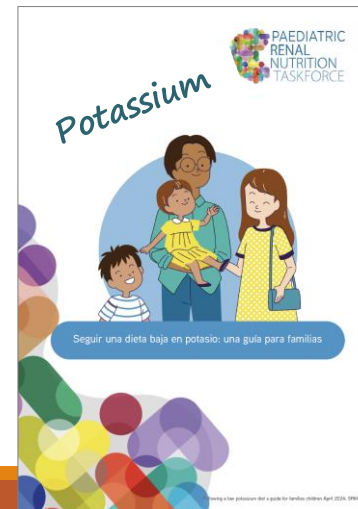
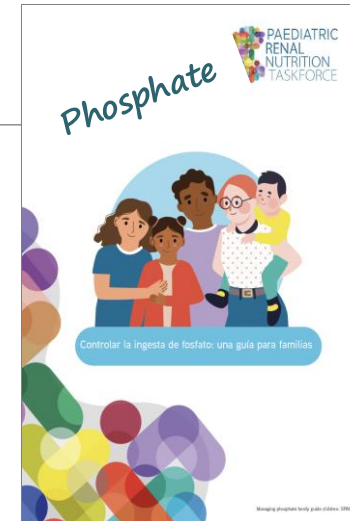
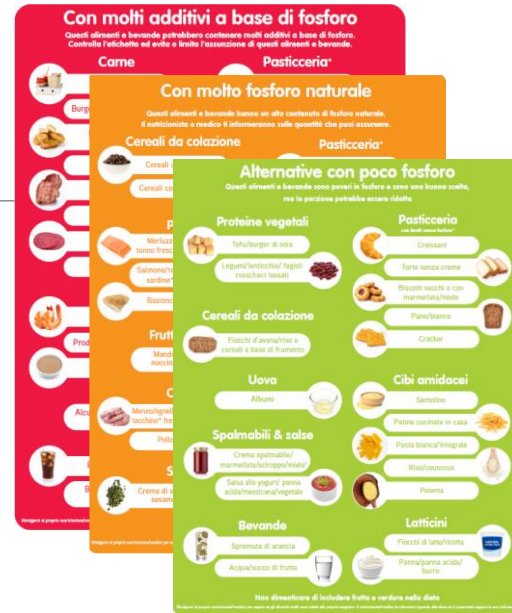
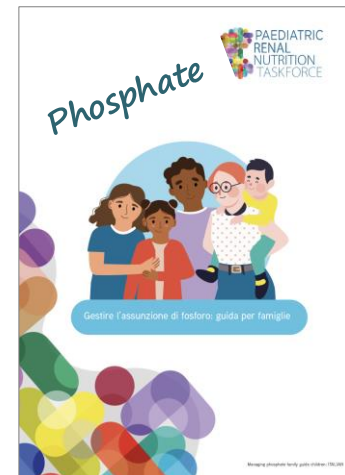
Greece

India

Malaysia and
Hong Kong

Latin America

Turkish
Assessment
guide



Accessing Practice Resources by The Pediatric Renal Nutrition Taskforce

Nutrition taskforce

Home / Nutrition taskforce

The Paediatric Renal Nutrition Taskforce comprises paediatric renal dietitians and paediatric nephrologists from 9 countries across Europe and North America who are dedicated to improving the nutritional care of children with kidney diseases.

The taskforce is endorsed by ESPN and IPNA.

Why was the Paediatric Renal Nutrition Taskforce created?

The taskforce was set up in December 2017, prompted by the challenges and inconsistencies in the nutritional management of children with kidney diseases globally. Many renal centres do not have trained dietitians and the importance of nutrition in patient care is not always addressed in medical education.

Our vision:

To ensure best practice in the nutritional management of children with kidney diseases

Our mission:

- To formulate clinical practice recommendations to enable best practice
- To provide education and training resources for healthcare professionals caring for children with kidney diseases
- To devise resources which offer practical support to children with kidney disease and their families
- To promote research to expand the evidence base for nutritional intervention in paediatric kidney diseases



PAEDIATRIC
RENAL
NUTRITION
TASKFORCE

PRACTICAL RESOURCES

Paediatric Renal Nutrition
Taskforce | Resource Library

Updated: 12/07/2024

Kidney Disease - Paediatric - Paediatric Renal Nutrition Taskforce | Resource Library

Paediatric Renal Nutrition
Taskforce | Resource Library

Clinical Practice Recommendations from the Paediatric
Renal Nutrition Taskforce



PAEDIATRIC
RENAL
NUTRITION
TASKFORCE

DESCRIPTION

The Paediatric Renal Nutrition Taskforce comprises paediatric renal dietitians and paediatric nephrologists from 9 countries across Europe and North America who are dedicated to improving the nutritional care of children with kidney diseases. The taskforce is endorsed by ESPN and IPNA. The taskforce has been working on developing clinical practice recommendations for the nutritional management of children with kidney diseases. The following clinical practice recommendations by the taskforce have been published and are available via open access.

In the first short film below, several members of the Paediatric Renal Nutrition Taskforce discuss the work of the Taskforce, what they have gained from being involved with it and how it benefits clinicians across the world.

The second 7 minute film highlights the resources produced by the Taskforce for healthcare professionals and patients. The film highlights resources which are available on www.vita-flo.com - a website produced by VitaFlo, for patients with kidney disease and their families.

Below you will find a range of resources created by the Paediatric Renal Nutrition Taskforce (PRNT). There are resources for Healthcare Professional use and for Healthcare Professionals to use with patients. Many of the resources have been adapted and translated for specific countries.

Author

Paediatric Renal Nutrition Taskforce

Published

Updated 12/07/2024

1. Assessment of nutritional status
2. Energy and protein requirements
3. Dietary management of calcium and phosphate
4. Dietary management of potassium
5. Delivery of a nutritional prescription by enteral tube feed
6. Assessment and management of obesity and metabolic syndrome after kidney transplantation
7. Nutritional management of the infant (0-1yrs) with CKD and on dialysis
8. Nutritional management of the child (1-16yrs) with CKD and on dialysis
9. Nutritional management of the child with acute kidney injury
10. Management of dietary fibre intake - clinical practice recommendations
11. Assessment and management of vitamin status
Arabic guides
Turkish guides
Polish guides
German guides
Indian guides
Lithuanian guides
Malaysian guides

PRNT webpage on ESPN website

<https://www.vita-flo.com/disorder-resources/kidney-disease-paediatric/paediatric-renal-nutrition-taskforce-resource-library>



Be involved!

Taskforce members:

Caroline Anderson, Pearl Pugh, Vanessa Shaw, ———
Jetta Tuokkola, Leila Qizalbash, Nonnie Polderman,
Christina L. Nelms, An Desloovere, Jose Renken-Terhaerd,dt,
Louise McAlister, Molly Wong Vega, Matthew Harmer,
Stella Stabouli, Barry Toole, Evelien Snauwaert,
Johan Vande Walle, Dieter Hafner, Fabio Paglialonga,
Larry Greenbaum, Bradley Warady, Rukshana Shroff



Delphi members across the world

Questions

Contact information:

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*To be a **Delphi panel member**, you must have at least 5 years of experience.*

Contact: npolderman@cw.bc.ca