SUMMARY OF DATA SOURCES FOR THE 2018 ACTIVE HEALTHY KIDS SCOTLAND REPORT CARD

This document provides detailed information on all the data sources that were considered when grading the indicators for the 2018 Active Healthy Kids Scotland Report Card including 1) the data sources that were used to grade the indicators, why they were used, and provides a summary of the findings, and 2) the data sources that were considered but were *not* used for grading and why they were not used (see red text in 'findings' column of tables). Gaps in Scottish data are also explained and links to all data sources are provided. The grades are summarised in the '*Active Healthy Kids Scotland Report Card 2018*', to access this document and the '*Long-form Report Card 2013*' (which provides more detail on the methods used for deriving report card grades) see www.activehealthykidsscotland.co.uk

- The purpose of this document was to search for and include information (in the tables) on all the data sources we considered for each indicator, even those we did not use to grade an indicator.
- We searched for evidence/data sources from March 2016 onwards (i.e. this is when we stopped searching for data sources for the 2016 report card). We also searched for reports that had been published since March 2016 but the report used data from a survey conducted before March 2016.
- To be used for grading, data needed to be recent (i.e. March 2016 onwards), nationally representative and affected by minimal bias (i.e. the method used to measure the indicator does not greatly overestimate or under-estimate the prevalence of the behaviour).
- We have reported prevalence data for children and adolescents aged 2 to 18 years and also by age categories, gender and deprivation where possible.
- If a data source did not analyse or report data in line with the benchmark then we have attempted to access and re-analyse the data according to the benchmark, we have described this where relevant.
- The Global Matrix 3.0 (GM3.0), which is referred to throughout the document, compares Report Card grades from 48 nations including Scotland www.activehealthykids.org. The grades for the 2018 Scotland Report Card differ slightly from the Scottish grades included in the GM3.0 as the 2018 Scotland Report Card includes data for children under 5 years old (whereas the age range for the GM3.0 was 5-17 years) and additional indicators (diet and obesity).
- The grades were determined by the % of children and adolescents meeting an evidence-based benchmark using the grading scheme below.
  A = We are succeeding with a large majority of children (87%-93%)
  A- = 80% to 86%
  B+ = 74% to 79%
  B = We are succeeding with well over half of children (67%-73%)
  B- = 60% to 66%
  C+ = 54% to 59%
  C = We are succeeding with about half of children (47%-53%)
  C- = 40% to 46%
  D+ = 34% to 39%
  D = We are succeeding with less than half of children (27%-33%)
  D- = 20% to 26%
  F = We are succeeding with very few of children (<20%)
  INC = Incomplete Grade, where Scottish data were not available or were insufficient/inadequate to assign a grade

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Indicator 1: Sedentary Behaviours

Benchmark: % of children and youth who meet the Canadian Sedentary Behaviour Guidelines (5-17 year olds: no more than two hours of recreational screen time per day; 2-4 year olds: no more than one hour of sedentary screen time per day. Note: the Guidelines currently provide a time limit recommendation for screen-related pursuits, but not for non-screen-related pursuits.

Summary of methods of measurement: Most sources of data used self/parent report of recreational screen time (i.e. TV viewing, gaming and other recreational screen time). One source used objectively measured sedentary time via accelerometers. At least two systematic reviews (Lubans et al see Active Healthy Kids Scotland Report Card 2013, longform, www.activehealthykidsscotland.co.uk and Prince-Ware et al 2017) concluded that the reliability of self or parent-reported sedentary time was unclear for almost all self-report methods, but a few methods had some evidence of reasonable reliability. These reviews also concluded that most self –report and parent-reported methods had not been validated, and so their accuracy is uncertain. For Scottish surveys it is unclear whether and to what extent measures of sedentary behaviour and screen time are biased, so they can be used in the Scottish Report Card, but with caution. The most likely bias is underestimation of recreational screen time, thus estimates of this behaviour used in Scottish surveys are probably conservative-i.e. exposure to screens may be higher than current Scottish estimates suggest. Time spent in other important forms of sedentary behaviour (e.g. sitting) is not objectively measured in Scottish surveys, but probably very substantial based on objectively measured English data which is readily generalisable to Scotland (e.g. Janssen et al 2016, Gateshead Millennium Study). Objectively measured sitting time typically accounts for over half of waking time by age 6-7 years and this increases with age to over three-quarters of waking time by age 15 years, and with age the bouts of sitting become much longer with fewer breaks in sitting.

Gaps in Scottish data: One data source available for grading (the Scottish Health Survey, SHeS). The Scottish Health Survey measures screen time and non-screen time in 2-15 year olds annually, however the 2016 and 2017 surveys did not provide this information in their main reports (sedentary data are reported in 2017 webtables but not in line with the benchmark). The 2015 survey reported sedentary data (in their main report and supplementary tables) as mean time spent sedentary (i.e. screen and non-screen time were combined) and % spending <3.5/4 hrs/day being sedentary. Thus, we re-analysed the 2016 SHeS **screen time** data using the **correct threshold** for 2-4 years and 5-15 year olds, further information provided in the table below. Overall, this is an important behaviour, the SHeS measure this behaviour annually and the data should be reported according to evidence-based guidelines in their main report every year. There is a lack of data on % of 16 to 18 year olds meeting the benchmark and for total sedentary time across childhood and adolescence, one study (McCrorie et al 2018) reports objectively measured sedentary time in 10 to 11 year olds.

Survey name, year data collected, name of the report and year report published and link(s) to the document/survey	Details of participants	Method of measurement (including the questions asked in the survey to measure the indicator)	Findings	Additional comments
Survey: Scottish Health Survey (SHeS) 2016 **Publication:** The Scottish Health Survey 2016: Volume 1: Main Report (published October 2017) http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Further data are available in supplementary web tables http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-	Nationally representative sample of 1346* children (2-15 yrs). *This is the unweighted bases for this variable	**Method:** Self-report measure for children age 13-15 years and parent proxy-reported measure for children age 2-12 yrs. **Questions:** Parents/Children were asked: 1) Thinking first	*Re-analysed data **used** for grading because it fits the benchmark and meets the three criteria of being recent, representative, no evidence of large bias.	*2016 sedentary data not reported in main report or webtables. We accessed the data via UK data service and re-analysed according to the benchmark (using the correct SHeS weighting variables).

health-survey/Publications/Supplementary2015/Supplementary2016 Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	A copy of the SHeS 2016 data has been deposited at the UK Data Archive, 2017 data not available via UKDS (checked 24th Oct 2017)	of **weekdays,** how much time (not including nursery/school) on **an average day** do/does *(you/child's name)* spend **sitting** watching TV or another type of screen such as a computer, games console or handheld gaming device? 2) And how much time (not incl nursery/school) on an **average weekday** do/does *(you/your child)* spend sitting down doing any other activity, such as eating a meal, reading, or listening to music (other examples were given)? Also asked these questions thinking of the weekend. Parent/child has to report hours and mins (i.e. categories not used)	***Grade = D- (D grade for weekdays and F grade for weekends, 76% average of weekdays and weekends), D- overall, SES inequality for weekday screen time.***** - 68% of 2-15 year olds spent ≥2 hours/day (≥1 hour/day for under 5s) sitting watching a screen on a week day (71% for boys, 65% for girls) - 83% at the weekend (84% for boys, 82% for girls) *Note: sig difference boys vs girls wkday, NS for wkend* **Screen time ≥2 hrs by age:** 2-4yr (≥1 hr/day): 83% wkday, 87% wkend 5-7yr: 44% wkday, 72% wkend 8-10yr: 61% wkday, 84% wkend 11-12y: 76% wkday, 87% wkend 13-15yr: 84% wkday, 89% wkend *Note: sig for age wkday & wkend* **Screen time ≥2 hrs (≥1 hr/d for under 5s) *wkday* by SIMD:** Least (5th): 58% 4th quintile: 67% 3rd quintile: 68% 2nd quintile: 71% Most (1st): 78% *Note: sig for SIMD* **Screen time ≥2 hrs (≥1 hr/d for under 5s) *wkend* by SIMD** Least (5th): 84%	**For the GM3.0, we carried the grade forward from the 2016 Scottish report card as we hadn't re-analysed the SHeS data at this point. Note: The SHeS 2015 also measured screen and non-screen time, data reported in the main report as time spent sedentary i.e. screen and non-screen time combined and % of children spending <3.5/4 hrs/day being sedentary thus data not reported according to the benchmark. Note: the questions in the 2017 are the same as the previous surveys, sedentary data not reported in main report, the webtables report mean time and % in quartiles for sedentary time (i.e. screen and non-screen time combined) thus not reported according to the benchmark.

			4th quintile: 80% 3rd quintile: 85% 2nd quintile: 85% Most (1st): 83% *Note: not sig for SIMD*	
Survey: Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS) 2015 **Publication:** The main reports on smoking, alcohol and drugs were published in 2016. Additional reports, including one on lifestyle trends ('Teenage life trends') was published in 2017 http://www.gov.scot/Publications/2017/05/2301 The 2015 questionnaire is available at http://www.gov.scot/Topics/Research/by-topic/health-community-care/social-research/SALSUS/Quest2015	A nationally representative sample of 25,304 children aged 13 years (S2) and 15 years (S4).	**Method:** A self-completion survey administered by teachers in class under exam conditions. **Question:** Here is a list of things that young people sometimes do in their free time, when they aren't at school. What about you? Some of the items are screen-related behaviours e.g. watch dvds/films, go online, play computer games (items asked separately). Responses are: everyday, most days, weekly, less often and never. Data reported as % doing each screen related behaviour at least weekly basis (i.e. combined responses for everyday, most days & weekly).	Data **cannot** be used for grading because the method only measures frequency of screen-related behaviours not duration, thus does not fit the benchmark (i.e. % meeting the guidelines of ≤ 2hrs of screen time/day for 5 to 17 year olds).	
Publication: McCrorie P, Mitchell R, Ellaway A. Comparison of two methods to assess physical activity prevalence in children: an observational study using a nationally representative sample of Scottish children aged 10–11 years. *BMJ Open* 2018;8:e018369. doi:10.1136/bmjopen-2017-018369 **Survey:** Data collection took place between May 2015 and May 2016.	A nationally representative sample of 10 to 11 year old children. 2402 children took part in GUS sweep 8 interviews, 90% (n=2162) consented to be contacted for the accelerometer study (known as SPACES study), 1096 (51%) children took part in the accelerometer data collection and 774 participants (427 girls, 357 boys) met	**Method:** Actigraph accelerometers used to measure time spent sedentary (cutpoint<100 cpm). Data presented for boys and girls, SIMD and season.	Data **cannot** be used for grading because data are limited to one age group and the benchmark is screen time (i.e. % meeting the guidelines of ≤ 2hrs of screen time/day) not sedentary time, thus does not fit the benchmark.	

	inclusion criteria (i.e. provided at least 4 weekdays and at least 1 day of weekend data) .			
Survey: Growing Up in Scotland (GUS) https://growingupinscotland.org.uk/about-gus/study-design-and-methodology/	GUS is a longitudinal survey involving three nationally representative cohorts of children: child cohort, birth cohort 1 (BC1) and birth cohort 2 (BC2). Child cohort: 2008/09 was the last year of data collection, no further collection planned. **BC1:** the most recent data collection periods (i.e. from 2014 onwards) were in 2014/15 (age 10 yrs/P6, sweep 8), a short web and phone survey (web-cati) children in P7 (age 11 yrs) & 2017/18 (age 12 ys/S1, sweep 9) **BC2**: the most recent data collection periods were (i.e. from 2014 onwards) were in 2013/14 (age 3 yrs, sweep 2) & 2015/16 (age 5 yrs, sweep 3)	**Method:** TV viewing (Duration, time of day, who with) and use of computer or games console (not clear if info collected on duration, and frequency) collected in BC1 at age 10yrs/P6 (2014/15) & age 12yrs/S1 (2017/18) and BC2 at age 5 yrs (2015/16) and age 3 yrs (2013/14). Time spent online/on social media collected in BC1 at age 12yrs/S1 (2017/18).	Data **not used** for grading because it has not been reported, it would need to be obtained from the UK Data Service (UKDS) and would be limited to two age groups as data only available from UKDS for: BC1 age 10-11 years/P6 (2014/15) and BC2 age 5 yrs (2015/16. Data not available till the end the end of the year for: BC1 12yrs/S1 (2017/18) and BC2 age 3 yrs 2013/14.	*NOTE: this info was taken from the GUS topic guide and study design info on website and the topic guide sent by the GUS senior researcher (i.e. the actual questionnaires have not been looked at). The GUS researcher told me the data available in the UKDS.*

Indicator 2: Overall Physical Activity

Benchmark: % of children and youth who meet the Global Recommendations on Physical Activity for Health, which recommend that children and youth (5-18 years) accumulate at least 60 minutes of moderate- to vigorous-intensity physical activity (MVPA) every day. Children under 5 years of age who are capable of walking unaided should be physically active daily at any intensity for at least 180 minutes, spread throughout the day.

Summary of methods of measurement: Most sources of data used self/parent report of physical activity or MVPA. One source used accelerometers in 10 to 11 year old children to measure time spent in MVPA and proportion meeting the guidelines.

Major gaps in Scottish data: No data on the proportion of young children (under 5 years of age) meeting the PA guideline of ≥180mins/day of any intensity PA; the Scottish Health Survey (SHeS) applies the school-age PA guideline (i.e. ≥60 mins/day of MVPA) to the under 5s which is not the correct PA guideline for the age group. Lack of data on compliance with the PA guidelines (≥60 mins/day of MVPA) in primary school aged children; the SHeS could not be used for grading as it assumes that all reported activities were at least moderate intensity, thus compliance levels reported in the 2015 and 2016 SHeSs are substantially overestimated (see also Basterfield et al Arch Dis Child 2008; 93: 1054-1058 and longform report cards in 2013 and 2016 www.activehealthykidsscotland.co.uk). The Health Behaviour in School-Aged Children survey (HBSC) also uses self-reported measures of MVPA, but does measure intensity and has been validated (see longform report card from 2013 and more recent publication Hardie Murphy et al BMC Public Health 2015; 15: 1080), thus providing more realistic estimates of compliance for 11 to 15 year olds that can be used for grading. The 2017 SHeS provides a more realistic estimate of compliance because it reports the % of 5-15 year olds achieving ≥60 mins of MVPA every day of the week (which is in line with the PA guidelines), whereas previous SHeS (e.g. 2015 and 2016) reported the % achieving ≥60 mins of MVPA on average, which is not in line with the PA guidelines, and produces a much higher compliance. However, the 2017 SHeS still assumes that all reported activities were at least moderate intensity so could not be used for grading. Lack of data for 16 to 18 year olds, the PA guidelines go up to age 18 but Scottish surveillance stops at age 15 in the HBSC and in the SHeS, adult PA guidelines are applied to 16-18 year olds. Lack of objectively measured MVPA across childhood and adolescence, one study (McCrorie et al 2018) reports time spent in MVPA and proportion meeting the guidelines using accelerometers in 10 to 11 year olds.

