

STANDARDS FOR HEALTHY EATING, PHYSICAL ACTIVITY, SEDENTARY BEHAVIOUR AND SLEEP IN EARLY CHILDHOOD EDUCATION AND CARE SETTINGS: **A TOOLKIT**



WEB ANNEX

Development of the standards
and global survey questionnaire*



* The main standards toolkit is available at:

[https://apps.who.int/iris/bitstream/full URL TBC full URL TBC full URL TBC full URL TBC](https://apps.who.int/iris/bitstream/full%20URL%20TBC%20full%20URL%20TBC%20full%20URL%20TBC%20full%20URL%20TBC%20full%20URL%20TBC)

Active



World Health
Organization

Standards for healthy eating, physical activity, sedentary behaviour and sleep in early childhood education and care settings: a toolkit. Web Annex. Development of the standards and global survey questionnaire

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Design: Eddy Hill Design



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DEVELOPMENT OF THE STANDARDS

The global standards were developed through collaboration between WHO departments and offices and academic partners, and in consultation with a panel of technical experts and other relevant stakeholders. Development included a systematic review, analysis of existing national and subnational standards, an online global survey and technical expert review.

Technical expert review

A group of technical experts met and assessed the ECEC standards' topics identified through the systematic review; the review of existing national and subnational standards; and the results of the survey of those working in ECEC settings. The suitability of each standard for ECEC settings across different continents was considered.

Methodology and results

Systematic review

Although some knowledge exists regarding the factors that could promote or hinder quality improvements in healthy eating and movement behaviours in ECEC settings, the evidence is spread across a wide array of published and unpublished literature.

The first step in the development of the standards was to analyse published systematic reviews to identify policies, interventions and The search terms used for each standard were:

practices that were associated with improved healthy eating and movement behaviours, specifically:

A systematic review was carried out on:

- the correlates of food habits and eating behaviours, physical activity, sedentary time (including screen time) and sleep in ECEC settings; and
- the barriers to, and facilitators of, promoting these behaviours in ECEC settings.

The systematic review was also designed to help identify policies, interventions and practices that were associated with improved healthy eating and movement behaviours. Papers were included if they: (i) were published during 2000–2018; (ii) were peer reviewed, written in English, and available in full text; (iii) included data from an ECEC (i.e. age 0–5 years) setting; and (iv) included a quantitative systematic review or meta-analysis. Obesity-focused articles were considered on a case-by-case basis. If they contained relevant correlates, barriers and/or facilitators relating to healthy eating and movement behaviours, they were included.

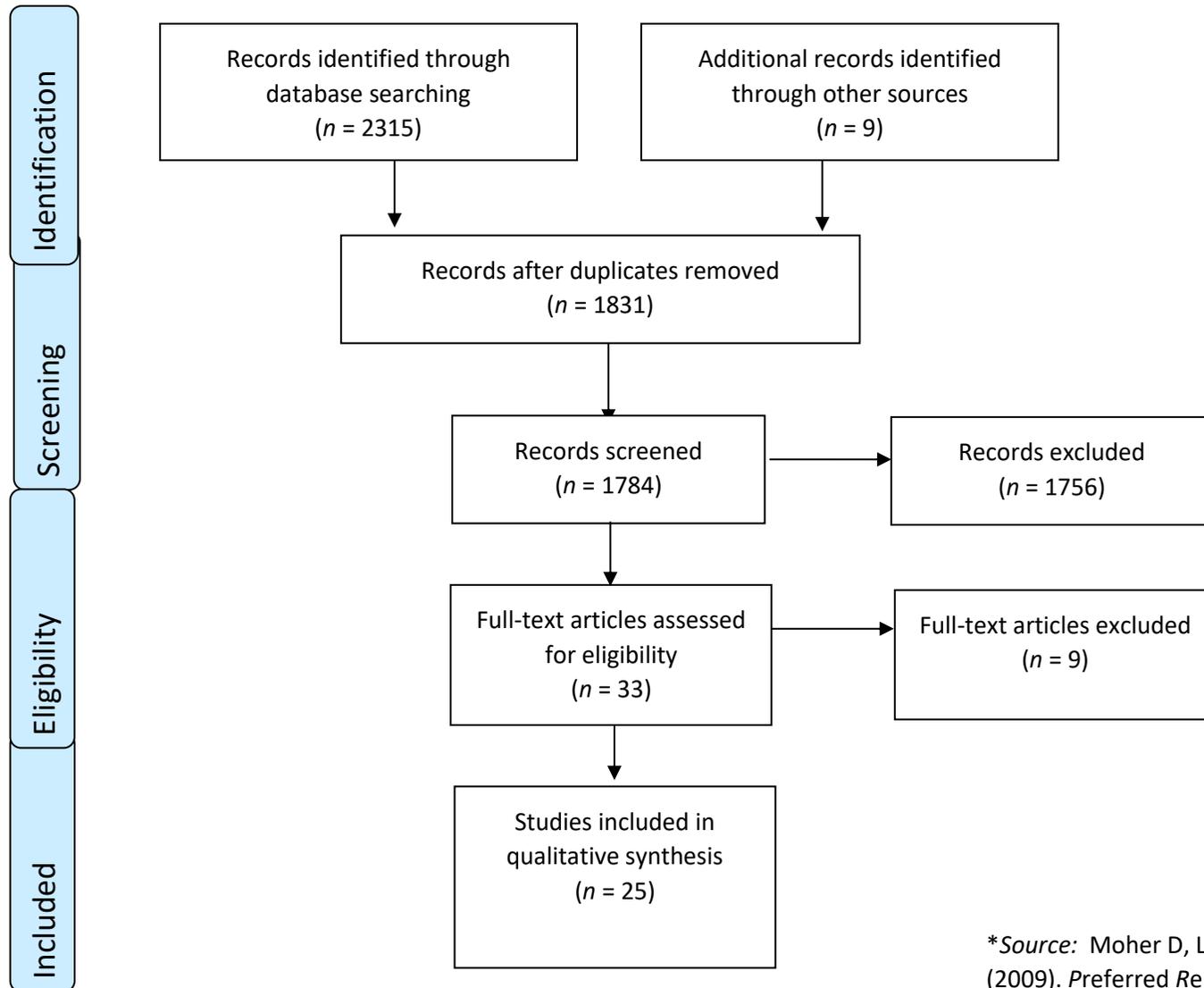
Databases

The databases used for searches were: Scopus, PubMed, PsycINFO, Cochrane, ERIC (EBSCO), SPORT Discus.

Standard 1	“early child*” OR “toddler*” OR “infan*” OR “pediatr*” OR “paediatr*”
Standard 2	“physical activ*” OR “exercise*” OR “sedentary*” OR “sitting” OR “movement” OR “active play” OR “physical activity play” OR “screen time” OR “television” OR “tablet” OR “electronic media use” OR “sleep*” OR “nap” OR “naps” OR “napping” OR “diet” OR “healthy eating” OR “food habits” OR “eating behav*” OR “food” OR “drink” OR “beverage”.
Standard 3	“preschool*” OR “pre-school*” OR “childcare” OR “child-care” OR “daycare” OR “day care” OR “nursery” OR “pre-k” OR “kindergarten” OR “early education” OR “nursery*” OR “playschool” OR “playgroup”.
Standard 4	If there was an option in the database to restrict results to systematic reviews or meta-analyses, this was used. If not, the following keywords were included in the above search terms: “systematic review” OR “systematic literature review” OR “meta-analys*”.

The flow diagram structured according to the **Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA)** is provided in Figure A.1. The protocol was registered in the International Prospective Register of Systematic Reviews (PROSPERO) – ID 111511.

Figure A.1. PRISMA flow diagram*



*Source: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic reviews and Meta-Analyses: the PRISMA statement. PLoS Med 6(7):e1000097.

Full-text articles were excluded if they:

- reviewed research instruments only;
- reviewed the influence of type of child care on obesity, without discussion of correlates, barriers, or facilitators;
- solely examined weight status as a dependent variable (as opposed to healthy eating, physical activity, sedentary time, or sleep); and/or
- examined the quantity of physical activity and sedentary time occurring during outdoor play sessions at child care without discussion of correlates, barriers, or facilitators.

Standard data extraction formats were used to collect information on methods, participants, interventions and outcomes. The Assessing the Methodological Quality of Systematic Reviews (AMSTAR) checklist was used to assess review quality. AMSTAR is a measurement tool commonly used to assess the methodological quality of systematic reviews¹ (1). Two independent reviewers assessed the quality of all included systematic reviews/meta-analyses using the AMSTAR checklist. Discrepancies were discussed until an agreement was reached on which reviews to include.

