KENT PUBLIC HEALTH OBSERVATORY

National Child Measurement Analytical Report

For 2019/20 academic year

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Produced by

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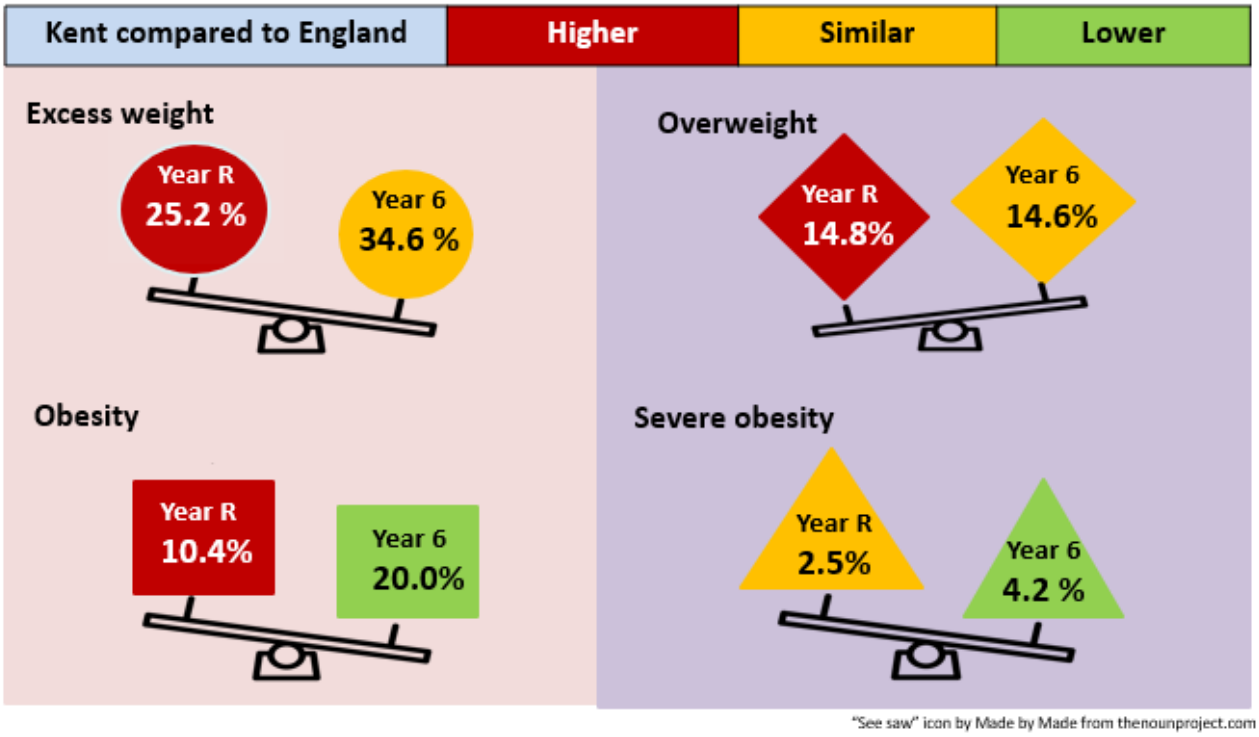
1	16/2/21	CF	Initial draft
2	26/2/21	CF	Final draft

Infographic showing the overview of obesity in Kent compared to England in Year R and Year 6



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Contents

1 Executive Summary

1.1 Introduction

The National Child Measurement Programme (NCMP) measures the height and weight of children in Year R (Reception) (those who are aged 4 to 5 years) and Year 6 (aged 10 to 11 years) to assess overweight and obesity levels in children in primary schools.

The Programme was initiated to help tackle obesity, in line with the government's strategy and to[1]:

- Inform local planning and delivery of services for children
- Gather population-level data to allow analysis of growth patterns and obesity.
- Be a vehicle for engaging with children and families about healthy lifestyles and weight issues

Defining growing children as overweight/obese and severely obese is challenging as children of different ages and sexes grow and develop at different rates. NCMP uses the Body Mass Index (BMI)[2] and this is then compared to a reference sample of measurements gathered in 1990.[3] The different categories of overweightness are based on centiles of BMI as follows (please see 'Methodology and Caveats', chapter 11, for Z scores):

- Excess weight 85th centile
- Overweight 85th – 95th centile
- Underweight 2nd centile
- Obese 95th centile
- Severe obesity 99.6th centile

The data is collected by school staff, usually in the autumn term, and then sent to NHS Digital. We receive the data for Kent and this report is focussed on the NCMP data for Kent and its districts.