Survey name, year data collected, name of the report and year report published and link(s) to the document/survey	Details of participants	Method of measurement (including the questions asked in the survey to measure the indicator)	Findings	Additional comments
Survey: Health Behaviour in School-aged children (HBSC), the last survey was 2014 (used in the 2016 report card) and the survey is conducted every 4 years, thus no new data since the previous (2016) report card. **Publication:** HBSC 2014 Survey in Scotland National Report (published in 2015) http://www.cahru.org/content/03-publications/04-reports/hbsc_nr14_interactive_final.pdf	A nationally representative sample of 10,839 children aged 11 years (P7), 13 years (S2) and 15 years (S4).	**Method:** A self-completion questionnaire administered by teachers in class. Measures **MVPA** using the PACE+ Adolescent PA Measure (Prochaska et al, Arch Peds Adol Med 2001), which has evidence of validity (see two supportive validation studies cited in the	Data **used** for grading because it fits the benchmark (it measures intensity, MVPA, and reports the % achieving ≥60mins of MVPA **on all 7 days**) & meets the three criteria of being recent, representative, and no evidence of large bias.	No new HBSC data since the 2016 report card. The grade for this indicator has been carried forward from the 2016 because no data sources since the previous card have measured this indicator according to the benchmark. The HBSC 2014 was the data source used to

		2013 longform report card and Hardie Murphy et al BMC Public Health 2015) **Questions:** A definition of MVPA is provided along with some examples of PA. Add up all the time you spend in PA each day. Over the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (0, 1, 2, 3, 4, 5, 6, 7)	**Summary:** 18% of 11-15 yr olds achieved ≥60mins of MVPA/day on all 7 days (21% of boys and 15% of girls). ***Grade = F for adolescents*** ***% meeting guidelines by age and gender:*** -11 yrs = 30%M, 21%F -13yrs = 19%M, 13%F -15yrs = 15%M, 11%F Boys more likely to meet the guidelines than girls at all three age groups. % meeting the guidelines is higher in 11 year olds, with a marked decrease between ages 11 and 13, especially among boys. Data not reported by deprivation.	grade this indicator in the 2016 report card Note: in the SHeS 2017 (which reports the % meeting the guidelines every day, though intensity not measured, see below), 28% of 11-12 yr olds and 18% of 13-15 yr olds meet the guidelines so quite similar to HBSC 2014.
Publication: McCrorie P, Mitchell R, Ellaway A. Comparison of two methods to assess physical activity prevalence in children: an observational study using a nationally representative sample of Scottish children aged 10–11 years. *BMJ Open* 2018;8:e018369. doi:10.1136/bmjopen-2017-018369 **Survey:** Data collection took place between May 2015 and May 2016.	A nationally representative sample of 10-11 yr old children. 2402 children took part in GUS sweep 8 interviews, 90% (n=2162) consented to be contacted for the accelerometer study (known as SPACES study), 1096 (51%) children took part in the accelerometer data collection and 774 participants (427 girls, 357 boys) met inclusion criteria (i.e. provided ≥4 wkdays and ≥ 1 day of wkend data) .	**Method:** Actigraph accelerometers used to measure % of children with ≥60 min MVPA on each day of wear (*daily approach*) and % of children with ≥60 min of MVPA on average across days of wear (*average approach*). Data presented for boys and girls, SIMD and season. Evenson cut-point for MVPA (>2296 cpm).	Data **cannot** be used for grading as limited to one age group (10-11 year olds). However, 11% of 10 to 11 year olds achieved ≥60 mins of MVPA/day on each day of wear, which supports the F grade (based on HBSC data, see above). ***Grade = F for 10-11 year olds***	The findings also show the disparity in the % of children meeting the guidelines using the daily approach (11.1%) vs the average approach (68.3%). According to the paper, the sample is nationally representative and the analyses were weighted to represent the population. They compared data from their weighted sample vs the GUS-weighted sweep 8 sample (which was considered to represent the population from which it came). In general, the weighting was successful across all variables.

Survey: Scottish Health Survey (SHeS) 2016 **Publication:** The Scottish Health Survey 2016: Volume 1: Main Report (published October 2017) http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Further data are available in supplementary web tables http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey/Publications/Supplementary2015/Supplementary2016 Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	Nationally representative sample of 1325* children (2-15 yrs). *this is the unweighted bases for this variable A copy of the SHeS 2016 data has been deposited at the UK Data Archive, 2017 data not available via UKDS (checked 24th Oct 2017).	**Method:** Self-report measure of PA for children age 13-15 years and parent proxy-reported measure of PA for children age 0-12 yrs. **Questions:** Similar to previous surveys, ***no information on intensity is collected*** (except those aged 13-15 are asked about their walking pace). The questions cover: Sports and exercise; Active play; Walking; Housework or gardening (for children ≥8 yrs). Parents/ Children were asked to provide information on the duration of these activities for a typical weekday and typical weekend day i.e not asked to provide a specific duration for each separate day. Data on each of type of activity is summarised to provide an overall measure of PA, which takes into account the average time spent in PA and the number of active days in the last week. Children were classed as meeting the guideline = Active on 7 days in last week for an average of ≥60 mins/day.	Data **cannot** be used for grading because the survey ***does not measure PA intensity*** and assumes that ***all reported activities are at least of a moderate intensity***, which substantially overestimates the % of children meeting the guidelines (this is the same as the 2016 report card). In addition, the survey reports the % of 2-4 year olds meeting the ≥60 mins/day MVPA guideline, which is not the correct PA guideline for 2-4 year olds (i.e. 180mins/day of any intensity PA). The same issues occur in the 2015 SHeS.	Up to and including the 2016 survey, children were asked to provide information on the average duration of activities for a *typical* day and adherence to the guidelines is calculated using an average of at least 60 mins/day. In the 2017 survey, the duration spent in each type of PA on each day of the previous week has been collected. 33% of children aged 5-15 years achieved ≥ 60 minutes of MVPA every day of the week (including activity at school), data reported in main report and webtables. Although the 2017 survey produces a more realistic estimate of compliance, it still assumes that all reported activities are at least moderate intensity, so can't be used for grading. Additional notes about 2017 SHeS: % of 2-4 year olds meeting the 180 min/d guideline is not reported in main report or webtables, the main report doesn't mention this age group at all (the web tables do but it's the 60min/d of MVPA guideline). Compliance using the average approach has not been reported in main report or web tables.
Survey: Growing Up in Scotland (GUS) https://growingupinscotland.org.uk/about-gus/study-design-and-methodology/	GUS is a longitudinal survey involving three nationally representative cohorts of children: child cohort, birth cohort 1 (BC1) and birth cohort 2 (BC2). Child cohort: 2008/09 was the last year of data	**BC1 age 10yrs/P6 2014/15**: data collected on: books and screen time only (how many times in past 7 days), involvement in organised activities (but not sure if info on frequency, intensity and duration collected) & household chores (again not sure if info on freq, intensity and durn collected)	Data **not used** for grading because the data has not been reported, it would need to be obtained from the UK data service (UKDS), however it is unlikely that the PA data collected could be used to estimate compliance	*Note: This info was taken from the GUS topic guide and study design info on website and from the topic guide sent by the GUS researcher. I have looked through the GUS topic guide from the website and the one sent by the GUS senior researcher (but not the*

	collection, no further collection planned **BC1:** the most recent data collection periods (i.e. from 2014 onwards) were in 2014/15 (age 10 yrs/P6), a short web and phone survey (web-cati) children in P7 (age 11 years) and 2017/18 (age 12 ys/S1) **BC2**: the most recent data collection periods were (i.e. from 2014 onwards) were in 2013/14 (age 3 years) and 2015/16 (age 5 years	**BC1 age 11 years/P7:** data collected on: Amount of time child has done 'active' things e.g. running, dancing, trampoline, riding a bike, kicking a ball' (as above) & involvement in organised activities (as above) **BC1 age 12 yrs/S1 2017/18:** data collected on: involvement in organised activities (as above) **BC2 age 5 yrs 2015/16:** data collected on: Read books, played outdoors, painting/drawing, nursery rhymes/songs, recognising letters etc, using a computer/games console (How many times in last 7 days) but footnote says 'Only asks about some of the activities listed' & Amount of time child has done 'active' things e.g running, dancing, trampoline, riding a bike, kicking a ball (as above) & levels of PA from SHeS (can't use this as doesn't measure intensity) **BC2 age 3 yrs 2013/14:** data collected on: Read books, played outdoors, painting/drawing, nursery rhymes/songs, recognising letters etc, using a computer/games console (How many times in last 7 days) & amount of time child has done 'active' things e.g. running, dancing, trampoline, riding a bike, kicking a ball (as above)	with the PA guidelines, thus does not fit the benchmark. Also, data would be limited to two age groups: BC1 age 10 years/P6 (2014/15) and BC2 age 5 yrs (2015/16. Note: BC1 measured at age 10 years in 2014/15 were the cohort that took part in the accelerometer study, see McCrorie et al above). Data **not** available from UKDS (but will be by the end of the year) for: BC1 age 11 years/P7 and 12yrs/S1 (2017/18) and BC2 age 3 yrs 2013/14.	*actual questionnaires) to see what would be relevant for any of the AHKRC indicators measured in any of the cohorts from 2014 onwards. The GUS researcher told me data available in the UKDS*

Indicator 3: Organised Sport and Physical Activity

Benchmark: % of children and youth who participate in organized sport and/or physical activity programmes**.** *Note: the benchmark includes sport AND exercise/physical activities, so this indicator is not solely sport and the key word is 'organised' (i.e. the indicator is organised sport and physical activity).* There is no recommendation for the frequency/duration of organised sport and physical activity participation.

Summary of methods of measurement: All data sources used self/parent report.

Major gaps in Scottish data: Only one source (Scottish Health Survey) measured participation in organised sport & PA (in 2-15 year olds) according to the benchmark and the prevalence estimate from this data source does not include participation in organised sport & PA within school lessons. Lack of data for 16 to 18 year olds.

Survey name, year data collected, name of the report and year report published and link(s) to the document/survey	Details of participants	Method of measurement (including the questions asked in the survey to measure the indicator)	Findings	Additional comments
Survey: Scottish Health Survey (SHeS) 2016 **Publication:** The Scottish Health Survey 2016: Volume 1: Main Report (published October 2017) http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Further data are available in supplementary web tables http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey/Publications/Supplementary2015/Supplementary2016 Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	Nationally representative sample of 1345* children (2-15 yrs). *this is the unweighted bases for this variable A copy of the SHeS 2016 data has been deposited in the UK Data Archive, 2017 data not available via UKDS (checked 24th Oct 2017)	**Method:** Self-report for children age 13-15 years and parent proxy-report for children age 0-12 yrs. **Questions:** The method hasn't changed since the 2016 report card. No information on intensity is collected however intensity isn't mentioned in the benchmark for this indicator. Parents/Children were asked: how many weekdays & weekend days did they do any sports or exercise activities (*not counting things done as part of school lessons) and* how long did they spend doing these (this is for a typical weekday/weekend day i.e. they did not provide a specific duration	Data fits the benchmark as: intensity is not mentioned in the benchmark, the benchmark is organised sport and PA (i.e. not solely sport) which the SHeS measures (most of the examples given are organised sports & PA)) Data **used** for grading because it fits the benchmark and meets the three criteria of being recent, representative, and probably relatively unbiased. ***Grade = B, participation was lower among children from deprived areas*.*** **Summary:** 68% of children aged 2-15 years had participated in sport and	*For the GM3.0, the grade was a B, based on 73% of 5-15 year olds (2-4 year olds were not included). ** Data on participation in sports and exercise *does not* include sport and exercise done in school lessons (i.e. the question says 'not counting things done as part of school lessons' however the school-based question combined all types of PA 'how many days in the last week did *your child* do any activities (walking, sports, exercise or other active things) in lessons at school?'' Further, the school-based question only asks 'in lessons at school' (i.e. PE)' so ideally respondents should report organised sport/exercise done within school but outwith lessons (e.g. at lunchtime or after school) against the

		for each separate day). The card (shown to parents/children) gives examples of 'sports and exercise activities' and most examples are of organised sports and exercise which fits the benchmark (but not all examples are of organised sport/exercise e.g. going swimming, disco dancing). Data reported as: the % of children participating in any sport or exercise in the past week; No. of days children did 15+ mins of sport or exercise (did the same for 30+ mins)	exercise in the past week (70% for boys and 67% for girls). *Note: These figures do not include organised sport & exercise done in school lessons see comment next column**.* 2017 SHeS, figure is 67%, with similar SES inequalities (same issue about school lessons). The 2016 survey was used to grade this indicator because we used the 2016 dataset to re-analyse Active Play and Sedentary Behaviours, the 2017 dataset was not available at the time. **Participation by age & gender:** 2-4yr: 52% (M 48%, F 56%) 5-7yr: 72% (M 69%, F 75%) 8-10yr: 79% (M 82%, F 77%) 11-12y: 75% (M 81%, F 69%) 13-15yr: 66% (M 74%, F 58%) **Participation (age 2-15 yrs) by SIMD:** Least deprived (5th): 80%; 4th quintile: 70%; 3rd quintile: 67%; 2nd quintile: 67%; Most deprived (1st): 57%	question on participation in sports and exercise (*not counting things done as part of school lessons*) but whether respondents did this is unclear *[according to personal contact with SHeS] however it is likely that they would report structured activities done e.g. at an after school club* *-SHeS and ASOF report participation in sport and exercise even though the figures may not include school* - data from 2014 SHeS were not used in previous report cards because the benchmark was specifically organised sport.
Survey: Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS) 2015 **Publication:** The main reports on smoking, alcohol and drugs were published in 2016. Additional reports, including one on lifestyle trends (title is 'Teenage life trends'), was published in 2017 http://www.gov.scot/Publications/2017/05/2301 The 2015 questionnaire is available at http://www.gov.scot/Topics/Research/by-topic/health-community-care/social-research/SALSUS/Quest2015	A nationally representative sample of 25,304 children aged 13 years (S2) and 15 years (S4).	**Method:** A self-completion survey administered by teachers in class under exam conditions. **1st question:** Have you actively taken part in any of these groups, clubs or organisations during the last 12 months? One of the options was 'Sports clubs, gyms, exercise or dance groups'. **2nd question:** Here is a list of things that young people sometimes do in their free time, when they aren't at	Data for the first question **cannot** be used for grading because the duration is too long i.e. participation during the last 12 months Data for the 2nd question **cannot** be used for grading because the question is *not* measuring participation in organised sport and PA (and only sport is measured, not organised PA) which doesn't fit the benchmark and participation in sport at school is not measured.	-