Results

Searching of the databases returned a total of 2315 articles (see Figure A.1). The abstracts were screened against the inclusion and exclusion criteria, resulting in 33 full-text articles being reviewed. Upon further review, conducted by all authors and one independent researcher, 25 articles were included. Figure A.1 shows the number

of studies identified at each stage of the review process. Two unpublished systematic reviews were also found that met the selection criteria. Citations were managed using EndNote X8 (StataCorp, College Station, TX).

The following studies were included in the systematic review:

Articles relating to healthy eating only

Campbell KJ, Hesketh KD (2007). Strategies which aim to positively impact on weight, physical activity, diet and sedentary behaviours in children from zero to five years. A systematic review of the literature. *Obes Rev.*8:327–338.

Matwiejczyk L, Mehta K, Scott J, Tonkin E, Coveney J (2018). Characteristics of effective interventions promoting healthy eating for pre-schoolers in childcare settings: an umbrella review. *Nutrients.*1;10(3):293.

Mikkelsen MV, Husby S, Skov LR, Perez-Cueto FJA (2014). A systematic review of types of health eating interventions in preschools. *Nutr J.*13:1–19.

Swyden K, Sisson SB, Lora K, Castle S, Copeland KA (2017). Association of childcare arrangement with overweight and obesity in preschool-aged children: a narrative review of literature. *Int J Obes.*41:1–12.

Zhang Z, Pereira JR, Sousa-Sa E, Okely AD, Feng X, Santos R (2018). Environmental characteristics of early childhood education

¹ Shea BJ, Grimshaw JM, Wells GA, Boers M, Andersson N, Hamel C, et al. Development of amstar: A measurement tool to assess the methodological quality of systematic reviews. *BMC Med Res Methodol.* 2007;7:10.

and care centres and young children's weight status: a systematic review. *Prev Med.*106:13–25.

Articles relating to physical activity and sedentary time (NB: no reviews focusing on sleep were identified)

Downing KL, Hnatiuk JA, Hinkley T, Salmon J, Hesketh KD (2018). Interventions to reduce sedentary behaviour in 0–5 year olds: a systematic review and meta-analysis of randomised controlled trials. *Br J Sports Med.*52:314–321.

Finch M, Jones J, Yoong S, Wiggers J, Wolfenden L (2016). Effectiveness of centre-based childcare interventions in increasing child physical activity: a systematic review and meta-analysis for policymakers and staff. *Obes Rev.*17:412–428.

Gordon ES, Tucker P, Burke SM, Carron AV (2013). Effectiveness of physical activity interventions for preschoolers: a meta-analysis. *Res Q Exerc Sport.*84(3):287–294.

Ling J, Robbins LB, Wen F, Peng W (2015). Interventions to increase physical activity in children aged 2-5 years: a systematic review. *Pediatr Exerc Sci.*27(3):314–333.

Mehtala MAK, Sääkslahti AK, Inkinen ME, Poskiparta MEH (2014). A socio-ecological approach to physical activity interventions in childcare: a systematic review. *Int J Behav Nutr Phys Act.*11:22.

Okely T, Trost S, Flood V, Cliff D, Kelly B, Jones R et al. (2013). Outcomes and their measurement in playgroup programs: an Evidence Check rapid review brokered by the Sax Institute, NSW Office of Preventive Health.

Temple M, Robinson JC (2014). A systematic review of interventions to promote physical activity in the preschool setting. *J Spec Pediatr Nurs.*19(4):274–284.

Tonge KL, Jones RA, Okely AD (2016). Correlates of children's objectively measured physical activity and sedentary behaviour in early childhood education and care services: a systematic review. *Prev Med.* 89:129–139.

Vanderloo LM (2014). Screen-viewing among preschoolers in childcare: a systematic review. *BMC Pediatr.*14:205–221.

Ward DS, Vaughn A, McWilliams C, Hales D (2009). Physical activity at child care settings: review and research recommendations. *Am J Lifestyle Med.*3:474–488.

Articles relating to both nutrition and physical activity/sedentary time/sleep

Bell LK, Golley RK (2015). Interventions for improving young children's dietary through early childhood settings: a systematic review. *Int J Child Health Nutr.*4:14–32.

Bohanna I, Davis E, Corr L, Priest N, Tan H (2012). Family day care in Australia: a systematic review of research (1996–2010). *Aust J Early Child.*37(4):138–146.

Hesketh KD, Campbell KJ (2010). Interventions to prevent obesity in 0–5 year olds: an updated systematic review of the literature. *Child Obes.*18(Supp.1):S27–S35.

Larson N, Ward DS, Neelon SB, Story M (2011). What role can child-care settings play in obesity prevention? A review of the evidence and call for research efforts. *J Am Diet Assoc.*111: 1343–1362.

Monasta L, Batty GD, Macaluso A, Ronfani L, Vutje V, Bavcar A et al. (2011). Interventions for the prevention of overweight and obesity in preschool children: a systematic review of randomized controlled trials. *Obes Rev.*12:e107–e118.

Morris H, Skouteris H, Edwards S, Rutherford L (2015). Obesity prevention interventions in early childhood education and care settings with parental involvement: a systematic review. *Early Child Dev Care*.8:1283–1313.

Nixon CA, Moore HJ, Douthwaite W, Gibson EL, Voegle C, Kreichauf S et al. (2012). Identifying effective behavioural models and behaviour change strategies underpinning preschool- and school-based obesity prevention interventions aimed at 4–6 year olds: a systematic review. *Obes Rev*.13(Supp. 1):106–117.

Sisson SB, Krampe M, Anundson K, Castle S (2016). Obesity prevention and obesogenic behaviour interventions in child care: a systematic review. *Prev Med*.87:57–69.

Ward, S., Belanger, M., Donovan, D., & Carrier, N. (2015). Systematic review of the relationship between childcare staff practices and preschoolers' physical activity and eating behaviours. *Obes Rev*.16:1055–1070.

Wolfenden L, Barnes C, Jones J, Finch M, Wyse RJ, Kingsland M et al. (2020). Strategies to improve the implementation of healthy eating, physical activity and obesity prevention policies, practices or programmes within childcare services. *Cochrane Database Syst Rev*.2: CD011779

Wolfenden L, Jones J, Williams CM, Finch M, Wyse RJ, Kingsland M et al. (2016). Strategies to improve the implementation of healthy eating, physical activity and obesity prevention policies, practices or programmes within childcare services. *Cochrane Database Syst Rev*.10:1–94.

Zhou YE, Emersen JS, Levine RS, Kihlberg CJ, Hull PC (2014). Childhood obesity prevention interventions in childcare settings:

systematic review of randomised and nonrandomised controlled trials. *Am J Health Promot*.28(4):e92–e103.

Included studies were appraised using the AMSTAR checklist for i) the AMSTAR ratings/scores for articles regarding healthy eating; and ii) the AMSTAR ratings/scores for articles regarding physical activity, sedentary time and/or sleep, as detailed in Tables A. 1 and A.2.

The 25 systematic reviews included over 525 studies with a range of study designs and sample sizes from several countries. Ten systematic reviews were obesity-focused. Table A.7 shows how the systematic review findings were used to inform the standards, in accordance with findings from the online global survey and analysis of existing standards.