The technical report provides information on sampling, design, weighting etc but no additional information on the questions relevant to indicators in the report card		school. What about you? One of the items is 'Do a sport e.g. football, swimming' Responses are: everyday, most days, weekly, less often and never. Data reported as % 'doing a sport' on at least a weekly basis (i.e. combined responses for everyday, most days and weekly).	However, the findings (summarised below) are very similar to those from the 2016 SHeS for this age group. **Summary:** 66% of 13-15 yr olds (75% for boys and 58% for girls) reported 'doing a sport' on a weekly basis **Participation by age, gender:** 13 yr: 71% (M 77%, F 65%) 15 yr: 61% (M 72%, F 50%).	
Survey: Growing Up in Scotland (GUS) https://growingupinscotland.org.uk/about-gus/study-design-and-methodology/	GUS is a longitudinal survey involving three nationally representative cohorts of children: child cohort, birth cohort 1 (BC1) and birth cohort 2 (BC2). **Child cohort**: 2008/09 was the last year of data collection, no further collection planned. **BC1:** the most recent data collection periods (i.e. from 2014 onwards) were in 2014/15 (age 10 yrs/P6), a short web and phone survey (web-cati) for children in P7 (age 11 yrs) & 2017/18 (age 12 ys/S1). **BC2**: the most recent data collection periods were in 2013/14 (age 3 yrs) & 2015/16 (5yrs)	**Methods:** data collected on 'involvement in organised activities (but not sure if info on frequency, intensity and duration is measured)' in BC1 at age 10yrs/P6 (2014/15), age 11 years/P7 and age 12 yrs/S1 (2017/18)	Data **not used** for grading because the data has not been reported, it would need to be obtained from the UK data service, and would be limited to one age group [i.e. children in BC1 measured age 10 yrs/P6 (2014/15)] as data not available till the end of the year for: BC1 age 11 yrs/P7 and age 12 years/S1 (2017/18).	*NOTE: this info was taken from the GUS topic guide and study design info on website and the topic guide sent by the GUS senior researcher (i.e. the actual questionnaires have not been looked at). The GUS researcher told me data available in the UKDS*
Survey: Scottish Household Survey (SHS) 2016 **Publication:** Scotland's People Annual Report: Results from the 2016 Scottish Household Survey (published September 2017) http://www.gov.scot/Publications/2017/09/9979	Nationally representative survey, 10,470 households	**Method:** Households with someone aged from 8 to 21 years old were asked the questions below.	Data **not used** for grading because data reported for 8 to 21 year olds so adults are included. However, the	Note: the 2017 SHS does not have a chapter on young people (the young people questions are asked

The technical report for the 2016 survey was published in March 2018 and includes info on methodology and fieldwork e.g. overview of survey, sample design, response rates, data collection methods http://www.gov.scot/Topics/Statistics/16002/PublicationMethodology The questionnaire for the 2016 survey is published separately http://www.gov.scot/Topics/Statistics/16002/PublicationQuestionnaire	interview completed (9,642 adult interviews completed). Access SHS data (incl data from 2016 survey) via the Open Data Platform (statistics.gov.scot)	**Questions:** Which, if any, of the activities on this card does the child/young adult regularly take part in? Categories include: Any sports or sporting activity whether played competitively or not.	method does not exactly fit the benchmark as it measures 'any sport or sporting activity' so it does not mention 'organised' and 'organised physical activities'.	every 2 years), so no new data for this indicator from the 2017 SHS.

Indicator 4: Active Play

Benchmark (any of the following could be used to grade this indicator): % of children and youth who engage in unstructured/unorganized active play at any intensity for more than 2 hours a day, % of children and youth who report being outdoors for more than 2 hours a day

Summary of methods of measurement: This indicator refers to participation in unstructured/unorganized physical activity/active play and time spent outdoors. Perceived safety, access to, and availability of outdoor/indoor spaces and opportunities for PA are dealt with in indicator 7. All sources of data use self/parent report measures.

Major Gaps in Scottish data: One data source available for grading (the Scottish Health Survey, SHeS). The SHeS measures active play in 2-15 year olds but the main reports and web tables for the 2015-2017 surveys did not report this indicator according to the benchmark, therefore we re-analysed the 2016 SHeS active play data according to the benchmark (further information below). Biases in self/parent reports of active play are unclear. Lack of data on unstructured physical activity in 16 to 18 year olds, and on objective measures of active play and outdoor time across childhood and adolescence.

Survey name, year data collected, name of the report and year report published and link(s) to the document/survey	Details of participants	Method of measurement (including the questions asked in the survey to measure the indicator)	Findings	Additional comments
Survey: Scottish Health Survey (SHeS) 2016 **Publication:** The Scottish Health Survey 2016: Volume 1: Main Report (published October 2017) http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Further data are available in supplementary web tables http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey/Publications/Supplementary2015/Supplementary2016 Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	Nationally representative sample of 1345* children (2-15 yrs). * This is the unweighted bases for this variable. A copy of the SHeS 2016 data has been deposited in the UK Data Archive, 2017 data not available via UKDS (checked 24th Oct 2017)	**Method:** Self-report for children age 13-15 years and parent proxy-report for children age 0-12 yrs. **Questions:** The method hasn't changed since the 2016 report card. No information on intensity is collected however intensity isn't mentioned in the benchmark. Parent/child asked: how many weekdays & weekend days did they do 'active things' (*not to counting things done as part of school lessons) and* how long did they spend doing these (for a typical weekday/weekend day i.e. they did not provide a specific duration for each	*Re-analysed data **used** for grading because it fits the benchmark (i.e. method measures unstructured activities) and meets the three criteria of being recent, representative, no evidence of large bias. ***Grade = D (D- grade for weekdays, C- for weekends, 33% average of weekday and weekend), D overall***	*2016 active play data has *not* been reported according to the benchmark. We re-analysed the data according to the benchmark (using the correct SHeS weighting variables). But the SHeS categories for reporting duration are 1.5hrs to <2 hrs, 2 hrs to <2.5 hrs, 2.5hrs to <3 hrs etc we used ≥2hrs as the benchmark (rather than >2hrs). However, as the SHeS data doesn't include active play in school lessons (see below) using ≥2hrs is more conservative and is close to the benchmark. **Adolescents were not excluded, though they may not 'play' this method

		separate day). The card (shown to parent/child) gives examples of 'active things' and the examples are of <u>unorganised/unstructured</u> activities e.g. riding a bike, running about, playing active games etc which fits the benchmark. Parent/child has to select the duration from a list of categories: <5 mins, 5 mins to <15 minutes, 15 mins to <30 mins, 30 mins to <1 hour, 1 hour to <1 ½ hours, 1 ½ hours to <2 hours, 2 hours to <2 ½ hours, 2 ½ hours to <3 hours, 3 hours to <3 ½ hours, 3 ½ hours to <4 hours, 4 hours or more (please say how long). Data reported as: No. of days in previous week children did 15+ mins of active play and 30+ mins	- 26% of 2-15 year olds** participated in active play for ≥<u>2</u> hrs/day on a week day (28% for boys, 24% for girls), 40% at the weekend (42% for boys, 38% for girls). *Note: No sig difference boys vs girls for wk day or weekend* -2017 SHeS, the webtables report number of days active playing (duration not provided) so doesn't fit the benchmark and 2017 dataset not available for re-analysis. Also has same issue about school lessons. **Participation in ≥<u>2 hrs</u> by age:** 2-4yr: 47% weekday, 53% weekend 5-7yr: 26% weekday, 50% weekend 8-10yr: 22% weekday, 40% weekend 11-12y: 19% weekday, 30% weekend 13-15yr: 12% wkday, 19% weekend *Note: sig for age on weekday & weekend* **Participation in ≥<u>2 hrs/*wkday*</u> by SIMD:** Least (5th): 24% 4th quintile: 18% 3rd quintile: 33%	measures 'active things' i.e. unstructured PA (e.g. kicking a ball, riding a bike) which applies to adolescents. ***For the GM3.0, this indicator was graded INC as we hadn't re-analysed the SHeS data at this point - Data *does not* include active things done in school lessons (i.e. the question says 'not counting things done as part of school lessons') however the school-based question combined all types of PA ''how many days in the last week did *your child* do any activities (walking, sports, exercise or other active things) in lessons at school?'' Also, the school-based question only asks 'in lessons at school' (i.e. PE)' so ideally respondents should have reported active things done within school but outwith lessons against the question on participation in active things (*not counting things done as part of school lessons)* but whether respondents is unclear [according to personal contact with SHeS] - *SHeS and ASOF report participation in active play even though the figures may not include school.* - data from 2014 SHeS were not used in the previous report card because the benchmark for

			2nd quintile: 25% Most (1st): 30% *Note: sig for SIMD* **Participation in ≥2 hrs/*wkend* by SIMD** Least (5th): 36% 4th quintile: 33% 3rd quintile: 51% 2nd quintile: 44% Most (1st): 31% *Note: sig for SIMD*	the previous report card was 'active outdoor play', the SHeS measures indoor & outdoor active play.
Publication: McCrorie P, Mitchell R, Ellaway A. Comparison of two methods to assess physical activity prevalence in children: an observational study using a nationally representative sample of Scottish children aged 10–11 years. *BMJ Open* 2018;8:e018369. doi:10.1136/bmjopen-2017-018369 **Survey:** Data collection took place between May 2015 and May 2016.	A nationally representative sample of 10 to 11 year old children. 2402 children participated in GUS sweep 8 interviews, 90% (n=2162) consented to be contacted for the accelerometry study (known as SPACES), 1096 (51%) children took part in the accelerometer data collection and 774 participants (427 girls, 357 boys) met inclusion criteria (i.e. provided at least 4 weekdays & at least 1 day of weekend data)	The Spaces study also collected GPS data as well as accelerometer measures of PA so would be able to use the GPS data to provide info on time spent outdoors, which would fit with the benchmark '% of children and youth who report being outdoors for more than 2 hours a day' .	Data **cannot** be used for grading as data not available yet and would be limited to a single age group (10 to 11 year olds).	
Survey: Scottish Household Survey (SHS) 2016 **Publication:** Scotland's People Annual Report: Results from the 2016 Scottish Household Survey (published September 2017) http://www.gov.scot/Publications/2017/09/9979 The technical report for the 2016 survey was published in March 2018 and includes info on methodology and fieldwork e.g. overview of survey, sample design, response rates, data collection methods http://www.gov.scot/Topics/Statistics/16002/PublicationMethodology The questionnaire for the 2016 survey is published separately http://www.gov.scot/Topics/Statistics/16002/PublicationQuestionnaire	Nationally representative survey, 10,470 household interviews completed (9,642 adult interviews completed) Access SHS data (incl data from 2016 survey) via the Open Data Platform (statistics.gov.scot)	**Method:** households with someone aged from 8 to 21 years old were asked the questions below. **Questions:** Which, if any, of the activities on this card does the child/young adult regularly take part in? Categories include: Any sports or sporting activity whether played competitively or not; any other outdoor activities such as walking, angling, bird-watching, etc. Multiple responses allowed.	Data **cannot** used for grading because data reported for 8 to 21 year olds so adults are included. Also, the method does not measure the duration of outdoor activities and the examples given are not active play, which doesn't fit the benchmark.	Note: the 2017 SHS does not have a chapter on young people (these young people questions are asked every 2 years) so no new data on this indicator

Survey: Growing Up in Scotland (GUS) https://growingupinscotland.org.uk/about-gus/study-design-and-methodology/	GUS is a longitudinal survey involving three nationally representative cohorts of children: child cohort, birth cohort 1 (BC1) and birth cohort 2 (BC2). **Child cohort**: 2008/09 was the last year of data collection, no further collection planned. **BC1:** the most recent data collection periods (i.e. from 2014 onwards) were in 2014/15 (age 10 yrs/P6), a short web and phone survey (web-cati) children in P7 (age 11 yrs) & 2017/18 (age 12 ys/S1). **BC2**: the most recent data collection periods were in 2013/14 (age 3 yrs) & 2015/16 (age 5 yrs	**Methods:** Data collected on 'Amount of time child has done 'active' things e.g. running, dancing, trampoline, riding a bike, kicking a ball' (but not sure if info on frequency and intensity collected) in BC1 at age 11 years/P7 and age 12 yrs/S1 (2017/18); BC2 at age 5 yrs (2015/16) and age 3 yrs (2013/14)	Data **may** fit the benchmark as it appears to measure the duration of unstructured active things however data has not been reported, it would need to be obtained from the UK data service, and would be limited to one age groups as data only available from UKDS for BC2 age 5 yrs (2015/16). Data not available till end of the year for: BC1 age 11 years/P7 & 12yrs/S1 (2017/18) and BC2 age 3 yrs (2013/14).	*NOTE: this info was taken from the GUS topic guide and study design info on website and the topic guide sent by the GUS senior researcher (i.e. the actual questionnaires have not been looked at). The GUS researcher told me data available in the UKDS*
Survey: Health Behaviour in School-aged children (HBSC), the last survey was 2014 (used in the previous report card) and the survey is conducted every 4 years, thus no new data/reports since the previous (2016) report card. **Publication:** HBSC 2014 Survey in Scotland National Report (published in 2015) http://www.cahru.org/content/03-publications/04-reports/hbsc_nr14_interactive_final.pdf	A nationally representative sample of 10,839 children aged 11 years (P7), 13 years (S2) and 15 years (S4).	**Method:** Self-reported measure of frequency and duration of local greenspace use in the summertime (i.e. not in the past week/4 weeks) collected from 13 and 15 year olds (i.e. not 11 year olds). Questionnaires were administered from March-June, most returned in May, thus some participants will have reported behaviour from previous year. **Questions:** Frequency - 'Thinking of the summer months, out of school hours how often do you usually pass through or spend time in any of the following places in your local area? Parks, play areas, public gardens, woods, playing	Data **cannot** be used for grading as it specifically measures time spent in green/natural outdoor space (rather than time outdoors more generally), it measures time overall in a week (rather than time per day) and some children may not be reporting recent behaviour, overall the measure does not fit the benchmark.	

		fields or sports pitches, golf courses, beaches, canals, rivers or by lochs or other types of natural open space, categories ranged from <once a month to every day. Duration – 'Thinking of the summer months, out of school hours ***how much time overall in a week*** do you usually spend in the following places in your local area (see examples above)? Categories ranged from None to >=7 hrs/wk		

Indicator 5: Active Transportation

Benchmark: % of children and youth who use active transportation to get to and from places (e.g., school, park, mall, friend's house). All children and adolescents have to commute to nursery/school and so potential for active forms of commuting is assumed to be 100%.