Table A.1. AMSTAR assessment for healthy eating articles

Article	Research question & inclusion criteria established	At least 2 independent reviewers & procedure for disagreements	Comprehensive literature search	Status of publication used as inclusion criterion	List of included and excluded studies provided	Characteristics of included studies provided	Scientific quality assessed and documented	Scientific quality considered in analysis	Combining of methods appropriate	Likelihood of publication bias assessed	Conflict of interest included	Score
Bohanna et al. (2012)	No	Yes	Yes	Yes	No	No	No	No	Can't answer	No	No	3
Campbell et al. (2007)	No	Yes	Yes	No	No	Yes	No	No	Can't answer	No	No	3
Hesketh et al. (2010)	No	Yes	Yes	No	No	Yes	Yes	Yes	Can't answer	No	No	5
Larson et al. (2011)	No	No	Yes	No	No	Yes	No	No	Can't answer	No	No	2
Matwiejczyk et al. (2018)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	9
Mikkelsen et al. (2014)	No	Yes	Yes	No	No	Yes	Yes	Yes	Can't answer	No	No	5
Monasta et al. (2011)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Can't answer	No	Yes	8
Morris et al. (2015)	No	Yes	Yes	No	Yes	Yes	Yes	No	Can't answer	No	No	5
Nixon et al. (2012)	No	Yes	Yes	No	Yes	Yes	Yes	No	Can't answer	No	No	5

Sisson et al. (2016)	No	Yes	Yes	No	No	No	Yes	Yes	Can't answer	No	No	4
Swyden et al. (2017)	No	Yes	Yes	No	Yes	Yes	No	No	Yes	No	No	5
Ward et al. (2015)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	7
Wolfenden et al. (2016)	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	8
Wolfenden et al. (2020)	Yes	Yes	No	10								
Zhou et al. (2014)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	8

Table A.2. AMSTAR assessment for physical activity/sedentary behaviour/sleep articles

Article	Research question & inclusion criteria established	At least 2 independent reviewers & procedure for disagreements	Comprehensive literature search	Status of publication used as inclusion criterion	List of included and excluded studies provided	Characteristics of included studies provided	Scientific quality assessed and documented	Scientific quality considered in analysis	Combining of methods appropriate	Likelihood of publication bias assessed	Conflict of interest included	Score
Bohanna et al. (2012)	No	Yes	Yes	Yes	No	No	No	No	Can't answer	No	No	3
Downing et al. (2016)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	7
Finch et al. (2016)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	8
Gordon et al. (2013)	No	Can't answer	Yes	No	No	Yes	No	No	Yes	Yes	No	4
Hesketh et al. (2010)	No	Yes	Yes	No	No	Yes	Yes	Yes	Can't answer	No	No	5
Larson et al. (2011)	No	No	Yes	No	No	Yes	No	No	Can't answer	No	No	2
Ling et al. (2015)	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	6
Mehtala et al. (2014)	No	Yes	Yes	No	No	Yes	Yes	Yes	Can't answer	No	No	5
Monasta et al. (2011)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Can't answer	No	Yes	8

Morris et al. (2015)	No	Yes	Yes	No	Yes	Yes	Yes	No	Can't answer	No	No	5
Nixon et al. (2012)	No	Yes	Yes	No	Yes	Yes	Yes	No	Can't answer	No	No	5
Sisson et al. (2016)	No	Yes	Yes	No	No	No	Yes	Yes	Can't answer	No	No	4
Temple et al. (2014)	No	No	Yes	No	No	Yes	No	No	Can't answer	No	No	2
Tonge et al. (2016)	Yes	Yes	Yes	No	No	Yes	No	No	Yes	No	No	5
Vanderloo (2014)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Can't answer	No	No	6
Ward et al. (2009)	No	Yes	Yes	No	No	Yes	No	No	Can't answer	No	No	3
Ward et al. (2015)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	7
Wolfenden et al. (2016)	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	8
Wolfenden et al. (2020)	Yes	Yes	No	10								
Zhou et al. (2014)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	8

Existing national and subnational standards

Development of the global standards was based on an analysis of existing national and, where appropriate, subnational (provincial/state) standards for healthy eating, physical activity, sedentary behaviour and sleep in ECEC settings.

Existing standards were identified through:

1. Direct contact with colleagues.

Colleagues from over 40 countries were contacted to seek information regarding existing national and subnational standards. Replies were received from 20 contacts representing 20 countries, as shown in Table A.3.

2. A questionnaire sent to those working in regulatory authorities, academics with ECEC research interests, or other organizations overseeing ECEC services.

A total of 94 respondents from 30 countries representing all six WHO regions replied. Of these, 70% were aware of existing standards for ECEC settings in their country; 13% were aware only of nutrition standards; 5% were aware only of physical activity standards; and 2% were aware only of standards for sleep. Respondents reported that 90% of the existing standards were at a national level, with 10% at a subnational level. Four additional national standards were identified by these respondents.

3. Additional online searches.

These searches resulted in a total of 41 national or subnational ECEC standards being identified and reviewed. Table A.4 provides a summary of the information contained in the 41 existing standards.

Table A.3. List of countries contacted to request existing national standards

Region	Country	Region	Country
Asia	Bangladesh	Africa	Botswana*
	China		Ethiopia*
	China, Hong Kong SAR*		Ghana*
	India		Kenya
	Indonesia		Morocco
	Japan*		Mozambique
	Malaysia*		Nigeria
	Mongolia		South Africa*
	Nepal		Tunisia
	Pakistan		United Republic of Tanzania
	Republic of Korea		Zimbabwe*
	Singapore*		
	Sri Lanka*		
	Thailand*		
	Viet Nam		

Region	Country	Region	Country
Europe	Finland*	Oceania	Australia*
	Netherlands*		Fiji
	Norway*		New Zealand
	Sweden*		Solomon Islands
	Switzerland		Vanuatu
	Turkey		
	United Kingdom, England*		
	United Kingdom, Scotland		
North America	Canada*	South America	Argentina
	USA*		Brazil*
			Chile
			Colombia
			Venezuela

* countries whose contacts responded and provided existing national or subnational standards for review

Table A.4. Brief summary of existing national/subnational standards identifying healthy eating, physical activity, sedentary behaviour (including screen time) and sleep in early childhood education and care settings

Country	Standards for healthy eating	Standards for physical activity/sedentary behaviour (including screen time)/sleep
Australia	<ul style="list-style-type: none"> - Healthy eating is promoted and appropriate for each child. <p data-bbox="369 534 896 638">https://www.acecqa.gov.au/nqf/national-quality-standard/quality-area-2-childrens-health-and-safety</p>	<ul style="list-style-type: none"> - Each child’s well-being and comfort is provided for, including appropriate opportunities to meet each child’s need for sleep, rest and relaxation. - Physical activity is promoted and appropriate for each child. <p data-bbox="929 566 1982 638">https://www.acecqa.gov.au/nqf/national-quality-standard/quality-area-2-childrens-health-and-safety</p>

State of Victoria:

- actively promotes healthy eating;
- has in place policies and procedures in relation to nutrition, food and beverages, and dietary requirements;
- ensures children have access to safe drinking water at all times; and
- ensures children are offered food and beverages appropriate to the needs of each child on a regular basis throughout the day.

<https://www.education.vic.gov.au/Documents/childhood/providers/regulation/HealthyEatingNQS.pdf>

Canada Provincial/territorial only

Prince Edward Island promotes:

- breastfeeding and infant feeding;
- appropriate times to eat;
- eating environment;
- quality of foods available;
- food safety; and
- nutrition education (curriculum, role models).

http://www.gov.pe.ca/photos/original/ee_cd_healthguide.pdf

Ontario promotes:

- healthy eating environment;
- menu planning;
- nutritious food and beverages;
- healthy cooking techniques; and
- food and eating safety.

http://www.opho.on.ca/getmedia/91b60112-be8a-40a8-8102-d69225c7ef14/HEAL-Childcare-Guidelines_2016-05-27-E

Provincial/territorial only (13)

Across all 13 provinces and territories:

Each childcare act/regulation recommends that childcare facilities promote gross motor development. No specific requirements are offered regarding amount or intensity.

Similarly, all Canadian provinces/territories have acts/regulations recommending daily outdoor play.

In all Canadian provinces/territories, daily physical activity is recommended with specific regulations in:

- Northwest Territories
- Nunavut
- Nova Scotia

Of all 13 Canadian provinces/territories, only New Brunswick has recommendations for screen-time restrictions.

<https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-018-5292-1>

British Columbia:

- Children's individual needs for food are recognized and responded to.
- Meals are structured for enjoyment and healthy choices.
- Children should be encouraged to make healthy food choices.

<https://www2.gov.bc.ca/gov/content/health/keeping-bc-healthy-safe/healthy-communities/healthy-schools>

China

- Help young children form the habit of eating healthy portion sizes at meal times.
 - Help young children understand the nutritional value of food. Guide them to eat a balanced diet without being too picky about food.
 - Limit the amount of unhealthy food consumed.
 - Drink water regularly instead of soft drinks.
- Inspire young children's interest in participating in vigorous outdoor activities and encourage them to develop the habit of exercising regularly.
 - Participate in outdoor sports and play outdoor games with young children and encourage them to engage in outdoor play activities with their peers.
 - Guarantee that young children have 11–12 hours of sleep per day.
- (Web site no longer available)

- Do not rush children at meals. Remind them to chew slowly and not to play while eating.

China,
Hong
Kong SAR

- Encourage healthy eating for pre-school children, including balanced meals and consumption of fruit, vegetables and water.

- Encourage teachers to provide ample opportunities for all children to engage in physical activity in classroom settings; and for parents/caregivers to work with schools to achieve the standards.

<https://www.startsmart.gov.hk/en/others.aspx?MenuID=97>

https://www.startsmart.gov.hk/files/pdf/nutritional_guide_en.pdf

Ethiopia

- Services should be arranged for malnourished children to be referred to health facilities, feeding programmes and other services that can respond to identified needs.
Schools should have gardens for demonstration purposes and to serve as resource centres for learning more about nutrition practically.

- Children must do 50 minutes of physical education/week in year 1 of pre-school.
- Children must do 70 minutes of physical education/week in year 2 of pre-school.

<http://unesdoc.unesco.org/images/0014/001471/147190e.pdf>

Finland	<p>Terveyttä ja iloa ruoasta – varhaiskasvatuksen ruokailusuositus 2018 (Health and joy from meals – early childhood nutrition recommendations)</p>	<ul style="list-style-type: none"> - Make sure that children can go outdoors for at least 2 hours every day. - Give children room and time to engage in games that involve physical activity. - Modify the children’s operating environment together with the children to make it favourable for successful activities. - When outdoors, encourage children to participate in physically active play that has rules. - Encourage, inspire and praise. Also give positive feedback for trying.
	<p>http://www.julkari.fi/handle/10024/135907 (Finnish text)</p>	
	<p>Syödään yhdessä – ruokasuositukset lapsiperheille 2019 (Eating together – nutrition recommendations for families with children) (Finnish text)</p>	<p>http://urn.fi/URN:ISBN:978-952-263-413-9 (Page 29 specific to early childhood education settings.)</p>
	<p>http://www.julkari.fi/handle/10024/137459</p>	
Germany	<ul style="list-style-type: none"> - When choosing meals for the weekly plan, make sure to follow the recommendations for balanced nutrition. 	<ul style="list-style-type: none"> - In determining nap times, centres should consider personnel, the space available, and the wishes of the parent/caregiver.
	<p>https://www.kindergesundheit-info.de/fuer-fachkraefte/kita/alltag-in-der-kita/kita-essen/ (German text)</p>	<p>https://www.kindergesundheit-info.de/fuer-fachkraefte/kita/alltag-in-der-kita/schlafen-in-der-kita/ (German text)</p>
India	<ul style="list-style-type: none"> - The centre must have a safe and potable drinking water source with a water purifier installed. - 3 meals should be served in a day which includes a morning 	<p>No standards</p>

snack, lunch and an evening snack.

- Children must receive a well-balanced and nutritious diet as per recommendations and guidelines.

<http://www.wcd.nic.in/sites/default/files/National%20Minimum%20Guidelines.pdf>

Ireland

- Potable drinking water is available to children at all times.
- Children are provided with regular drinks and food in adequate quantities for their needs.
- Children's food preferences are considered when menus are being planned.
- Food and drink is properly prepared, nutritious and complies with dietary and religious requirements.

https://earlychildhoodireland.ie/wp-content/uploads/2015/05/natstandards_preschool.pdf

- "Safe sleep" policy is in place.
- Liaison takes place between staff and parents/caregivers regarding child's sleep patterns/needs.
- Suitable sleeping facilities are provided and positioned away from general play areas.
- A viewing panel that allows resting/sleeping children is to be within sight of staff at all times.
- Lighting level is subdued and conducive to sleep.

https://earlychildhoodireland.ie/wp-content/uploads/2015/05/natstandards_preschool.pdf

Israel No standards

- Children develop physical prowess, spatial orientation and independence. They become aware of their body and are able to use it efficiently.
- The outdoor area is conducive to free physical activities: running, jumping, climbing, trying out the play units and the sand pit, as well as permitting physical instruction.

<http://meyda.education.gov.il/files/PreSchool/KavimManhimAnglit.pdf>

Jamaica

- Children and staff should have discussions at meal times, providing a pleasant social atmosphere.
- Children should be fed according to age requirements and time spent in the institution per day. Snacks should include fruits and vegetables and be low in sugar and salt.

- Teachers are to offer indoor and outdoor physical activities that provide opportunities for fine and gross motor development. They should actively assist children to develop more advanced motor skills.

<https://ecc.gov.jm/publications/>

<https://ecc.gov.jm/publications/>

Japan

- Teachers should encourage children to eat willingly by allowing them to experience the pleasure and joy of eating with teachers and other children in a friendly atmosphere, and developing an interest in various kinds of foods, whilst also taking into consideration children's individual dietary lifestyles.

- It is essential for pre-school children to have various kinds of fun play more than 60 min/day, every day.

http://www.mext.go.jp/a_menu/sports/undousisin/1319192.htm (Japanese text)

- Children should be encouraged to expand their interest in and curiosity about the outdoors, given the fact that free physical activity and play in a natural environment stimulates the development of bodily functions.

http://www.mext.go.jp/component/english/_icsFiles/afieldfile/2011/04/07/1303755_002.pdf

- Teachers should creatively design playgrounds and the placement of playground equipment taking into consideration children's patterns of movement.

http://www.mext.go.jp/component/english/_icsFiles/afieldfile/2011/04/07/1303755_002.pdf

New Zealand

- There should be frequent communication between all those who work with children and their families/caregivers to ensure consistent, reasoned responses to children's changing needs and behaviours and the sharing of information on health issues, such as nutrition.

- Young children to have opportunities to participate in energetic physical activity.
- Children to experience activities that develop their gross and fine motor skills and offer varying degrees of physical challenge and reasonable risk.
- Children to have access to big, open spaces, and equipment such as skipping ropes, balls, racquets, bats and balance boards.

<https://education.govt.nz/assets/Documents/Early-Childhood/ELS-Te-Whariki-Early-Childhood-Curriculum-ENG-Web.pdf>

<https://education.govt.nz/assets/Documents/Early-Childhood/ELS-Te-Whariki-Early-Childhood-Curriculum-ENG-Web.pdf>

Norway

- Children to experience and learn about animals and plants and about their mutual dependence

- Kindergartens shall have sufficient space and equipment to allow play and varied activities that promote a love of exercise and provide a wide range of

and importance to food production; children to be given insight into the production of foodstuffs.

<https://www.regjeringen.no/globalassets/upload/kd/vedlegg/barnehager/engelsk/frameworkplanforthecontentandtasksofkindergartens.pdf>

motor and sensory experiences, as well as the opportunity to learn and master skills.

- Children shall be given help to ensure continued development of their body control, gross motor skills and fine motor skills, sense of rhythm and motor sensitivity.

<https://www.regjeringen.no/globalassets/upload/kd/vedlegg/barnehager/engelsk/frameworkplanforthecontentandtasksofkindergartens.pdf>

Republic of Korea

- Children should be supported to develop proper eating habits including eating balanced meals, valuing food, eating proper quantities for a balanced diet, eating happily with proper manners.

- Children should be using locomotor skills and stability skills, instruments and play facilities, and participating in outdoor physical activities.

<http://ncm.gu.se/media/kursplaner/andralander/koreaforskola.pdf>

<http://ncm.gu.se/media/kursplaner/andralander/koreaforskola.pdf>

Singapore

- The Early Childhood Development Agency imposes nutritional requirements, such as providing fruits on a regular basis and not serving sugary drinks or deep-fried food to pre-schoolers.

No standards.

The Healthy Meals in School

Programme recommends:

- cutting down fat, sugar and salt;
- serving whole grains, fruit and vegetables; and
- serving healthy set meals.

Specific food service guidelines are available:

<https://www.hpb.gov.sg/schools/school-programmes/health-promoting-programmes-for-pre-schools/healthy-meals-in-pre-schools-programme>

South
Africa

- Offer each child a variety of foods. Take into account that there may be cultural differences in what is considered as good food for infants.
- Spend time with each child during meals.
- Make meal times pleasant by talking, singing rhymes, telling stories to child.
- Speak in the mother tongue about what is happening during meal times.
- Demonstrate nutritious eating habits.

Various activities suggested to develop small and large muscles:

- Offer more activities and games that develop large muscles and torso skills (climbing, balancing, twisting, rolling, running).
- Play body movement games with children.
- Arrange outings to open spaces or parks where children can run freely and safely.
- Provide equipment for balancing, climbing and running through.
- Offer many games with balls and beanbags to develop throwing and catching skills.

<https://www.education.gov.za/Portals/0/Documents/curriculum%20docs/NCF%202018/NCF%20English%202018%20web.pdf?ver=2018-05-14-124718-317>

- Expect a child to like new food and offer new food with encouragement.