Summary of methods of measurement: all sources of data used self/parent report active travel (i.e. walking, cycling, scooting/skateboarding, and park & stride) to nursery/school.

Major gaps in Scottish data: Two sources of data available for grading (Hands Up Scotland Survey and Transport & Travel in Scotland), however data focuses on commute to and from nursery/school (for 3 to 18 year olds), lack of data on active commuting to and from other places.

Survey name, year data collected, name of the report and year report published and link(s) to the document/survey	Details of participants	Method of measurement (including the questions asked in the survey to measure the indicator)	Findings	Additional comments
Survey: Hands Up Scotland Survey (HUSS) 2017 **Publication**: Travel to School in Scotland Hands Up Scotland Survey 2017: National Summary Report (published May 2018) https://www.sustrans.org.uk/scotland/hands-up-scotland-survey	Nationally representative survey of 41,845 nursery children and 473,160 school pupils (466,956 were state school pupils, equating to 67.8% of all state school pupils enrolled in Scotland)	**Method:** Survey completed in class, pupils of primary and secondary school age are asked to respond to the survey themselves, assistance provided to nursery children or SEN school pupils if required. **Question:** 'How do you usually travel to school ?' with 8 response options: Walk, Cycle, Scooter/skate, Bus, Park & stride (driven part of the way by car and walk the rest), Driven (car), Taxi, Other, which is then categorised in the following way: **Active travel:** walking, cycling and scootering or skating, **Public sustainable travel:** bus, **Multi-mode travel:** park & stride **Private motorised travel:** driven (car) and taxi.	Data **used** for grading as it fits the benchmark (though only covers active travel to nursery/school, not to other places) and meets the three criteria of being recent, representative, and probably fairly unbiased ***Grade = C for primary and secondary school pupils, C- for nursery children*** **Summary:** 49% of school pupils usually commute actively (42% walk, 4% cycle and 3% scooter/skate), a further 10% normally park & stride. 42% of nursery children usually commute actively (35% walk, 3% cycle and 4% scooter/skate), with a further 4% by park & stride. *Figures above have been rounded*.	- For the GM 3.0, *2016 HUSS data was used and data for nursery children not included (this indicator graded as C for GM 3.0)* Note: in this survey, walking, cycling, scootering or skating falls into the active travel category, whereas park and stride falls into the multimode travel category. Also, the report says '48.8% of school pupils surveyed in 2017 said they normally travel to school in an active way, without any form of motorised transport' i.e. park and stride is not considered to be a mode of active travel. *-a more detailed breakdown is available for travel mode by school type (i.e. primary,*

			Active travel by school age *(note: figures below have been rounded and do not include pupils from SEN or independent schools)* -53% primary & 43% secondary travel actively -44% primary & 41% secondary walk -5% primary & 1% second cycle -4% primary & 0.2% secondary school pupils scooter/skate -13% primary & 4.5% secondary park and stride	*secondary, SEN and independent) and year group, from 2008 to 2017 and by local authority but not by deprivation.*
Survey: Transport & Travel in Scotland 2017 **Publication:** Transport & Travel in Scotland 2017, a National Statistics Publication for Scotland (published Sept 2018) This document reports the results of the transport and travel related questions (and travel diary) asked in the 2016 Scottish Household Survey https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2017/	Nationally representative subset of the Scottish Household Survey (SHS), data based on n= 1,830 parent/householder reports.	**Method:** Householders with young people in the household who are under the age of 18 and go to school were asked the question below. **Question:** How does [child] usually travel to school during term time? 16 choices were provided, the active travel choices were walking and cycling. This question was also asked in the 'random adult interview' How do you usually travel to work (or school/college/University if in FT education).	Data **used** for grading as it fits the benchmark (though only covers active travel to nursery/school, not to other places) and meets the three criteria of being recent, representative, and probably fairly unbiased **Grade = C** **Summary:** 52% of children (52% of boys, 51% of girls) walked to school and 1% cycled **Active commuting by age:** 4-11 year olds: 58% walked, 1% cycled 12-18 year olds: 43% walked, 1% cycled **Walk to school by SIMD:** Most deprived (1st): 57%, 2nd quintile: 59%, 3rd quintile: 47%, 4th quintile: 45%, least deprived (5th): 52%.	- travel by scooter/skating, and park & stride not measured. *- a more detailed breakdown by age is available)*

Indicator 6: Physical Fitness

Benchmark: Data on physical fitness indicators (e.g. cardiorespiratory fitness, grip strength, balance etc) should be interpreted using sex-specific and age-specific European normative values from 'Tomkinson et al European normative values for physical fitness in children and adolescents aged 9–17 years: results from 2 779 165 Eurofit performances representing 30 countries *Br J Sports Med* Published (2017) 10.1136/bjsports-2017-098253'.

Major Gaps in Scottish data: There are no nationally representative data on indicators of physical fitness or motor competence in children and young people in Scotland.

Survey name, year data collected, name of the report and year report published and link(s) to the document/survey	Details of participants	Method of measurement (including the questions asked in the survey to measure the indicator)	Findings	Additional comments
			We were unable to find any nationally representative data on indicators of physical fitness. We also consulted with key stakeholders from PEPASS, SportScotland, Active Scotland etc, they were not aware of national data for this indicator. **Grade = INC**	**Grade is the same as the grade for this indicator submitted to the GM3.0)**

Indicator 7: Diet

Benchmark: % of children and adolescents consuming at least 5 portions of fruit and vegetables a day, % of children and adolescents meeting the Scottish Dietary Goals (SDGs) which were revised in 2016 (e.g. average intake of free sugars should not exceed 5% of total energy intake in children over 2 years, average intake of saturated fat should not exceed 11% of total energy intake) https://www2.gov.scot/Topics/Health/Healthy-Living/Food-Health/DietaryGoalsScot

Summary of Methods of measurement: Self or parent report using 24-h recall for fruit and vegetable consumption and frequency of consumption of selected foods in the Scottish Health Survey (SHeS), and 4-day non-weighed diet diary in National Diet and Nutrition Survey (NDNS). The Living Costs and Food Survey (LCFS) collects Scottish data on household and eating out food and drinks purchases for every person >7 years of age in each household over a 14 day period using food diaries, which is used to estimate food consumption and nutrient intakes (in comparison to the 2013 SDGs) for a typical average household member (i.e. cannot be reported for children), further detail provided in the table below. Other recent surveys include: an 'assessment of the out of home food and drink landscape in Scotland (2015)', which provides data on the top 10 categories of food and drinks consumed out of home in Scotland in 2015 by children aged 0-12 years, and 'monitoring of all food and drink purchased from retail (i.e. shops and supermarkets) for use within the home in Scotland (2010 – 2016)', which provides data on the contribution of discretionary foods to total purchase of energy, fats and sugars (data cannot be reported for children). Data from these surveys cannot be used for grading as they do not fit the benchmarks described above, however they do provide an insight into the (unhealthy) food and drink environment in Scotland, further information is provided in the table below.

Major gaps in Scottish data: The SHeS fruit and vegetable questions are semi-quantitative (which are used to estimate the % of 2-15 year olds meeting the 5-a-day recommendation) but information on other foods describes frequency of consumption only and does not cover all foods and drinks (thus the data cannot be used to estimate the % of 2-15 year olds meeting/exceeding the SDGs). The NDNS provides comprehensive food and nutrient intake data for children, which is used to calculate average intakes of sugar, saturated fat etc and can be compared with the SDGs but the % of children and adolescents meeting/exceeding the SDGs is not reported. In addition, as only approximately 200 children in Scotland are included per year in the NDNS only four year averages (e.g. 2008/9-2011/12) are published. National Diet and Nutrition Surveys 2012/13 to 2013/14, and 2014/15 to 2015/16 are **not** available separately for Scotland. The 2008/09 to 2011/12 NDNS was reported for Scotland, this was used in the previous 2016 report card and has been used to inform the 2018 report card due to the lack of appropriate data that fit the benchmarks from other surveys and data are still fairly recent.

Survey name, year data collected, name of the report and year report published and link(s) to the document/survey	Details of participants	Method of measurement (including the questions asked in the survey to measure the indicator)	Findings	Additional comments
Survey: Scottish Health Survey (SHeS) 2016 **Publication:** The Scottish Health Survey 2016: Volume 1: Main Report (published October 2017)	Nationally representative sample of 1345* children (2-15 yrs).	interviewer-administered questionnaire for a) fruit and vegetable	In 2016, mean daily fruit and veg intake in 2-15 yr olds was 2.8 portions (2.7 for boys, 2.9 for girls), little change since 2003). 13% of 2-15 year olds met	**This indicator was not included in the GM3.0**

http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Further data are available in supplementary web tables http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey/Publications/Supplementary2015/Supplementary2016 Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	*This is the unweighted bases for this variable The SHeS 2016 data has been be deposited at the UK Data Archive, 2017 data not available via UKDS (checked 24th Oct 2017)	consumption **in portions per day in the previous 24h,** with household measures used to give examples of portions (80g), interviewers record full and half portions but nothing smaller and b) frequency of consumption of 16 selected other foods e.g. oily fish, processed meat, non-diet soft drinks and high fibre breakfast cereals using nine frequency options ('6 or more times a day' to 'less than 1 time per month or never'). Times in the last week this household ate main meal together, reported as % in each category (i.e. never, 1 or 2 times, 3 or 4 times and so on) but how would we report this i.e. what frequency would we use? Also reported by SIMD etc	the 5-a-day guideline (11% boys, 15% girls) and 9% ate no fruit or veg (10% boys, 9% girls). **Grade = F** **% meeting 5-a-day by age** 2-4yr: 13% (M 11%, F 15%) 5-7yr: 12% (M 11%, F 13%) 8-10yr: 15% (M 11%, F 20%) 11-12y: 15% (M 13%, F 18%) 13-15yr: 11% (M 12%, F 11%) **% eating no fruit & veg by age** 2-4yr: 4% (M 6%, F 3%) 5-7yr: 7% (M 6%, F 8%) 8-10yr: 11% (M 12%, F 10%) 11-12y: 12% (M 11%, F 12%) 13-15yr: 12% (M 16%, F 8%) **Mean portions/day by age** 2-4yr: 3.0, 5-7yr: 2.7, 8-10yr: 2.9, 11-12y: 2.7, 13-15yr: 2.5 **% meeting 5-a-day by SIMD** least: 18% (M 15%, F 21%) 4th: 16% (M 16%, F 16%) 3rd: 10% (M 7%, F 12%) 2nd: 10% (M 7%, F 12%) most: 11% (M 10%, F 13%) **% eating no fruit & veg SIMD** least: 6% (M 8%, F 4%) 4th: 7% (M 5%, F 8%) 3rd: 10% (M 13%, F 8%) 2nd: 11% (M 14%, F 8%) most: 12% (M 11%, F 12%) Children in the most deprived areas had on average 2.5 portions/day (2.6	The 2017 survey measures and reports all the same variables as the 2016 survey except for the first time, the 2017 survey measures food insecurity (by SIMD and by household type e.g. single parent household, large family etc) and vitamin and mineral supplement use in adults and children is also reported

			for girls, 2.5 for boys) vs 3.2 portions/day among children in the least deprived areas (3.4 for girls, 3.0 for boys)*: Intake by SIMD not included in main report, data from webtables* **Frequency of eating other foods*** Processed meat ≥ 2 times/wk: 51% Sweets or chocolates ≥ once/day: 49% Biscuits ≥ once/day: 34% Cakes ≥ 2 times/wk: 34% Non-diet soft drinks ≥ once/day: 31% Crisps/savoury snacks ≥ once/day: 33% Chips ≥ 2 times/wk: 40% oily fish ≥ once a week: 17% ≥2 slices of high fibre bread/day: 31% high fibre/low sugar cereal ≥ 5 times/wk: 28% The frequency of eating these foods was similar boys vs girls except for processed meats (higher among boys) The frequency of eating foods high in fat and/or sugar (i.e. processed meats, sweets/chocs, biscuits, non-diet soft drinks, crisp and chips are similar in 2-4 year olds vs older children. Among 2-4 year olds, 50% eat sweets/chocs at least once a day, 35% eat biscuits at least once a day, 40% eat chips at least twice a week. **Frequency of eating foods by SIMD*** Marked differences in least vs most deprived for: processed meat (38% least vs 64% most), sweets/chocolates (44% least vs 56% most), biscuits (27% least vs 34% most), cakes (37% least vs 28% most), non-diet soft drinks (22%	

			least vs 44% most), crisps (26% least vs 38% most), chips (29% least vs 45% most), oily fish (24% least vs 8% most), high fibre bread (35% least vs 28% most), high fibre/low sugar cereal (40% least vs 15% most)	
Survey: National Diet and Nutrition Survey Rolling programme Results from Years 1-4 (combined) for Scotland (2008/09-2011/12), published 2014 https://www.foodstandards.gov.scot/publications-and-research/publications/national-diet-and-nutrition-survey-rolling-programme-results-from-years-1-4 This report combines data from the years 2008-2012 to provide a sufficient number of children in Scotland.	National Diet and Nutrition Surveys 2012/13 to 2013/14, and 2014/15 to 2015/16 are **not** available separately for Scotland so data from these surveys cannot be used for grading. The 2008/09 to 2011/12 NDNS mentioned in the previous column was reported for Scotland and data from this survey was used in the 2016 report card.	Methods: 4-day non-weighed diet diary	In 1.5-3 y olds the energy intake was 4.88 MJ/d in boys and girls combined. The mean energy intake in 4-10 y olds was 6.77 MJ/d in boys and 6.20 MJ/d in girls, while for 11-18 y olds mean energy intake was 8.42 MJ/d in boys and 6.41 MJ/d in girls. Total fat as a % food energy was 33.9 % in boys an 33.85 in girls (1.5-18y). Saturated fatty acids provided 13.2% food energy in boys and 12.9% food energy in girl, while non-milk extrinsic sugars (similar to added sugars) provided 15.8% energy in boys and 14.9% energy in girls, with the highest values of 16.3% seen in the 11-18y old boys.	No new NDNS data since the 2016 report card. The grade for this indicator has been carried forward from the 2016 because no data sources since the previous card have measured this indicator according to the benchmark. The NDNS 2014 was the data source used to grade this indicator in the 2016 report card, along with the % meeting the 5-a-day guideline from the SHeS.
Scottish Household Survey 2016 and 2017 do not measure diet				Note: the 2017 SHS does not have a chapter on young people (think these questions are asked every 2 years)
SALSUS 2015 does not measure diet				
Survey: Growing Up in Scotland (GUS) https://growingupinscotland.org.uk/about-gus/study-design-and-methodology/	GUS is a longitudinal survey involving three nationally representative cohorts of children: child cohort, birth cohort 1 (BC1) and birth cohort 2 (BC2). Child cohort: 2008/09 was the last year of data collection, no further collection planned. **BC1:** the most recent data collection periods (i.e.	**Method:** One of the topics is 'Food and eating'. Data collected on: Frequency/Amount of Snacks, Fruit and Veg, Crisps, Soft Drinks and Control of child's consumption of sugary snacks outwith the home in BC1 at age 10yrs/P6 (2014/15) and BC2 at age 5 yrs (2015/16) and age 3 yrs (2013/14).	Data **not used** for grading because the data has not been reported, it would need to be obtained from the UK data service, however data would be limited to two age groups as data only available from UKDS for: BC1 age 10-11 years/P6 (2014/15) and BC2 age 5 yrs (2015/16). Data not available till the end the end of the year for: BC2 age 3 yrs 2013/14.	*NOTE: this info was taken from the GUS topic guide and study design info on website and the topic guide sent by the GUS senior researcher (i.e. the actual questionnaires have not been looked at). The GUS researcher told me data available in the UKDS* It's not entirely clear what has been measured in terms of intake/frequency and who the