<https://www.education.gov.za/Portals/0/Documents/curriculum%20docs/NCF%202018/NCF%20English%202018%20web.pdf?ver=2018-05-14-124718-317>

Sri Lanka

- ECCE (early childhood care and education) teachers should provide a wide range of concrete, developmentally-appropriate, indoor and outdoor experiences to assist in the development of each child, including planned and spontaneous interactions, promoting healthy habits/life skills that enhance lifelong well-being in accordance with ECCE standards.

https://www.academia.edu/18137765/Early_Childhood_Care_and_Education_Policy_Sindh_2015

- ECCE teachers and students should be taught about food and nutrition, food preparation, storage, safety and hygiene and their role in achieving and maintaining health in accordance with the ECCE curriculum; and ECCE classes/schools should be encouraged to provide an eating environment that promotes family and multicultural values.

https://www.academia.edu/18137765/Early_Childhood_Care_and_Education_Policy_Sindh_2015

Sweden No standards

- The pre-school should strive to ensure that each child develops their motor skills, ability to coordinate, awareness of their own body, and an understanding of the importance of maintaining their own health and well-being.

<http://www.yfa.se/wp-content/uploads/2017/06/Bakgrund-barnrekommendationer.pdf> (Swedish text)

<https://www.skolverket.se/publikationer?id=2442> (Swedish text)

United Kingdom (England)

- Where children are provided with meals, snacks and drinks, these must be healthy, balanced and nutritious.
- Before a child is admitted to the ECEC setting, the provider must obtain information about any special dietary requirements, preferences and food allergies that the child has and any special health requirements.
- Fresh drinking water must be available and accessible at all times.
- Providers must record and act on information from parents/primary caregivers about a child's dietary needs.

- Physical development involves providing opportunities for young children to be active and interactive; and to develop their coordination, control and movement. Children must also be helped to understand the importance of physical activity.

Note that the 2017 Early Years Foundation Stage (EYFS) framework was replaced in September 2019 with the Government's education inspection framework (EIF).

- | | | |
|---------------------------|--|---|
| United Kingdom (Scotland) | <ul style="list-style-type: none"> - As soon as infants have been weaned onto solid foods at around six months, they should be offered a range of healthy foods and drinks supported by adults who encourage them to try out new tastes and textures. | <ul style="list-style-type: none"> - Children can experience the joy of physical activity through play both indoors and outdoors and in all weathers. - Play and movement are essential for brain development as it is often through play that infants and young children learn about themselves, others and the world around them. These experiences also offer important opportunities for the development of fine movements, gross motor skills and social skills |
| USA | <ul style="list-style-type: none"> - Facilities should develop, at least one month in advance, written menus that show all foods to be served during that month and should make the menus available to parents/caregivers/guardians. - Children should be allowed time to eat their food and not be rushed during the meal or snack service. They should not be allowed to play during these times. - Caregivers/teachers should create a supportive environment that promotes positive, sound eating behaviours. | <ul style="list-style-type: none"> - The facility should promote all children's active play every day. Children should have ample opportunity to do moderate to vigorous activities, such as running, climbing, dancing, skipping and jumping, to the extent of their abilities. - All children, from birth to 6 years of age, should participate daily in 2 to 3 occasions of active play outdoors, weather permitting and 2 or more structured or caregiver/teacher/adult-led activities or games that promote movement, indoors or outdoors, during the course of the day. |
- http://nrckids.org/CFOC/Childhood_Obesity
- http://nrckids.org/CFOC/Childhood_Obesity

Vanuatu

Children use their large muscles in a variety of ways. For example, children should have opportunities to:

- play outside where they can move freely;
- play circle games;
- play games to music or clapping of hands; and
- participate in races.

[https://moet.gov.vu/docs/ecce-reports-and-policies/ECCE%20Early%20Learning%20and%20Development%20Standards%20\(English\)_2010.pdf](https://moet.gov.vu/docs/ecce-reports-and-policies/ECCE%20Early%20Learning%20and%20Development%20Standards%20(English)_2010.pdf)

Children name, grow and prepare some local foods. For example, children should have opportunities to:

- try lots of different meals from the community;
- bring fruit and vegetables to early learning centre; and
- try many different fruit and vegetables, both raw and cooked.

[https://moet.gov.vu/docs/ecce-reports-and-policies/ECCE%20Early%20Learning%20and%20Development%20Standards%20\(English\)_2010.pdf](https://moet.gov.vu/docs/ecce-reports-and-policies/ECCE%20Early%20Learning%20and%20Development%20Standards%20(English)_2010.pdf)

A critical review of these 41 national and subnational standards (across 24 countries) was then undertaken, with a focus on identifying common standards across countries. A standard was considered common if it was found in at least 30% of the 41 reviewed countries' standards documents.

Table A.5 reports the standards that met the 30% benchmark and were considered as common standards across the 24 countries. The most common topic that featured across the greatest number of national standards was the need for supportive environments.

Table A.5. Common healthy eating and movement behaviour topics identified across 24 countries

	Topic	Topic featured in national or subnational standards (41 standards total)
1)	Build children's knowledge & skills	68% (28 of 41)
2)	Schedules to accommodate healthy practices	54% (22 of 41)
3)	Provide supportive environments	83% (34 of 41)
4)	Work with families	34% (14 of 41)
5)	Staff behaviours and training (professional development)	34% (14 of 41)
6)	Align standards with national or global guidelines	41% (17 of 41)
7)	Ensure safety	51% (21 of 41)

Online global survey

An online global survey was disseminated through the World Health Organization. Target groups for the survey included those who worked in the ECEC sector or whose work related to early childhood health, education, or development.

The survey was drafted by the authors, in consultation first with two ECEC experts at the University of Wollongong, Australia who were

former directors of ECEC centres, each with over 20 years' experience in the sector. Five independent ECEC experts from five continents (Table A.6) then reviewed the draft survey and provided feedback on the questions and formatting. The survey was developed for people working in ECEC settings and is available in the section "Online Global Survey questionnaire" on page 50.

Table A.6. Online survey peer reviewers

Name	Title/Position	Affiliation
Dr Catherine Draper	Senior Researcher	University of the Witwatersrand, South Africa
Dr Greet Cardon	Professor	Ghent University, Belgium
Dr Noshin Khan	Specialist in early childhood education	N/A. Freelance consultant, Pakistan
Dr Valerie Carson	Associate Professor	University of Alberta, Canada
Dr Christine Chen	Specialist in early childhood development	Asia-Pacific Regional Network for Early Childhood (ARNEC) Singapore

The survey was submitted to, and approved by, the World Health Organization Ethics Committee (Protocol ID: ERC.0003119). The survey and protocol were also approved by the University of

Wollongong Human Research Ethics Committee (Approval number 2018/424). The survey (and corresponding participant information sheet and consent form) were translated into French, Spanish,

Russian, Arabic and Chinese. Survey distribution used a snowball methodology, through professional networks and public consultation. Survey data were collected during a 4-week period (February–March 2019).

Surveys captured responses from centre directors, programme officers, coordinators, health staff, teachers, specialists, consultants, programme developers, chief executive officers and researchers all working in the area of child health, care and development. Respondents described various types of ECEC settings in their countries, including day care, pre-school care, nursery, kindergarten, long day care, occasional care and family day care. Data from the surveys were critically analysed against the findings from the analysis of existing national and subnational standards and the systematic review.

ECEC providers online survey results

The online survey for ECEC providers was completed by 169 respondents from 33 countries representing all six WHO regions. More than three quarters of respondents (77%) were female, of whom 60% worked in an urban setting. Sixteen per cent (16%) had a high school or certificate level education only; and 30% had an undergraduate degree as their highest level of education. Just over one quarter (28%) had a masters or professional degree, and 15% a doctorate.

Of the 169 respondents who completed the ECEC providers' online survey, 49% were aware of existing standards for ECEC settings in their country; 7% were aware only of standards for physical activity; survey.

12% for nutrition only, and 1% were aware only of standards for sleep. No respondents reported being aware only of standards for sitting or screen time. Twenty-two per cent (22%) were not aware of any standards for ECEC settings in their country.

Forty-seven per cent (47%) of respondents noted that the existing ECEC standards in their country were national. Fifty-seven percent reported that they had used the existing standards in their work to date, while 11% said they had not used them. Almost one third (32%) of participants did not respond to this question.

In the area of healthy eating, respondents most commonly reported using existing standards for policies (39%) and for the daily routine of the centre (37%). In the areas of physical activity, sitting and screen time, and sleep, respondents most commonly reported using existing standards for programming/scheduling (32%) and for policies (41%).