	from 2014 onwards) were in 2014/15 (age 10 yrs/P6, sweep 8), a short web and phone survey (web-cati) children in P7 (age 11 yrs) & 2017/18 (age 12 ys/S1, sweep 9) **BC2**: the most recent data collection periods were (i.e. from 2014 onwards) were in 2013/14 (age 3 yrs, sweep 2) & 2015/16 (age 5 yrs, sweep 3)	Data collected on respondent's intake of snacks/crisps/soft drinks (it isn't clear but assuming respondent means parent) in BC1 at age 10yrs/P6 (2014/15) and BC2 at age 5 yrs (2015/16) Also collects data on: the Main/Evening Meal (where, who with) in BC1 at age 10yrs/P6 (2014/15) and BC2 at age 5 yrs (2015/16) and age 3 yrs (2013/14). Also collects data on the Main Meal (whether home cooked, take away, restaurant etc) in BC2 at age 5 yrs (2015/16).		respondent is, would need to look at the actual questionnaires for more info.
Survey: Living Costs and Food Survey (LCFS) data from years 2013 to 2015 published in**:** **1)** Food Standards Scotland. Estimation of food and nutrient intakes from Living Costs and Food Survey data in Scotland (2001 – 2015), **interim report published November 2017** http://www.foodstandards.gov.scot/publications-andresearch/latest-estimation-of-food-and-nutrient-intakes-interim-report **2)** Estimation of food and nutrient intakes from food purchase data in Scotland 2001 – 2015, full report published June 2018 https://www.foodstandards.gov.scot/downloads/D19-01_Final_Report_2001-2015_-_130618.pdf **3)** Note: a lot of the data from the above publications is reported in the FSS Situation Report: The Scottish Diet: It needs to change 2018 update https://www.foodstandards.gov.scot/downloads/Situation_report_-_the_Scottish_diet_-_it_needs_to_change_-_2018_update_FINAL.pdf	The LCFS is an annual survey and includes a representative sample of households in mainland Scotland, ~550 households (approx. 1300 people/year)	**Method**: Provides robust estimates of food consumption and nutrient intakes from 2013 to 2015 in Scotland. These reports also include data from 2001 to look at differences over time and by SIMD. The survey collects information on household and eating out food and drinks purchases for every person >7 years of age in each household over a 14 day period using food diaries. Results are an estimate of a typical average household member. Info is based on food and drinks purchased rather than actual consumption, however waste and other conversion factors are used to estimate the amount of food that was consumed for both household and eating out	**Data not used for grading as the results are an estimate of a typical average household member, this cannot be reported for children or for parents.**	**This indicator was not included in the GM3.0** *Progress towards Scottish Dietary Goals (SDG) is monitored mainly using the LCFS data (except for the calories goal, which is monitored using data on* prevalence *of overweight and obesity from SHeS and of commercial data on total calories purchased (this is the other reports ive looked at in this table). Note: these publications based on LCFS data measure progress towards the 2013 SDGs not the 2016 SDGs. The 2016 SDGs for sugar have changed, the goal is now 5% and its free sugars rather than NMES (free sugars and NMES differ slightly), the interim report and full report reports intake of NMES rather than free sugars. Free sugars are all monosaccharides and disaccharides added to foods by*

		purchases. Results are reported as population average intakes/mean daily consumption per person of foods, nutrients, energy density, food and drinks indicative of diet quality etc. Estimates mean food consumption and nutrient intake for Scotland based on household and eating out food and drinks purchases.		*the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and unsweetened fruit juices. Lactose when naturally present in milk and milk products is excluded. The goal for fibre has also changed.*
Survey and publication: An assessment of the out of home food and drink landscape in Scotland (2015) https://www.foodstandards.gov.scot/publications-and-research/publications/an-assessment-of-the-out-of-home-food-and-drink-landscape-in-scotland There's a notes booklet to accompany this (which is more informative than the report) https://www.foodstandards.gov.scot/downloads/An_assessment_of_the_out_of_home_market_in_Scotland_2015_-_Notes_booklet.pdf Note: some of the data* from the above publication is reported in the FSS Situation Report: The Scottish Diet: It needs to change 2018 update https://www.foodstandards.gov.scot/downloads/Situation_report_-_the_Scottish_diet_-_it_needs_to_change_-_2018_update_FINAL.pdf	Data collected by Kantar Worldpanel between January 2010 and January 2017, from around 2,625 Scottish household panellists each year. The data set is robust in terms of sample size, and representation of the Scottish population. Children up to 16 were only included, if accompanied by an adult who completed the survey on their behalf. Unaccompanied children were not represented within this sample.	**Method:** Database used to measure food and drink purchasing behaviour out of home. Consumers are asked through an online survey about their out of home consumption behaviour on the previous day, and this is reported on a monthly basis. The database captures prepared food and drinks that are consumed both on and off the premises, from restaurants and retail outlets. The total out of home food and drink market is split into Commercial and Non-Commercial out of home categories. Commercial includes: Quick service restaurants (QSR) e.g. QS burger, fish and chip, sandwich, bakery, coffee, pizza/Italian, ethnic, retail and petrol station outlets; Pubs; Full service including FS traditional, ethnic, pizza/Italian & café/bistro; Travel/Leisure e.g hotels, in-store restaurants, bars and clubs, motorway service stations, ice cream shops & entertainment outlets.	**Data not used for grading as there are no benchmarks, recommendations or dietary goals to grade data against.** ***FSS situation report uses data from this survey to report the top 10 categories of food and drinks consumed out of home in Scotland in 2015 for all ages and by children aged 0-12 years vs all ages (% incidence reported).*** *In Scotland many of the top food and beverage items consumed out of the home tend to be less healthy, and include Chips/French Fries, Cakes/Biscuits/Pastries and Regular Cola. *Less healthy options such as Beef Burgers and Chips, sugary drinks, Fried/Breaded Chicken and Ice Cream are consumed more frequently by children aged 0-12 yrs in the out of home market compared to all ages. For example the incidence of regular cola is 10.1% for all ages in Scotland, compared with 16.7% in children aged 0-12 yrs.	**This indicator was not included in the GM3.0** The key findings of the report include: the top 10 Food and Beverages consumed (incl Burger, Regular Cola, Chips, Juice Drinks, etc) out of home by children aged 0-12 yrs in Scotland in 2015 vs all ages (% incidence reported for each of these food and drink items). Shows that children between 0-12 yrs consume these types of foods more often out of home than adults i.e. % incidence for chips, burgers, regular cola etc is higher for children 0-12 yrs than the overall population.

		Non-commercial includes: Workplace outlets, College/university, Vending machines Excluded are Hospital, school or prison meals, Events catering 'Out of home' refers to: Any food or drink purchased and immediately consumed outside the home and any take-away or home delivered food, such as pizzas. The database measures: **Visits**: The total number of visits made by everyone in the sample. **Meal Occasion:** One party is one meal occasion, whether with only 1 person or more. **Average visit per capita:** Number of visits divided by the population. **Number of servings:** Whatever the size or portion, one food item is one serving. **Incidence:** The % of all visits which contains a food item.	In 2015, the average person in Scotland visited an out of home establishment 177 times (similar to average number of visits in GB) Quick service restaurants (QSR) hold the largest proportion of visits in Scotland compared to any other channel out of home, and within QSR the most popular sub channels are Retail/Supermarkets, QS Burger, QS Coffee and QS Ethnic.	
Survey and Publications: Monitoring retail purchase and price promotions in Scotland (2010 – 2016) published February 2018 by Food Standards Scotland. The FSS previously published (in Jan 2016) data on take home food and drink purchase in Scotland (2010-2015), this 2018 report updates previous key findings (I have looked at both reports) https://www.foodstandards.gov.scot/publications-and-research/publications/monitoring-retail-purchase-and-price-promotions-in-scotland-2010-2016 Note: some of the data* from the above publication is reported in the FSS Situation Report: The Scottish Diet: It needs to change 2018 update		**Method:** The Food Standards Scotland (FSS) dietary surveillance programme includes monitoring of retail food and drink purchased into the home in Scotland, using market research data from Kantar Worldpanel. This report provides information on retail purchase and price promotions in Scotland between 2010 and 2016. Data is collected on all food and drink purchased into the home (panel members scan	**Data not used for grading as the results present purchase data only and does not necessarily equate to consumption, also data cannot be reported for children or parents.** Examples of data reported: Discretionary foods contributed considerably to purchase of calories (24%), total fat (25%), saturated fat (28%), total sugar (37%) and sodium (11%). Large reductions in sugar purchased from soft drinks have been offset by	**This indicator was not included in the GM3.0** *Note: The data refers to take home (retail) purchase i.e. All food and drink purchased from shops/supermarket for use within the home , i.e. all grocery shopping. It excludes anything which was purchased for immediate consumption outside the home (OOH) such as a sandwich purchased at a shop or a meal purchased in a restaurant (evidence suggests spend OOH is increasing and provides around*

https://www.foodstandards.gov.scot/downloads/Situation_report_-_the_Scottish_diet_-_it_needs_to_change_-_2018_update_FINAL.pdf		the barcodes of all products purchased into the home), which are then categorised. Data on volumes of food and drinks purchased are combined with nutrition information from product labels to estimate total purchase of calories, fats, sugar and salt into the home in Scotland as well as in relation to 73 food and drink categories, also by SIMD and in relation to purchase on promotion (see other columns for examples of data reported).	increases in sugar purchased from other categories. % of healthier (e.g. fruit, veg, oily fish) and less healthy foods (e.g. ice cream, confectionary) and drinks purchased on price promotion. Around 36% of the calories purchased from shops/supermarkets are on promotion and purchase on promotion is skewed towards less healthy categories (a key finding reported in the FSS situation report).	*11% of our calories). This data also excludes take-away food and drink (including home delivered take-away food). Thus, the data is not a complete picture of consumer food and drink purchase in Scotland, and includes purchase data only and does not necessarily equate to consumption, as factors such as waste and cooking losses have not been accounted for.* *Note: Data from this survey on sugars relates to total sugars and not free sugars, which are the basis of current dietary recommendations. Obtaining data on free sugars would require conversion of total sugar data on nutrition labels. However, for many discretionary product categories it can be assumed that the majority (if not all) of the sugar contained within them is free.*

Indicator 8: Obesity

Benchmark: Obesity is an excess of body fatness (a level of body fatness which increases risk of disease) and so, ideally, the prevalence of obesity should be estimated based on body fatness measures from national surveys. In Scotland, as in most other countries, body fatness is not measured and a simpler proxy for body fatness, the Body Mass Index (BMI) is used to estimate prevalence of obesity. BMI is much lower in children and adolescents than in adults and so for the age range 2-18 years, BMI should be expressed relative to age and sex as a centile or SD score (SIGN 2003, 2010); for school-age children and adolescents these centiles or SD scores should be expressed or calculated relative to UK 1990 reference data; for children aged up to 4 years the UK 1990 data have been replaced by growth standard data derived from the World Health Organisation multicentre growth reference study and so the WHO data and definitions should be used when estimating obesity prevalence of 2-4 year olds. Note that UK 1990 reference data should not be used for toddlers and pre-school children, and adult BMI criteria (e.g. BMI > 30.0 to define obesity) should not be used until at least age 19 years.

Summary of Methods of Measurement: Two sources of data are available: the Scottish Health Survey (SHeS) measured height and weight in 2-15 year olds and the Child Health Surveillance Programme measured height and weight in 5 year olds. Scottish Health Survey data for 16-18 year olds are reported separately and use adult BMI criteria. The data sources used measured height and weight to calculate BMI, and for children and adolescents aged 2 to 15 years BMI data were interpreted using the UK 1990 BMI reference data. The data sources used BMI ≥ 85th percentile to define overweight and obesity and BMI ≥ 95th percentile to define obesity.

Major gaps in Scottish data: SHeS obesity prevalence data for older adolescents (16-18 year olds) are expressed using adult criteria, which is incorrect and substantially underestimates the prevalence of obesity. SHeS data for 2-4 year olds are also expressed relative to UK 1990 reference data rather than the WHO multicentre growth reference. Obesity prevalence estimates from the SHeS are compromised further by the relatively small sample size in the survey, producing relatively unstable estimates of prevalence and an inability to examine prevalence inequalities between subgroups. Regardless of how BMI is expressed or interpreted, systematic reviews have shown that BMI provides highly conservative estimates of the prevalence of obesity (excessive fatness)-see Active Healthy Kids Scotland Report Card 2013 longform (www.activehealthykidsscotland.co.uk). The problem for surveillance is that the BMI has a moderately high false negative rate i.e. many children and adolescents who are excessively fat have an apparently healthy BMI, thus Scottish surveillance data underestimates of the scale of the problem. BMI-for-age estimates were used to grade obesity in 2018 as in previous years, but with the knowledge that this is a highly conservative perspective. There is a lack of data on obesity prevalence for 16 to 18 year olds (since the SHeS used adult criteria rather than the UK 1990 reference data to define obesity in this age group) and for 2-3 year olds (the SHeS used the UK 1990 BMI reference data instead of the WHO growth standard data to define obesity in children aged up to 4 years.)

Survey name, year data collected, name of the report and year report published and link(s) to the document/survey	Details of participants	Method of measurement (including the questions asked in the survey to measure the indicator)	Findings	Additional comments
Survey: Scottish Health Survey (SHeS) 2016 **Publication:** The Scottish Health Survey 2016: Volume 1: Main Report (published October 2017)	Nationally representative sample of 1075* children (2-15 yrs).	**Method:** Measured height and weight to calculate BMI, interpreted using the UK 1990 BMI reference	Data are recent & from a nationally representative sample, though BMI based estimates of obesity prevalence underestimate prevalence	**This indicator was not included in the GM3.0** SHeS data do not use the correct obesity definitions for 2-3 year

http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Further data are available in supplementary web tables http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey/Publications/Supplementary2015/Supplementary2016 Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	*This is the unweighted bases for this variable The SHeS 2016 data has been be deposited at the UK Data Archive, 2017 data not available via UKDS (checked 24th Oct 2017)	data for all children aged 2-15 years. *Nb. The WHO growth standard data should have been used for children aged up to 4 years.* BMI ≥ 85th percentile was used to define overweight and obesity and BMI ≥ 95th percentile was used to define obesity.	substantially, thus not used for grading. **Grade = INC** **Summary:** Among 2-15 year olds, 29% were overweight incl obese (14% were obese). 28% of boys and 29% of girls were overweight incl obese (14% of boys and 14% of girls were obese). ***% overweight incl obese by age**** 2-6 years = 25% (11% obese) 7-11 years = 29% (14% obese) 12-15 years = 33% (16% obese) ***GIRLS**** 2-6 years = 26% (14% obese) 7-11 years = 27% (10% obese) 12-15 years = 37% (19% obese) ***BOYS**** 2-6 years = 25% (9% obese) 7-11 years = 31% (19% obese) 12-15 years = 29% (14% obese) **data by age not in main report, so extracted from webtable* Prevalence of overweight incl obesity was significantly associated with SIMD (according to the main report); highest in the second most and most deprived quintiles (32%-33%) and 25%-26% in less deprived quintiles (Note: this differs from the 2014 SHeS used in the 2016 report card, which found that being overweight (but not obese) was not associated with SIMD). Obesity was **not** significantly associated with SIMD (according to the main report), but the data shows (further detail below) that prevalence was higher (16%) in the second most and most deprived quintiles vs 12% the least deprived quintile (Note:	olds (which means the prevalence estimate is too low) and because BMI is conservative - a large number of overly fat children do not have a high BMI **Trends (wording from main report):** Prevalence of overweight incl obesity has remained relatively stable between 1998 (29%) and 2016 (29%), fluctuating between 28% and 33% in the intervening years. Prevalence of obesity is the same in 2016 (14%) as in 1998, prevalence had been stable from 2003 to 2014 (16% to 17%) but has been steadily decreasing since 2014 (17%), 15% in 2015, 14% in 2016 (significant decline from 2014 to 2016), 13% in 2017. This is an indication of a downward trend, the decline in prevalence of obesity in all children has largely been driven by the decline in prevalence among boys from a peak of 20% in 2011 to 12% in 2017. -However, according to data from the CHSP (see below) the % of children in P1 classed as overweight (85th - <95th) and obese (≥95th) has remained broadly similar/increased v slightly (11.9% to 12.4% for overweight, and 9.2% to 10.5% for obese). From 2013/14 to 2016/17 (i.e. same time period as the SHeS above), the prevalence of overweight, and obesity has been broadly similar (12.5% to 12.4% for overweight, 10.1% to 10.5% for obese), i.e. no downward trend, unlike the

			this differs from the 2014 SHeS used in the 2016 report card, which found that from 2009 to 2014 children in the least deprived areas had the lowest levels of obesity and those living in the most deprived areas had the highest levels of obesity. Also, data from the CHSP, found that the % of P1 children classed as overweight and in particular obese increased as deprivation increased, the sample size is much larger for the CHSP dataset. **% (age 2-15 yrs) overweight incl obese by SIMD (2015/16 combined**)** Least deprived = 25% (12% obese) 4th quintile = 26% (14% obese) 3rd quintile = 25% (12% obese) 2nd quintile = 33% (16% obese) Most deprived = 32% (16% obese) ***data extracted from main report uses combined data from 2015/16*	SHeS, although the CHSP only measured one age group, the sample size is much bigger so we have a lot more confidence in these estimates. -English data from the National Child Measurement Programme for P1 and P7 shows: a significant downward trend from 2006/07 to 2016/17 in obesity prev and overweight prev in reception boys. But overweight prevalence in Reception girls show a newly significant upward trend and no change for obesity prev. There are increasing trends in obesity prev, with no change in overweight prev in Year 6 boys and girls. Analysis by Index of Multiple Deprivation (IMD) continues to show a widening inequality gap in the overweight and obese categories for all groups – Reception boys and girls, and Year 6 boys and girls. The slope index of inequality for obesity is greater in Year 6 boys and girls than in Reception boys and girls, and has been widening at a faster rate in Year 6 than in Reception
Survey: Child Health Surveillance Programme School (CHSP School) Primary 1 Review: School Year 2016/17 **Publication:** ISD Scotland Body Mass Index of Primary 1 Children in Scotland School Year 2016/17 (published Dec 2017) https://www.isdscotland.org/Health-Topics/Child-Health/Publications/2017-12-12/2017-12-12-P1-BMI-Statistics-Publication-Report.pdf **For data tables (including 95%CIs) see** http://www.isdscotland.org/Health-Topics/Child-Health/Publications/data-tables2017.asp?id=2070#2070	In school year 2016/17 a total of 51,529 children had valid height and weight measurements recorded in Primary 1 (83.5% of all children in Primary 1).	**Method of measurement:** Routinely collected height and weight measurements at Primary 1 health reviews. BMI calculated and interpreted using the UK 1990 BMI reference data. BMI ≥ 85th percentile was used to define overweight and obesity and BMI ≥ 95th percentile was used to	Data are recent & nationally representative sample, though BMI based estimates of obesity prevalence underestimate prevalence substantially, thus not used for grading. Data are from a very large sample of children in P1 (83.5% of all children in P1 provided a valid height and weight measure). **Grade = INC**	**This indicator was not included in the GM3.0** **Trends:** From 2007/08 to 2016/17, the % of children in P1 classed as overweight (85th - <95th) and obese (≥95th) has remained broadly similar/increased v slightly (11.9% to 12.4% for overweight, and 9.2% to 10.5 for obese). From 2013/14 to

		define obesity. P1 review also measures gross motor skills, social skills etc but these are not in the benchmarks.	**Summary:** 22.9% of P1 children were overweight incl obese (boys 23.2%, girls 22.6%); 12.4% were overweight (Boys 12.5%, Girls 12.4%) and 10.5% were obese (Boys 10.7%, Girls 10.2%) . ***Note:*** *The gap between boys and girls has narrowed over time (from 2007/08 to 2016/17).* ***Note:*** *Can't compare the above figures with SHeS data because the age category used in the SHeS is 2-6 years (and the wrong obesity definition is used for 2-3 year olds). In 2016/17, English data from the NCMP reported obesity prev at 10% for reception boys and 9.2% for reception girls, so similar to above prev estimates.* **% overweight incl obese by deprivation** Least = 18.3% (11.2% OW, 7.1% obese) 4th = 20.9% (12.3% OW, 8.5% obese) 3rd = 22.8% (12.3% OW, 10.5% obese) 2nd = 24.9% (12.8% OW, 12.1% obese) Most=26.4% (13.3% OW, 13.2% obese). Report says 'The percentage of children classed as overweight and in particular obese increased as deprivation increased' (doesn't say if this is significant).	2016/17 (i.e. same time period as the SHeS above), the prevalence of overweight, and obesity has been broadly similar (12.5% to 12.4% for overweight, 10.1% to 10.5% for obese), i.e. no downward trend (unlike the SHeS, although the CHSP only measured one age group, the sample size is much bigger so we have a lot more confidence in these estimates. See the additional column section of the SHeS above for trends in English Reception and Year 6 children from the NCMP. -The data tables report % overweight and % obese (and 95%CIs) overall, by gender, by SIMD from 2007/08 to 2016/17. -Data also reported for each NHS Board but data from NHS boards with small numbers of children measured should be interpreted with care as the small numbers may result in fluctuations in the %s from year to year (this may apply to SHeS data esp when reported by age or by SIMD) -There is variation in the timing of the Primary 1 measurement across NHS Boards, thus child's age at measurement can range from 4.5 to 6.25 years. In 2016/17, 50% of children were aged between 4.5 and 5.5 years at the time of measurement, and 48% were aged > 5.5 years to 6.25 years. However, as BMI centile results are adjusted for age, this variation has a negligible

				impact on the BMI distribution rates.
Survey: Child Health Surveillance Programme Pre-School (CHSP-PS) 27-30 month review. **Publication:** ISD report, Child Health 27-30 Month Review Statistics Scotland 2016/17 (published April 2018) http://www.isdscotland.org/Health-Topics/Child-Health/Publications/2018-04-24/2018-04-24-Child-Health-27m-review-Report.pdf? **Technical report (I looked at this too)** **http://www.isdscotland.org/Health-Topics/Child-Health/Publications/2018-04-24/2018-04-24-Child-Health-27m-review-Technical-Report.pdf?** Child health reviews are also carried out at 13-15 month and 4-5 year, these were introduced in April 2017. ISD stated 'not all health boards have implemented these reviews yet. Most boards are now carrying out 13-15 month reviews but less than half are carrying out 4-5 year reviews, and we anticipate it may be 2020 before these reviews are fully implemented. Therefore there are no publications on these as yet. Height and weight are captured, where possible, at these reviews.	The 27-30 month review is usually provided by health visitors and was introduced in April 2013	Methods: Assesses child development in 8 domains: personal/social, emotional/behavioural, speech/language/communication, fine motor, gross motor, vision, hearing, problem solving and all parents complete an ages and stages questionnaire. Prior to April 2017 there were 9 domains, from April 2017 there are eight domains (some were merged and problem solving was added). It looks like from April 2017, the questionnaires used /info collected and when (i.e. all parents vs if/when health visitors suspected a problem) is more standardised than before April 2017 i.e. NHS Boards adopted different approaches, such as using different questionnaires (from a recommended list) and some offered questionnaires to all children/parents and others administered them if/when a problem was suspected.	I have looked through all the looked through the full reports and related documents (i.e. summary reports and data tables) published in April 2018, Feb 2017, Dec 2015, Dec 2014 and they all report the proportion of children with a developmental concern in any domain and in each of the developmental domains assessed. **No BMI data available.** Data on child height/weight/BMI has not been reported in any of the docs mentioned above. I spoke to ISD who said the following *'the completeness of recording of height and weight at the 27-30 month review varies between boards. For children who were eligible in 2016/17, 70% of children had a valid height and weight recorded in Scotland. We don't currently publish information on this due to the low completeness, but we hope this will improve over time'*. Also, it looks like each health board get BMI data for their board but they don't report it publicly and its not reported at a national level yet.	*The following document* https://www.gov.scot/Resource/0041/00410922.pdf from the Scottish Government provides 'guidance on the 27-30 month child health review' in relation to the core issues which should be addressed and recorded at the 27-30 month review, and standardised methods of assessment to ensure consistency of practice across Scotland. It was published in Dec 2012 (i.e. before the review started) and says that, nutrition, healthy eating, PA and growth (i.e. child healthy weight) are core issues that should be covered in the review 'The 27-30 month review should provide all families with consistent messages on healthy eating, family meals, physical activity, screen time, and adequate sleep' and 'all children should be offered measurement of weight and height as part of their 27-30 month review and should be plotted on the appropriate UK-WHO (0-4 years) growth chart and returned as part of the national dataset to (CHSP-PS).
Survey: National Diet and Nutrition Survey (NDNS) for Scotland.			Results from 2008/09 to 2011/12 were published in 2014 and used in the previous report card, there has been no new survey or data on BMI for children and adolescents in Scotland since then (see the diet indicator for further info).	
Survey: Growing Up in Scotland (GUS) https://growingupinscotland.org.uk/about-gus/study-design-and-methodology/	GUS is a longitudinal survey involving three nationally representative cohorts of children: child cohort, birth cohort 1 (BC1) and birth cohort 2 (BC2). Child	**Method:** Child height and weight measured in BC1 at age 10 years/P6 (2014/15) and 12 years/S1 (2017/18) and BC2 at age 3 years (2013/14) and 5 years	Data are recent & representative, though BMI based estimates of obesity prevalence underestimate prevalence substantially, thus not used for grading. Also, data not been reported,	Also measures parent's perception of child's weight at BC2 at age 5 years and at age 3 years and in BC1 at age 10 years/P6 and age 12 years/S1 (though this is not in any of the

	cohort: 2008/09 was the last year of data collection, no further collection planned. **BC1:** the most recent data collection periods (i.e. from 2014 onwards) were in 2014/15 (age 10 yrs/P6), a short web and phone survey (web-cati) children in P7 (age 11 years) & 2017/18 (age12 ys/S1) **BC2**: the most recent data collection periods were (i.e. from 2014 onwards) were in 2013/14 (age 3 yrs) & 2015/16 (age 5 yrs)	(2015/16). Not clear if/how BMI data have been interpreted to define obesity (i.e. UK 1990 BMI reference data or WHO growth standards for young children).	it would need to be obtained from the UK data service and would be limited to two age groups as data only available from UKDS for: BC1 age 10 years/P6 (2014/15) and BC2 age 5 yrs (2015/16). Data not available till the end the end of the year for: BC1 12yrs/S1 (2017/18) and BC2 age 3 yrs 2013/14. Although the CHSP is only one age group, the sample size is much bigger.	benchmarks) but again would only be available from the UKDS for two age groups. *NOTE: this info was taken from the GUS topic guide and study design info on website and I also checked the topic guide sent by the GUS senior researcher (i.e. the actual questionnaires have not been looked at). The GUS researcher told me data available in the UKDS.*

Indicator 9: Family and Peers

Benchmark (any of the following could be used to grade this indicator): % of family members (e.g. parents, guardians) who facilitate physical activity and sport opportunities for their children (e.g., volunteering, coaching, driving, paying for membership fees and equipment), % of parents who meet the Global Recommendations on PA for Health (i.e. adults accumulate ≥150 minutes of moderate-intensity aerobic PA/week or ≥75 minutes of vigorous-intensity aerobic PA/week or an equivalent combination of MVPA, % of family members (e.g., parents, guardians) who are physically active with their kids, % of children and youth with friends and peers who encourage and support them to be physically active, % of children and youth who encourage and support their friends and peers to be physically active. These were the benchmarks for the Global Matrix 3.0, however since child and adolescent diet and obesity are indicators in the Scottish report card, we have extended the benchmark to include estimates of parental diet and overweight/obesity.