Some 64% of respondents felt they mostly needed more guidelines or standards around healthy eating and movement behaviours; 9% felt they needed standards mostly for sedentary behaviour and screen time; and 6% mostly for physical activity. For those who felt they needed standards mostly for nutrition and sleep, the proportions were smaller (3% and 4% respectively).

Table A.7 shows the topic areas, proposed standards and an analysis of whether these are also found in the evidence review, existing national or subnational standards and called for by stakeholders responding to the online

Table A.7. Mapping of potential standards

Topic	Standard	Analysis		
		Number of national or subnational standards that include this topic	Standard identified in a review	Topic identified as important in the survey responses
<p>Build children’s knowledge and skills</p> <p>Topic featured in 28/41 (68%) national/subnational standards</p> <p>Canada (13 provinces/territories)</p> <p>China</p> <p>China, Hong Kong SAR</p> <p>Ethiopia</p>	<p>Support the development of children’s nutrition and physical activity knowledge and skills through learning activities and games.</p>	<p>Healthy eating = 7;</p> <p>Physical activity = 5.</p>	<p>Zhou et al. (2014) – Healthy diet choices are facilitated when health education is fun and engaging.</p> <p>Combining physical activity and nutrition education is an important facilitator of behaviour change amongst children, including increases in physical activity.</p>	
	<p>Provide opportunities for children to develop and practice age-appropriate motor skills.</p>	<p>23</p>	<p>Hesketh & Campbell (2010) – When interventions were targeted toward both</p>	

<p>Finland Jamaica New Zealand Norway Republic of Korea South Africa Sri Lanka Sweden United Kingdom (England) United Kingdom (Scotland) USA Vanuatu</p>			<p>knowledge development and practical application of skills, this facilitated increases in movement skills.</p> <p>Ward et al. (2009) – Incorporating a gross motor skills programme is of benefit.</p>	<p>regarding physical activity (118 respondents), 67 (57%) noted that “Development of gross motor skills” would be their 1st or 2nd priority.</p> <p>When survey respondents were asked: “Do you believe you have adequate knowledge and/or skills to provide support to children and/or parents/caregivers regarding development of gross motor skills”, 22 of 169 (13%) said their knowledge was “not at all adequate”; 65 of 169 (38%) said their knowledge</p>
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				was “somewhat adequate”.
<p>Schedules to accommodate healthy practices</p> <p>Topic featured in 22/41 (54%) national/subnational standards</p> <p>Australia (national) Australia (Victoria) Canada (Alberta) Canada (New Brunswick) Canada (Northwest Territories) Canada (Nova Scotia) Canada (Nunavut) Canada (Ontario) Canada (Prince Edward Island)</p>	<p>Offer ample opportunities for physical activity throughout the day, including, where possible, appropriate structured or unstructured activities or games that promote movement over the course of the day.</p>	17	<p>Bohanna et al (2012) – Activities should be appropriate inside or outside, should be inexpensive; and it should be possible for children to continue an activity without constant adult supervision.</p> <p>Finch et al. (2016) – Structured activities facilitated positive change in physical activity.</p> <p>Gordon et al. (2013) – Unstructured activities had a greater impact on physical activity levels than structured activities.</p> <p>Larson et al. (2011) – Structured time for children to partake in outdoor play is an important facilitator of physical activity.</p>	<p>For respondents who identified that they need more guidelines regarding physical activity (118 respondents), 71 (60%) noted that “Physical activity levels” would be their 1st or 2nd priority.</p>

<p>China China, Hong Kong SAR Ethiopia Finland India Ireland Jamaica Japan New Zealand Norway Sri Lanka USA (American Academy of Pediatrics (AAP)) USA (National Academy of Medicine (NAM))</p>			<p>Ward et al. (2009) – When structured physical activity sessions can be introduced into the school curriculum, this is a facilitator of physical activity.</p> <p>Ward et al. (2015) – When activities are overly structured, with little room for child-initiated tasks, this may be a barrier to physical activity.</p> <p>Zhou et al. (2014) – Incorporating structured physical activity (e.g. 30 min/day) into the curriculum has been found to facilitate positive change.</p>	
	<p>Offer regular meals and snacks throughout the day, spacing these to allow children to respond to hunger and satiety cues.</p>	<p>8</p>	<p>Sisson et al. (2016) – Changing the childcare centre environment, for example, timing of lunch and menu modifications, can facilitate positive</p>	<p>Of respondents who identified that they need more guidelines regarding nutrition (118 respondents), 14 (12%) noted that “Recognition</p>

			dietary behaviour change.	of children's signals of hunger and satiety (feeling full)" would be their 1st or 2nd priority.
	Limit prolonged sitting.	4		<p>Of respondents who identified that they need more guidelines regarding physical activity (118 respondents), 44 (40%) noted that "Appropriate management of sitting and screen time" would be their 1st or 2nd priority.</p> <p>When survey respondents were asked: "Do you believe you have adequate knowledge and/or skills to provide support to children and/or parents/caregivers</p>

				regarding reducing long periods of sitting”, 22 of 169 (13%) said their knowledge was “not at all adequate”; and 67 of 169 (40%) said their knowledge was “somewhat adequate”.
	Limit screen time for children aged > 2 years; no screen time for children aged < 2 years.	6	<p>Tonge et al. (2016) – When ECEC centres actively decreased use of information technology (e.g. electronic tablets), this facilitated more movement.</p> <p>Vanderloo (2014) – If screens are readily available and in sight of children, this may be a barrier to lowering levels of screen time.</p>	When survey respondents were asked: “Do you believe you have adequate knowledge and/or skills to provide support to children and/or parents/caregivers regarding management of appropriate use of electronic media in ECEC settings”, 36 of 169 respondents (21%) said their knowledge was “not at all adequate”; and 72

				of 169 (43%) said their knowledge was “somewhat adequate”.
Supportive environments Topic featured in 34/41 (83%) national/subnational standards Australia (national) Australia (Queensland) Australia (Victoria) Canada (13 provinces/territories) China China, Hong Kong SAR Finland Germany India	Allow adequate time and space to eat together, in a relaxed atmosphere without distractions.	9	Bohanna et al. (2012) – Supportive environments are conducive to improvements in nutrition.	
	Staff supervision during meal times, including eating with children.	5		
	Ensure children have access to safe drinking water at all times.	8		
	Support and encourage breastfeeding, aligned with WHO guidelines (<i>exclusive for the first 6 months, and then feeding solid food for 2 years and beyond</i>).	4		When survey respondents were asked: “Do you believe you have adequate knowledge and/or skills to provide support to children and/or parents/caregivers regarding promotion of breastfeeding?”, 27 of 169

<p>Ireland Israel Jamaica Japan New Zealand Norway Rwanda</p>				<p>respondents (16%) said their knowledge was “not at all adequate”; 70 of 169 (41%) said their knowledge was “somewhat adequate”; and</p>
<p>South Africa Sri Lanka United Kingdom (England) United Kingdom (Scotland) USA (AAP) USA (NAM)</p>	<p>Ensure restful sleep.</p>	<p>9</p>		<p>7 of 169 (4%) suggested they specifically required standards for sleep.</p> <p>When survey respondents were asked: “Do you believe you have adequate knowledge and/or skills to provide support to children and/or parents/caregivers regarding management of appropriate sleep practices?”, 32 of 169 respondents</p>

				(19%) said their knowledge was “not at all adequate”; and 86 of 169 (51%) said their knowledge was “somewhat adequate”.
	Offer a variety of weather-appropriate, portable and fixed play equipment, including sufficiently spacious outdoor environments where possible.	25	<p>Downing et al. (2016) – Adaptation of the built environment to facilitate greater physical activity among pre-school-aged children</p> <p>Gordon et al (2013) – When children were offered opportunities for outdoor play, this facilitated a greater increase in physical activity compared with indoor play.</p> <p>Environmental changes (e.g. addition of portable equipment and markings on pavement) also facilitated greater</p>	

		<p>increases in physical activity.</p> <p>Mehtala et al. (2014) – Teachers note that weather is a considerable barrier to physical activity, as it can limit outdoor time and opportunities for play. Lack of a designated gym area in pre-school settings is a significant barrier. Show teachers how to customize activities to fit whatever physical environment is available to them.</p> <p>Okely et al. (2013) – Physical activity was facilitated by availability and quality of equipment and active play locations in playgroup settings.</p> <p>Temple et al. (2014) – When researchers added playground markings and painted playgrounds, this</p>	
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			<p>facilitated greater physical activity and energy expenditure in children. Similarly, adding additional play equipment can encourage more activity. Further, lowering the number of children in the playground can facilitate more time spent in physical activity.</p> <p>Ward et al. (2009) – Introducing new play equipment is a facilitating factor that can encourage children to engage in more physical activity play.</p>	
<p>Working with families/caregivers</p> <p>Topic featured in 14/41 (34%) national/subnational standards</p>	<p>Involve parents/caregivers in nutrition policy, and programme development and implementation, including menus.</p> <p>Disseminate nutrition information and resources to parents/caregivers and make nutrition plans available to them.</p>	<p>1</p> <p>4</p>	<p>Morris et al. (2015) – significance of parent support when it comes to promotion of healthy eating in childcare centres.</p> <p>Okely et al (2013) – When families and staff were included in the</p>	<p>Of respondents who identified that they needed more guidelines regarding nutrition (118 respondents), 47 (40%) noted that “Working with families/caregivers”</p>

<p>Australia (Victoria) Canada (Ontario) Canada (Manitoba) Canada (New Brunswick) Canada (Newfoundland) Canada (Nova Scotia) Canada (Prince Edward Island) China, Hong Kong SAR Finland Ireland Jamaica New Zealand USA (AAP) USA (NAM)</p>	<p>Give parents/caregivers access to written menus, posting these consistently and visibly.</p> <p>Provide regular (daily) feedback to parents/caregivers about children’s food/milk intake over the day.</p> <p>Disseminate physical activity information and resources to parents/caregivers.</p>	<p>6</p> <p>2</p> <p>7</p>	<p>development/evaluation of interventions, this was viewed as a significant facilitator of positive increases in physical activity.</p> <p>Bell & Golley (2015) – Improvements in dietary intake facilitated when parents receive nutrition education</p> <p>Larson et al. (2011) – Successful interventions involve not only the children, but also the families.</p> <p>Morris et al (2015) – Incorporate health education in a way that is easily accessible to families.</p> <p>Larson et al. (2011) – Successful interventions involve not only the children, but also the families.</p> <p>Finch et al. (2016) – more intensive engagement with parents is required to</p>	<p>would be their 1st or 2nd priority.</p> <p>Of 169 respondents, 39 (23%) suggested “Support from families/caregivers” would be the 1st or 2nd most important factor in implementing the standards.</p> <p>Of respondents who identified that they needed more guidelines regarding physical activity (118 respondents), 43 (39%) noted that “Working with families/caregivers” would be their 1st or 2nd priority.</p> <p>Of 169 respondents, 36</p>
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			<p>increase intervention effectiveness.</p> <p>Hesketh & Campbell (2010) – Lasting change in healthy behaviours can only be achieved through parent support in the home setting.</p> <p>Ling et al. (2015) – Actively involving parents, for example via workshops and homework assignments, may also help facilitate greater increases in physical activity.</p> <p>Mehtala et al (2014) – Parents are important facilitators of physical activity.</p>	<p>(31%) suggested “Resistance from families/caregivers” would be the 1st or 2nd biggest barrier to implementing the Standards.</p>
<p>Staff behaviours and training (professional development)</p>	<p>Model healthy eating and physical activity.</p>	<p>Healthy eating = 3; Physical activity = 4.</p>	<p>Nixon et al. (2012) – Teachers can be useful role models and facilitators of healthy eating.</p> <p>Ward et al. (2015) –</p>	<p>Of 169 respondents, 52 (31%) suggested “Opportunities for professional development on the standards”</p>

<p>Topic featured in 14/41 (34%) national/subnational standards</p> <p>Canada (Alberta) Canada (Manitoba) Canada (New Brunswick) Canada (Ontario) Canada (Prince Edward Island) China China Hong Kong SAR</p>			<p>Enthusiastic modelling by staff can facilitate positive dietary choices in children.</p> <p>Sisson et al. (2016) – Childcare staff play a significant role in facilitating physical activity. If the personal health of staff is favourable (e.g. staff demonstrate healthy habits in terms of diet and physical activity), this is a motivating factor for children.</p>	<p>would be the 1st or 2nd most important factor in implementing the standards.</p>
<p>Finland Japan New Zealand South Africa USA (AAP) USA (NAM) Vanuatu</p>	<p>Encourage children to try a variety of new/healthy foods, trying each food on multiple occasions.</p>	<p>5</p>	<p>Ward et al. (2015) – Positive reinforcement from staff can facilitate healthy choices.</p>	<p>When survey respondents were asked: “Do you believe you have adequate knowledge and/or skills to provide support to children and/or parents/caregivers regarding promotion of healthy eating”, 32 of 169 respondents</p>

				(19%) said their knowledge was “not at all adequate”; and 61 of 169 (36%) said their knowledge was “somewhat adequate”.
	Encourage children to participate in physical activity (<i>never withhold as punishment</i>) and praise their efforts.	9	<p>Nixon et al. (2012) – A significant facilitator of physical activity in children is development of perceived competence, whether through modelling, praise, or encouragement by staff.</p> <p>Ward et al. (2015) – A significant facilitator of physical activity is teachers’ involvement, for example, guiding discussions and giving encouragement regarding physical activity and acknowledging children when they are physically active.</p>	When survey respondents were asked: “Do you believe you have adequate knowledge and/or skills to provide support to children and/or parents/caregivers regarding promotion of physical activity”, 11 of 169 respondents (7%) said their knowledge was “not at all adequate”; and 69 of 169 (41%) said their knowledge

				was “somewhat adequate”.
	Receive regular continuing education and keep up to date with the latest research and recommendations	Healthy eating = 0; Physical activity = 7.	<p>Bohanna et al. (2012) –When staff are knowledgeable about nutrition and have comprehensive policies available to them, they are better able to create an environment supportive of nutrition and appropriate dietary choices.</p> <p>Hesketh & Campbell (2010) – When the individual preparing meals for the child receives education on nutrition, this can facilitate lower consumption of fat and saturated fat.</p> <p>Bohanna et al. (2012) – Professional development should be provided to facilitate greater confidence among staff.</p>	Of 169 respondents, 52 (31%) suggested “Opportunities for professional development on the Standards” would be the 1st or 2nd most important factor in implementing the standards.

			Mehtala et al (2014) – Physical activity-specific teacher training is a potentially fruitful facilitator of physical activity among pre-school-aged children	
<p>Standards align with national or global guidelines</p> <p>Topic featured in 17/41 (41%) national/subnational standards</p> <p>Australia (Victoria)</p> <p>Canada (British Columbia)</p> <p>Canada (Ontario)</p> <p>Canada (Prince Edward Island)</p> <p>China</p> <p>China, Hong Kong SAR</p>	Provide nutritious foods in portions that are appropriate to a child’s growth and developmental needs and that reflect national nutrition guidelines and culturally-appropriate food choices.	<p>Portion size = 3;</p> <p>Cultural = 6;</p> <p>Nutritious (growth) = > 12.</p>	<p>Bell & Golley (2015) – Positive change in dietary intake was facilitated through evaluations of childcare policies and procedures.</p> <p>Hesketh & Campbell (2010) – ECEC services need to consider culture in interventions.</p> <p>Mikkelsen et al. (2014) – Ethnicity and socioeconomic status play a significant part in how children feel about healthy eating.</p>	When survey respondents were asked: “Do you believe you have adequate knowledge and/or skills to provide support to children and/or parents/caregivers regarding appropriate portion sizes”, 32 of 169 respondents (19%) said their knowledge was “not at all adequate”; and 79 of 169 (47%) said their knowledge was “somewhat adequate”.