Summary of methods of measurement: One data source available; the Scottish Health Survey 2015 (reported in main report) used combined data from 2012-15 to provide information on the % of parents (of children aged 2-15 years) who 1) met the adult physical activity guidelines, 2) were overweight and obese, 2) met the 5-a-day fruit and veg recommendation (though we had to re-analyse the data to obtain the relevant information, see table below). Physical activity and diet were measured by self-report, height and weight were measured. Reliance on self-report methods increases risk of bias.

Major gaps in Scottish data: As noted above, only one data source provided information on relevant parental health behaviours and outcomes. Dietary and PA data are self-reported and prone to biases which underestimates the scale of non-adherence to dietary and PA recommendations, and BMI provides a conservative estimate of obesity prevalence (as in children), there is a high false negative rate, particularly in women, so that obesity is much more prevalent than would be suggested by prevalence of high BMI. Lack of parental data for 16 to 18 year olds.

Survey name, year data collected, name of the report and year report published and link(s) to the document/survey	Details of participants	Method of measurement (including the questions asked in the survey to measure the indicator)	Findings	Additional comments
Survey: Scottish Health Survey (SHeS) 2015 **Publication:** The Scottish Health Survey 2015: Volume 1: Main Report (published October 2016) http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Parent PA data are not available in the supplementary tables Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	Nationally representative sample of 1558 fathers and 2584 mothers*. This is the weighted bases for these variables from the 2012-15 dataset, results reported in the 2015 main report. The SHeS 2012-15 data has been be deposited at	**Method for Parental PA:** Interview administered questionnaire measures time spent, frequency and intensity (i.e. MVPA) for four main types of PA: Home-based PA, walking, Sports and exercise, PA at work, which is used to assess the % of adults (aged 16 to 75+ years) meeting the adult PA guidelines (i.e. 150 mins of MPA or 75 mins of VPA or a combination of both.	Data on the % of adults meeting the PA guidelines cannot be used for grading as doesn't fit the benchmark '% of parents who meet the adult PA guidelines'. Furthermore, the % of children meeting the PA guidelines by parental PA cannot be used for grading because 1) we cannot use the child PA data (see overall PA	**This indicator was graded as INC for the GM 3.0 as we hadn't attempted to re-analyse the SHeS data at this point** *Note: We accessed the 2012-15 dataset and attempted to extract data on the % of fathers/mothers/parents meeting the PA guidelines, however there were some issues with the variables that needed clarification from the

	the UK Data Archive, 2017 data not available via UKDS (checked 24th Oct 2017)	The 2015 SHeS main report combined data from 2012-15 to report the % of children meeting the PA guidelines by parental PA (i.e. father meets/does not meet the PA guideline, mother meets/do not meet the guideline).	indicator for further details) and 2) we are interested in the % of parents/fathers/mothers meeting the guideline NOT by child PA.* We used the weighted bases from Table 7.5 in the 2015 main report (which used 2012-15 combined data) to obtain the following estimates** **Grade = B+ for fathers and B for mothers** **Summary: 77%** (1201/1558) of children (77% of girls, 77% of boys) had fathers who met the adult PA guideline and **71%** (1844/2584) of children (70% of girls, 72% of boys) had mothers who met the adult PA guideline.	SHeS analysts but despite several attempts we did not receive a response to some of our queries. **Note: %s for parental PA cannot be calculated by age or SIMD as this data has not been reported in the tables of the SHeS main report and there are no webtables for parental PA.
Survey: Scottish Health Survey (SHeS) 2015 **Publication:** The Scottish Health Survey 2015: Volume 1: Main Report (published October 2016) http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Parent PA data are not available in the supplementary tables Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	Nationally representative sample of 2850 parents*. This is the weighted bases for this variable from the 2012-15 dataset, results reported in the 2015 main report. The SHeS 2012-15 data has been be deposited at the UK Data Archive, 2017 data not available via UKDS	**Method for Parental fruit & veg consumption:** **i**nterviewer- administered questionnaire for fruit and vegetable consumption in portions per day in the previous 24h, with household measures used to give examples of portions (80g), interviewers record full and half portions but nothing smaller. Data used to report the % of adults meeting the 5-a-day guideline. The 2015 SHeS main report combined data from 2012-15 to report	Data on the % of adults meeting the 5-a-day guideline cannot be used for grading as we are interested parental fruit & veg intake. Furthermore, child fruit & veg intake by parental fruit & veg intake cannot be used for grading because we are interested in parental fruit & veg intake NOT by child fruit & veg intake.* We used the weighted bases from Table 6.5 in the 2015 main report (which used 2012-15	**This indicator was graded as INC for the GM 3.0 as we hadn't attempted to re-analyse the SHeS data at this point** *Note: We accessed the 2012-15 dataset and attempted to extract data on the % of fathers/mothers/parents consuming 5+ portions of fruit & veg/day, however there were some issues with the variables that needed clarification from the SHeS analysts but despite several attempts we did not

	(checked 24th Oct 2017)	the % of children meeting the 5-a-day guideline by % of parents meeting the 5-a-day guideline.	combined data) to obtain the following estimates** **Grade = D-** **Summary:** 26**%** (733/2850) of children (27% of girls,25% of boys) had parents*** who consumed 5+ portions of fruit & veg/day ***the highest of any resident parent.	receive a response to some of our queries. **Note: %s of parents consuming 5+ portions of fruit & veg/day cannot be calculated by age or SIMD as this data has not been reported in the tables of the SHeS main report and there are no webtables on parental diet. However, the webtables report this data for adults aged 16+ years (there isn't a breakdown by age), 26% of adults in the least deprived quintile met the 5-a-day guideline vs 15% in the most deprived quintile.
Survey: Scottish Health Survey (SHeS) 2015 **Publication:** The Scottish Health Survey 2015: Volume 1: Main Report (published October 2016) http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Parent PA data are not available in the supplementary tables Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	Nationally representative sample of 2087 parents *. This is the weighted bases for this variable from the 2012-15 dataset, results reported in the 2015 main report. The SHeS 2012-15 data has been be deposited at the UK Data Archive, 2017 data not available via UKDS (checked 24th Oct 2017)	**Method for Parental weight status:** Measured height and weight used to calculate BMI. Overweight (incl obese) was classified (using WHO categories) as BMI of 25 and over and Obese as BMI ≥30. The 2015 SHeS main report combined data from 2012-15 to report child BMI categories by parental BMI categories.	Data on the % of overweight and obese adults cannot be used for grading as we are interested parental overweight and obesity. Furthermore, child BMI categories by parental BMI categories cannot be used for grading because we are interested in the % of parents who are overweight and obese NOT by child BMI.* We used the weighted bases from Table 8.7 in the 2015 main report (which used 2012-15 combined data) to obtain the following estimates** **Summary:** 74% (1550/2087) of children	**This indicator was graded as INC for the GM 3.0 as we hadn't attempted to re-analyse the SHeS data at this point** *Note: We accessed the 2012-15 dataset and attempted to extract data on the % of children with overweight and obese fathers/mothers/parents however there were some issues with the variables that needed clarification from the SHeS analysts but despite several attempts we did not receive a response to some of our queries. **Note: parental overweight and obesity cannot be calculated by age or SIMD as this data has not been reported in the tables of the SHeS main report and there are no webtables on parental BMI categories. However, the webtables report this data for adults aged 16+ years (there isn't a breakdown by age), obesity prevalence was higher

			(73% of boys, 75% of girls) had at least one parent*** who was overweight incl obese. 38% (788/2087) of children (36% of boys, 39% of girls) had at least one obese parent. *Note: these prevalence estimates are slightly higher than the prevalence estimates for all adults aged 16+ years and for adults aged (25 to 54 years) 64% for overweight incl obese and 29% for obese.* **Grade = D-, for 26% of children, neither parent is overweight or obese** **Grade = D overall for parental PA (B+), diet (D-) and overweight incl obese (D-) combined, slightly more weighted towards the grade for overweight and obesity since this is objectively measured whereas diet and PA are self-report and may be overestimated.**	in the most deprived (33%) vs the least deprived (23%). ***Explanation of the parental BMI variable (taken from the 2015 main report): Information on children's BMI by parental BMI is based on children in the main sample where at least one of their parents was also interviewed and had a valid BMI measurement. For households with BMI measures for two parents, the measure of parental BMI was based on whichever parent's BMI was the highest. If just one parent's BMI was measured this was used for this analysis. For example, if both parents were overweight or obese, or both were of normal weight or underweight, the parental BMI value matched that of both parents. If one parent was overweight and one was normal weight, the parental BMI was taken from the overweight parent. In households where one parent was interviewed, or just one parent provided a valid BMI measurement, the parental value matched that parent's BMI.
Survey: Scottish Health Survey (SHeS) 2016 **Publication:** The Scottish Health Survey 2016: Volume 1: Main Report (published October 2017) http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Further data are available in supplementary web tables http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey/Publications/Supplementary2015/Supplementary2016	Nationally representative sample of 4,323* adults (≥aged 16 yrs), and 1561* children (2-15 yrs). *This is the overall number of adults and children for the SHeS, it is unclear how many provided data for this variable.	**Method:** Self-report for children age 13-15 years and parent proxy-report for children age 4-12 yrs. **Questions:** Parents of 4-12 year olds and those aged 13-15 years were asked about their knowledge of the PA guidelines for the under 5s and those aged 5-18 years. They were asked to write	Data doesn't fit any of the criteria in the benchmark for this indicator so **not used** for grading.	Also, data not in the main report or web tables for 2016 or 2017 survey so data would need to be accessed via the UKDS. Also, no strong evidence linking parent's knowledge of the child PA guidelines with % of children meeting the guidelines and we can't perform this analysis because we cannot use the data from the SHeS on % of children

Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	The SHeS 2016 data has been be deposited at the UK Data Archive, 2017 data not available via UKDS (checked 24th Oct 2017)	down how much time per day or could tick a box if they didn't have a child of that age (adults were also asked this question i.e how much time/week do you think people your age are advised....		meeting the PA guidelines (see SHeS in Overall PA indicator)
Survey: Growing Up in Scotland (GUS) https://growingupinscotland.org.uk/about-gus/study-design-and-methodology/	GUS is a longitudinal survey involving three nationally representative cohorts of children: child cohort, birth cohort 1 (BC1) and b]irth cohort 2 (BC2). **Child cohort**: 2008/09 was the last year of data collection, no further collection planned. **BC1:** the most recent data collection periods (i.e. from 2014 onwards) were in 2014/15 (age 10 yrs/P6), a short web and phone survey (web-cati) children in P7 (age 11 yrs) & 2017/18 (age 12 ys/S1). **BC2**: the most recent data collection periods were in 2013/14 (age 3 yrs) & 2015/16 (age 5 yrs	Data collected on parent's PA (though it is not clear if the PA data collected can be used to estimate compliance with the adult PA guidelines) and screen time (there is no screen time recommendation for adults) in BC2 age 5 years (2015/16). Parent's height and weight (measured) in BC1 age 10 years/P6 (2014/15) and BC2 age 5 years (2015/16). Data collected on respondent's intake of snacks/crisps/soft drinks (it isn't clear but assuming respondent means parent) in BC1 at age 10yrs/P6 (2014/15) and BC2 at age 5 yrs (2015/16)	Data on parent's PA and screen time **not** used for grading as it has not been reported, it would need to be obtained from the UK Data Service (UKDS) and would be limited to one age group [BC2 age 5 years (2015/16)]. Also, there is no screen time guideline for adults and it's not clear if PA data could be used to estimate compliance with adult PA guidelines. Data on parent's height and weight and respondent's intake of snacks/crisps/soft drinks **not used** for grading as data not been reported, would need to be obtained from the UKDS and would be limited to two age groups: BC1 age 10 years/P6 (2014/15) and BC2 age 5 years (2015/16).	*NOTE: this info was taken from the GUS topic guide and study design info on website and the topic guide sent by the GUS senior researcher (i.e. the actual questionnaires have not been looked at). The GUS researcher told me data available in the UKDS*

Indicator 10: Community and Environment

Benchmark (any of the following could be used to grade this indicator): % of children or parents who perceive their community/ municipality is doing a good job at promoting physical activity (e.g., variety, location, cost, quality), % of communities/municipalities that report they have policies promoting physical activity, % of communities/municipalities that report they have infrastructure (e.g., sidewalks, trails, paths, bike lanes) specifically geared toward promoting physical activity, % of children or parents who report having facilities, programs, parks and playgrounds available to them in their community, % of children or parents who report living in a safe neighbourhood where they can be physically active, % of children or parents who report having well-maintained facilities, parks and playgrounds in their community that are safe to use.

Methods of measurement: This indicator refers to perceived safety, access to, and availability of outdoor/indoor spaces and opportunities for PA **in the local community**, not actual participation in active play, which is dealt with in indicator 4. All sources of data use self/parent report measures. One data source available for grading (the Scottish Household Survey, data applies to 6 to 12 year olds). The Scottish Health Survey measures use of places for physical activity in 2-15 year olds but does not measure use of places for PA in the community/neighbourhood thus data not used for grading.

Major Gaps in Scottish data: Biases in self/parent reports of perceived safety, access to and availability of spaces and opportunities for PA are unclear. Lack of data for children under 6 and over 12 years of age.

Overall, although access is high (A grade), we have based the grade more on safety, which is lower than access and varies by play area and whether child is alone (C+ grade) or with friends (B- grade).

Survey name, year data collected, name of the report and year report published and link(s) to the document/survey	Details of participants	Method of measurement (including the questions asked in the survey to measure the indicator)	Findings	Additional comments
Survey: Scottish Household Survey (SHS) 2016 **Publication:** Scotland's People Annual Report: Results from the 2016 Scottish Household Survey (published September 2017) http://www.gov.scot/Publications/2017/09/9979 The technical report for the 2016 survey was published in March 2018 and includes info on methodology and fieldwork e.g. overview of survey, sample design, response rates, data collection methods http://www.gov.scot/Topics/Statistics/16002/PublicationMethodology The questionnaire for the 2016 survey is published separately http://www.gov.scot/Topics/Statistics/16002/PublicationQuestionnaire	Nationally representative survey, 10,470 household interviews completed (9,642 adult interviews completed, 22% of households had children). Access SHS data (incl data from 2016 survey) via the Open Data Platform (statistics.gov.scot)	**Methods:** The household component of the survey is completed by the household reference person and a child is randomly selected from all household members under 16 and the household reference person answers questions (see below) about that child, the findings are reported in Chapter 13 of the main report 'Young People'. **Questions:** Households with a child aged 6 to 12 years were asked the following questions (also asked in the	Data **used** for grading because the questions were asked to households with a 6-12 yr old child and they fit the benchmark on perceptions of safety and access to PA opportunities in their **neighbourhood**, also meets the three criteria (recent, representative, & probably fairly unbiased)	**Grade is the same as the grade for this indicator submitted to the GM3.0)** A number of questions on ratings of neighbourhood, perceptions of safety while walking in their neighbourhood, walking distance to and satisfaction with

		2014 SHS and included in the previous report card): a) access to each play area for children within their neighbourhood, categories were: playground, park, football or other games pitch, field or other open space, school playground, natural environment/ wooded) - multiple responses allowed. Data reported as % having access to each play area and % having access to at least one play area. b) the youngest age that households consider it would be safe for a child to play in each play area without supervision c) % of households that think it is very or fairly safe for children to walk/cycle to each play area on their own (used same categories as above question but also included streets/roads around their home) d) % of households that think it is very or fairly safe for children to go to each play area with 2 or 3 friends e) % of households concerned about children being bullied by other children while playing in each play area f) % of households concerned about children being harmed by adults while playing in each play area	**Grade = B- *(*though access is an A grade, safety is lower and varies by play area and whether child is alone (C+ grade) or with friends (B-grade). Also, for each play area, access and perceptions of safety are lower in more deprived areas.** **Summary:** - 92% of households have <u>access</u> to at least one play area within their neighbourhood: 56% have access to a playground, 65% to a park, 53% to a field or other open space, 50% to a natural environment/wooded area *(figures are similar to SHS 2014 results used in previous report card).* **-% of households that think it is very or fairly <u>safe</u> for children to walk/cycle on their own to each play area:** 59% to a playground, 55% to a park, 57% to a field/other open space, 39% a natural environment/wooded area, 56% for streets around the home (*most figures are slightly lower than SHS 2014 results used in previous report card)* - **% of households that think it is very or fairly <u>safe</u> for children to go to each play area with 2 or 3 friends**: 66% to a playground, 61% to a	nearest greenspace etc were asked to all households (i.e. not specifically to parents with children). Note: the 2017 SHS does not have a chapter on young people (these questions are asked every 2 years) so no new data for this indicator Additional data: - the youngest age that households consider it would be safe for a child to play without supervision in each play area is 9 years for streets around the home, 10 years for playground, park, field/other open space, 11 years for natural environment/wooded area (figures are the same *for more deprived areas and similar to 2014 SHS results used in previous report card*) % of households who are very or fairly concerned about bullying by other

			park, 62% to field/other open space, 44% a natural environment/wooded area, 57% for streets around the home (*figures are slightly lower than the SHS 2014 results used in previous card)* - overall, perceptions of safety are higher for each play area when going with friends than when children travel alone. Perceptions of safety for the streets/roads around the respondent's home are similar with friends (57%) and alone (56%) but are 8%-9% lower in more deprived areas, see below (*in previous report card they were 2-3% lower in more deprived areas*). For each play area, access and perceptions of safety are lower in more deprived areas (see below) - **Access to play areas by level of deprivation:** - 91% of households in the 20% most deprived urban areas of Scotland had access to at least one play area vs 92% of households in the rest of the urban areas; however access to each play area was lower in the 20% most deprived urban areas vs the rest of urban areas (e.g. 52% vs 59% for playground, 46% vs 54% for field/other open space, 36% vs 50% for natural environment/wooded area).	children in each play area: 37% for a playground, 38% for a park, 35% for a field/other open space, 40% for natural environment/wooded area, 26% for streets around the home (*this question wasn't included in previous card)* - % of households who are very or fairly concerned about children being harmed by adults while playing in each play area: 36% for a playground, 37% for a park, 37% for a field/other open space, 48% for natural environment/ wooded area, 28% for streets around the home (*figures similar to the SHS 2014 results used in previous card)* % of households who are very or fairly concerned about bullying by other children in each play area is higher for households in the 20% most deprived urban areas vs those

			Safety of play areas by level of deprivation: - the % of households that think it is very or fairly safe for children to walk/cycle on their own to each play area is lower for households in the 20% most deprived urban areas vs those in the rest of the urban areas (e.g. 48% vs 60% for playground, 48% vs 57% for streets around the home). - the % of households that think it is very or fairly safe for children to go to each play area with 2 or 3 friends is lower for households in the 20% most deprived urban areas vs those in the rest of the urban areas (e.g. 59% vs 66% for playgrounds, 50% vs 58% for streets around the home)	in the rest of the urban areas (e.g. 53% vs 34% playground, 37% vs 24% for streets around the home) -% of households who are very or fairly concerned about children being harmed by adults while playing in each play area is higher for households in the 20% most deprived urban areas vs those in the rest of the urban areas (e.g. 53% vs 32% playground, 37% vs 27% for streets around the home.
Publication: McCrorie P, Mitchell R, Ellaway A. Comparison of two methods to assess physical activity prevalence in children: an observational study using a nationally representative sample of Scottish children aged 10–11 years. *BMJ Open* 2018;8:e018369. doi:10.1136/bmjopen-2017-018369 **Survey:** Data collection took place between May 2015 and May 2016.	A nationally representative sample of 10 to 11 year old children. 2402 children took part in GUS sweep 8 interviews, 90% (n=2162) consented to be contacted for the accelerometer study (known as SPACES), 1096 (51%) children took part in accelerometer data collection and 774 participants (427 girls, 357 boys) met inclusion criteria (i.e. provided at least 4 weekdays and at least 1 day of weekend data) .	The Spaces study also has Geographic Information Systems (GIS) data which provides information on the characteristics of a location and can, therefore, provide information on e.g. neighbourhood safety, access to parks, facilities, amenities etc in children's community.	Data **cannot** be used for grading as data not available yet and would be limited to a single age group (10 to 11 year olds).	

Survey: Scottish Health Survey (SHeS) 2016 **Publication:** The Scottish Health Survey 2016: Volume 1: Main Report (published October 2017) http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey Further data are available in supplementary web tables http://www.gov.scot/Topics/Statistics/Browse/Health/scottish-health-survey/Publications/Supplementary2015/Supplementary2016 Technical report provides info on data collected and the questionnaires used in the survey http://www.gov.scot/Publications/2017/10/4796/downloads	Nationally representative sample of 4,323* adults (≥aged 16 yrs), and 1561* children (2-15 yrs). * This is the overall number of adults and children in the SHeS. These additional questions (see next column) were only asked to Version A households (62% of the main sample and it is unclear how many provided data for this variable). The SHeS 2016 data has been be deposited at the UK Data Archive, 2017 data not available via UKDS (checked 24th Oct 2017)	**Method:** Self-report for children age 13-15 years and parent proxy-report for children age 0-12 yrs. **Questions:** Additional questions on 'use of places for PA' were included in the 2016 child PA module of the questionnaire (they were not asked in 2015). Parents/children aged 13-15 yrs were asked how often (everyday, 4-6 days a week, 2-3days a week, once a week etc) in the past 4 weeks have you/your child made use of any of the places listed on this card for any of the physical activities you have just told me about. Places listed on the card included: A woodland, forest or tree covered park; an open space or park, a country park (not tarmac), pavement or streets in local area, your home or garden. Also asked 'how often' for each place, categiriues are every day, 4-6 days a week and so on.	The question asks about use of places for PA, which ***may*** fit the benchmark on availability (i.e. the % of children or parents who report having facilities, programs, parks and playgrounds available to them in their community), the indicator is 'Community and Environment and most of the places listed in the SHeS question *do not* say 'in your local area, community or neighbourhood except for pavements and streets and your home or garden so the question does not fit the benchmark i.e. not measuring use of places for PA in their community, thus data **not** used for grading. Also data hasn't been reported in main report or suppl tables.	2016 data not been reported in the main report or the webtables and this info was not collected in 2015. Thus would need to access data from the UKDS (but the question doesn't fit the benchmark) This data was also collected in 2017 survey and was reported in webtables, but again only two categories relate to local area (i.e. home/garden, pavements & streets in local area). Data reported for each place, but not sure what the numbers represent, think its % that have used each place (i.e. freq not reported), 73% for home & garden, 91% for pavement & streets
Survey: Growing Up in Scotland (GUS) https://growingupinscotland.org.uk/about-gus/study-design-and-methodology/	GUS is a longitudinal survey involving three nationally representative cohorts of children: child cohort, birth cohort 1 (BC1) and birth cohort 2 (BC2). Child cohort: 2008/09 was the last year of data collection, no further collection planned. **BC1:** the most recent data collection periods (i.e. from 2014 onwards) were in 2014/15 (age 10 yrs/P6),	**Method:** One of the topics is 'Neighbourhood and Community' however no questions about this topic were asked to BC1 from age 7-8 years onwards and to BC2 at age 5 years (2015/16). In BC2 at age 3 years (2013/14) data collected on: Availability and use of local facilities (but PA not specifically mentioned), Involvement in local groups/activities (again PA	Data **not** used for grading because it may not fit the benchmark (see previous column), also data would be limited to one age group - BC2 at age 3 years (2013/14), which has not been reported and will **not** be available from UKDS until the end of the year.	*NOTE: this info was taken from the GUS topic guide and study design info on website and the topic guide sent by the GUS senior researcher (i.e. the actual questionnaires have not been looked at). The GUS researcher told me data available in the UKDS*

	a short web and phone survey (web-cati) children in P7 (age 11 years) & 2017/18 (age12 ys/S1) **BC2**: the most recent data collection periods were (i.e. from 2014 onwards) were in 2013/14 (age 3 yrs) & 2015/16 (age 5 yrs)	not specifically mentioned), access to and use of green/open space (not clear if this is in local neighbourhood/community).		

Indicator 11: Government

Benchmark: a) Evidence of leadership and commitment in providing physical activity opportunities for all children and youth; b) allocated funds and resources for the implementation of physical activity promotion strategies and initiatives for all children and youth; c) Demonstrated progress through the key stages of public policy making (i.e., policy agenda, policy formation, policy implementation, policy evaluation and decisions about the future).

Major gaps for this indicator: The major problem with Scottish policy is the gap between policy development and policy implementation. We have many creditable national policies but evidence of implementation is lacking. Many of the indicators would be improved by the adoption and implementation of measures recommended in the WHO ECHO Implementation Report 2017, and by mapping Scottish policy onto that framework.

For the Scottish Active Healthy Kids Report Cards in 2013 and 2016 (see short-forms and long-forms http://www.activehealthykidsscotland.co.uk/) we graded this indicator B, largely because the benchmark for this indicator was not very specific and it was felt that Scotland has multiple relevant policies, strategies and targets. The B grade (rather than A) reflected concerns that policy implementation and evaluation had not progressed as well as policy formation. This was consistent with other high income western countries in the International Active Health Kids Report Card in 2014 (Global Matrix 1.0) and in 2016 (Global Matrix 2.0, see https://www.activehealthykids.org/). The number of relevant policies in Scotland has increased since 2016, but the benchmark has changed to place more specific emphasis on policy evaluation and implementation.

The existing Scottish policy environment includes many relevant policies/strategies/targets established prior to the 2016 report card. New policy developments seem to be the 'Sugar Tax' in 2018 and the Scottish 'Health and Social Care Delivery Plan 2016' – the latter is generic and is not specific to the indicators in the report card, but emphasises population wide-prevention and early intervention and so is consistent with the spirit of the report card and is a positive development. Implementation remains uncertain. Other new policy developments since the last report card include: Programme for Government 2017-18 (relevance here is the plan to limit marketing of obesogenic foods and drinks), Scottish Dietary Goals- revised in 2016 (e.g. reduced sugar intake target); Scotland's Physical Activity Delivery Plan in 2018, Scotland's Diet & Healthy Weight Delivery Plan in 2018; Everyday walking for a happier, healthier Scotland Strategy 2017-2020, Healthcare Retail Standard 2016-2017; Daily Mile Nation; Funding for Women and Girls in Sport, Extension of free childcare hours for young children from 2019- might increase scope for PA promotion in pre-school in future. The SHeS 2016 has a good section on policy background at the start of each chapter-main source of new policy info i.e. new policies or evidence of policy modification/evaluation/implementation since the 2016 card.

The benchmark is in three parts and we have commented on each below:

a) **Evidence of leadership and commitment to providing PA opportunities for all children & youth.** The text above/previous grades from 2013 and 2016 report cards suggest that we have achieved some success in Scotland, as there are many relevant policies/strategies/targets in place and these are generally good. The relatively high grades for PA environment in the past (e.g. high degree of perceived accessibility of spaces to be active/moderately high degree of perceived safety) suggest there has been some leadership and commitment to providing PA opportunities. On its own this would definitely be a high pass grade (A or B).
b) **Allocated funds and resources for the implementation of PA promotion strategies and initiatives for all children & youth.** The keywords here seem to be 'implementation' and 'all' . Implementation has been limited as noted in previous Scottish report cards, and the focus of implementation has not been on 'all' but on specific target groups (specifically women and girls) and specific behaviours (PE and sport, rather than physical activity more generally), with exclusion of key

behaviours from public policy (notably sedentary behaviour). One keyword missing from the benchmark is 'sufficient' – whether sufficient funds/resources have been allocated is doubtful. On its own this would be a C- grade at best.

c) **Demonstrated progress through the key stages of public policy making (i.e. policy agenda, policy formation, policy implementation, policy evaluation and decisions about the future).** As noted above and in previous Scottish report cards, physical activity has been high on the public policy agenda, and policy formation has been creditable (including the new policies since the 2016 card summarised above). Evidence of implementation and evaluation has been lacking -there is little evidence of critical process evaluation of the key policies (e.g. are they implemented effectively) and our main instruments for policy evaluation do not evaluate the key outcomes- notably population levels of MVPA among school-age children and adolescents (we have no adequate surveillance of child or adolescent MVPA in Scotland, see 'Overall PA indicator above', other than periodic HBSC surveys of 11-15y olds). Progress through the key stages of policymaking has therefore largely stalled after stage 2 of the policymaking progress (and it is too early to tell if recent policies have been implemented and evaluated well). On its own performance against this benchmark would merit a C- grade at best.

In summary, there is clear evidence of leadership and commitment to providing physical activity opportunities for children and youth (benchmark a). There is only limited allocation of funds and resources for implementation of policy (benchmark b). Only limited progress through the key stages of public policymaking (policy agenda; policy formation; policy implementation; policy evaluation; decisions about the future) has been demonstrated, with policy efforts stalling at implementation and evaluation (benchmark c). **OVERALL GRADE FOR GOVERNMENT = C**