Germany	Offer and encourage water as the drink of choice.	3		
Ireland	Plan menus on a cyclical basis to ensure variety.	5		
Jamaica				
Republic of Korea				
Singapore				
South Africa				
Sri Lanka				
United Kingdom (England)				
United Kingdom (Scotland)				
USA (AAP)				
USA (NAM)				
Safety				
Topic featured in 21/41 (51%) national/subnational standards	Provide access to safe, clean play areas, and safe, clean recreational/sport equipment.	15	Downing et al. (2016) – Adaptation of the built environment to facilitate greater physical activity among	

<p>Canada (13 provinces/territories)</p> <p>China</p> <p>China, Hong Kong SAR</p> <p>Finland</p> <p>Ireland</p> <p>Japan</p> <p>Rwanda</p> <p>United Kingdom (England)</p> <p>USA (AAP)</p>			<p>pre-school-aged children.</p> <p>Mehtala et al. (2014) – Lack of designated gym area in pre-schools a significant barrier. Show teachers how to customize activities to fit whatever physical environment is available to them.</p> <p>Okely et al. (2013) – Physical activity was facilitated by availability and quality of equipment and active play locations in playgroup settings.</p> <p>Ward et al. (2009) – Introducing new play equipment is a facilitating factor that can encourage children to engage in more physical activity play.</p>
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Online Global Survey questionnaire

Existing standards/guidelines in your country

Q1. Which ministry/department/agency, at a national level, has overall responsibility for early childhood education and care centres in your country? (These might be termed child development centres, childcare, kindergarten, or pre-school in your country)

Q2. Are you aware of any existing standards for early childhood education and care centres in your country, in the area of nutrition and physical activity, sitting, screen time and sleep? (Standards are published documents (policies and procedures) that establish benchmarks for services against which they may (or may not) be assessed and rated.)

- Yes
- Yes, but only for (check all that apply):
 - Nutrition
 - Physical activity
 - Sitting/Screen time
 - Sleep
- No (please go to Q3)
- I don't know (please go to Q3)

Q2a. If you have answered “Yes” to Q2, are the standards national or at a regional/provincial/state/municipality level?

- National
- Regional/Provincial/State/Municipality

Q2b. Please name the existing national and/or regional/provincial/state/municipality standard/s you are aware of and provide a web site address (if possible):

Q2c. If you answered “Yes” to Q2, have you used the existing standard/s in your work to date (for example, have you used the standards to develop policies, scheduling, or programming)?

- Yes
- No
- I don't know

Q2d. How have you used the existing standard/s in your work to date, in relation to nutrition, physical activity, sitting, screen time and sleep?

	Nutrition	Physical activity, Sitting, Screen time, Sleep
Programming/scheduling	<input type="checkbox"/>	<input type="checkbox"/>
Policies (defined as principles or values that guide decisions and actions within your place of work)	<input type="checkbox"/>	<input type="checkbox"/>
Daily routine of the centre	<input type="checkbox"/>	<input type="checkbox"/>
Communication with families/caregivers	<input type="checkbox"/>	<input type="checkbox"/>
Improving my own practice	<input type="checkbox"/>	<input type="checkbox"/>

I have not used the existing standards in my work to date.
Reason: _____

Development of Global Standards

Q3. Do you think you need more guidelines or standards around healthy eating, physical activity, sitting, screen time and sleep to support you in providing quality early childhood education and care?

- Yes
- Yes, but only for:
 - Healthy eating
 - Physical activity
 - Sitting/Screen time
 - Sleep
- No
- I don't know

Q3a. If you answered “Yes” to Q3, from the options listed below, please select 4 that indicate your top 4 priorities (number 4 boxes from 1 to 4, with “1” being the top priority):

Nutrition

- Food insecurity (access to a sufficient quantity of affordable, nutritious food)
- Healthy food habits
- Integration of responsive feeding practices to promote self-feeding
- Recognition of children’s signals of hunger and satiety (feeling full)
- Knowing what foods to provide or restrict

- Working with families/caregivers

Physical activity and sitting

- Physical activity levels
- Development of gross motor skills (e.g. catching a ball, balancing, climbing, running around)
- Appropriate management of sitting and screen time
- Working with families/caregivers

Screen time

- Appropriate use and management of electronic media in early childhood education and care settings (e.g. use of electronic tablets such as iPads, computers, or televisions)
- Incorporating information technology into daily routines (e.g. using electronic tablets or computers to develop language and/or cognitive skills)
- Working with families/caregivers

Sleep

- Best practice sleep routines
- Working with families/caregivers

Other

- Please specify _____

Q4. Do you think that the Global Standards for Nutrition, Physical Activity, Sitting and Sleep Behaviours for early childhood education and care settings that are being developed should be divided into age categories – for example, “Infants (2 months – < 1 year)”, “Toddlers (1 – < 3 years)”, and “Pre-schoolers (3 – 5 years)”?

- Yes
- No
- I don't know

Implementation of the Global Standards

Q5. From the options listed below, please select 3 that would be most important for you in implementing the Global Standards for Nutrition, Physical Activity, Sitting and Sleep Behaviours in your workplace/organization (number 3 boxes from 1 to 3, with “1” being the most important):

- Financial support (this may include support for resources to be improved, e.g. electricity to cook food instead of wood fires)
- Managerial support (i.e. your manager or supervisor supporting the use of Global Standards)
- Opportunities for professional development on the Standards
- Clearer policies and procedures
- Support from families/caregivers
- Standards written in simple local language with lots of pictures
- Information given in phases and not all at once
- Information about how standards can be integrated into the current pre-school curriculum
- I don't know
- Other (please specify): _____

Q6. From the options listed below, please select 3 factors that in your view would be the biggest barriers for you in implementing Global Standards for Nutrition, Physical Activity, Sitting and Sleep Behaviours in your workplace (number factors from 1 to 3, with “1” being the most important):

- Lack of financial support (as above, this may include support for resources to be improved)
- Lack of managerial support (i.e. your manager or supervisor not supporting the use of Global Standards)
- Lack of opportunities for professional development on the Global Standards
- Poor workplace culture (e.g. conflict between staff; people not showing up for work; bullying)
- Lack of time
- Resistance from families/caregivers
- I don't know
- Overload of current expectations from pre-school curriculum
- Other (please specify): _____

Q7. Do you believe you have adequate knowledge and/or skills to provide support to children and/or parents/caregivers in the following areas? (for each item on the list, please circle the number which reflects the level of adequacy)

	Not at all adequate	Somewhat adequate	Extremely adequate
Diet			
a. Promotion of breastfeeding	1	2	3
b. Promotion of healthy eating (e.g. consumption of fruit and vegetables and reducing intake of unhealthy foods and beverages)	1	2	3
c. Responsive feeding practices (e.g. allowing children to feed themselves as appropriate to their age)	1	2	3
d. Appropriate portion sizes	1	2	3
e. Ensuring children have	1	2	3

enough food to eat

Physical activity and sitting

f. Promotion of physical activity	1	2	3
g. Development of gross motor skills	1	2	3
h. Reducing long periods of sitting	1	2	3

Screen time

i. Management of appropriate electronic media use in early childhood education and care settings	1	2	3
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Sleep

j. Management of appropriate sleep practices	1	2	3
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About yourself and your work

Q8. What is your birth year?

Q9. Please state which gender you identify as:

- Male
- Female
- Transgender
- Intersex
- Other (please specify): _____

Q10. In which country are you currently working?

[drop-down box]

Q11. What is your role in your workplace/organization?

Q12. How would you characterize the area in which your workplace is located?

- Urban
- Suburban area
- Small town (less than 30 000 inhabitants)
- Rural
- I do not know
- Other (please specify): _____

Q13. What types of early childhood education and care settings are available in your country (e.g. pre-school, family day care) for children under 6 years of age:

Q14. What type of early childhood education and care setting do you work for or work in (e.g. pre-school, family day care, nursery, long day care, kindergarten, pre-kindergarten, crèche)?

Q15. On a typical day, how many children under 6 years of age attend the early childhood education and care centre where you work? (if you are not sure, please estimate)

- ≤ 10
- 11–19
- 20–39
- 40–60
- ≥ 61

Q16. In your country, in a typical week, how many days does a child attend an early childhood education and care centre? If you do not know for your country, please answer for your place of work.

For children aged 0 to 2 years:

- 1 day/week
- 2 days/week
- 3 days/week

- 4 days/week
- 5 days/week
- More than 5 days/week
- Do not attend

For children aged 2+ to 3 years:

- 1 day/week
- 2 days/week
- 3 days/week
- 4 days/week
- 5 days/week
- More than 5 days/week
- Do not attend

For children aged 3 to 6 years:

- 1 day/week
- 2 days/week
- 3 days/week
- 4 days/week
- 5 days/week
- More than 5 days/week
- Do not attend

Q17. In your country, who typically provides food/drink for children when they attend an early childhood education and care centre? If you do not know for your country, please answer for your place of work.

- Parents/caregivers
- The centre
- I don't know
- Other (please specify): _____

Q18. What is the highest level of education you achieved?

- No schooling completed
- 8th grade
- Some high school, no diploma
- High school graduate, diploma or the equivalent (for example: General Educational Development (GED))
- Some college credit, no degree
- Trade/technical/vocational training
- Associate degree
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree
- Other _____

Thank you for participating in this survey



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