[1] https://digital.nhs.uk/services/national-child-measurement-programme
[2] BMI is calculated by dividing weight (in kilograms) by the square of their height (in metres).
[3] Archives of Disease in Childhood 1995; **73**: 25-29
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1511150/pdf/archdisch00623-0033.pdf

1.2 Key Findings

The overall key finding is that in Kent, the most deprived 10-11 year olds who are in the excess weight category have a higher odds ratio of 4.0 for severe obesity compared to the least deprived 10-11 year olds. (i.e. in the excess weight group, the odds of being severely obese, compared to not severe is 4 times greater in the most deprived).

Kent and the Districts – prevalence and trend.

- When compared to England, Kent appears to do less well in Year R and better in Year 6.
- In Year R pupils across Kent in 2019/20, 14.8% and 10.4% were overweight and obese respectively. This was higher in comparison to England (13.1% and 9.9% respectively).
- Both obesity and severe obesity in Kent are on an increasing trend.
- However, in Year R, 5-year rolling averages show approximately flat lines for overweight, obesity, severe obesity and underweight, with only excess weight showing an increasing prevalence.
- In Year R, Folkestone and Hythe and Thanet both have the highest number of weight categories that demonstrate an increasing trend, in excess weight, obesity and severe obesity. Swale has an excess weight that is higher than Kent in Year R. These features signal a public health alert for these areas.
- In Year R, the prevalence of obesity is approximately 30% lower that the prevalence of those overweight. This contrasts to Y6, where the prevalence of obesity is approximately 40% greater than that of overweight.
- In Year 6 in Kent both obesity and severe obesity are lower than England. However, they are still at high levels. 20%, which equals 3275 children are obese (compared to 21% in England). 4.2% (695) of Year 6 children in Kent are severely obese; this compares to England where the level is 4.6%. In Year 6, the only category increasing at a Kent level is severe obesity.
- In Year 6, the prevalence of overweight (including obesity) in Kent is temporally stable. Compared to England, Kent has been consistently lower than the English average from 2015/16 until the latest year when it is more similar.
- The 5-year rolling averages show approximately flat lines in Year 6 for excess weight, overweight, obesity and severe obesity.
- In Year 6, Gravesham is an area of concern, with all four weight categories being above Kent in 2019/20, as well as exhibiting increasing trends for all weight categories (except overweight, which needs to be interpreted with caution).

Key Findings in Inequalities

Inequalities in Deprivation

- In both Year R and Year 6 the inequality gap for excess weight is widening with the least deprived being less overweight than the most deprived.
- For obesity, the gap between the most and least deprived deciles is greater in Year 6 (6.1%) than in Year R (1.7%).
- For severe obesity, in Year R in 2019/20 there is a 1.7% inequality prevalence gap and in Year 6 in 2019/20 it is 5.1%. This means that the deprivation inequality of severe obesity worsens during primary school years.
- In obesity, in Year R the proportions of children in the excess weight category who have become obese are remarkably stable but in Year 6 a divergence in the two deciles can be seen. The least deprived are becoming proportionally less obese and the most deprived are becoming proportionally more obese.
- The odds of being severely obese in Year 6 in 2019/20 if you're in the most deprived decile compared to the least is 4.0. This has more than doubled from 1.9 in 2010/11.
- In both Year R and Year 6, males have a higher prevalence excess weight when compared with females. The gap between them is higher in Year 6 (3.6%) than Year R (1.8%), which is suggestive of increased weight progression.

Inequalities by Sex

- Males have a higher prevalence of severe obesity in both Year R and Year 6. In Year R the gap appears to be decreasing slightly in the latest year to 0.5%. In Year 6 the gap is the highest out of all the previous data points and is now 1.8%.
- Males in Year 6 who have excess weight are also more likely to have a higher obesity profile when compared with the female cohort. The proportion of Year 6 males who have excess weight who are also obese is very high at 59.9%. The females are consistently lower but still a high proportion at 55.2%

Inequalities by Ethnicity

Please note caution when using BMIs in children to compare ethnic groups. There has been some work undertaken by PHE suggesting that BMI might not the best measurement for some ethnicities. Studies have shown that if height is controlled, children from Black backgrounds are more likely to be measured as 'obese' and Asian children are possibly more likely to be underestimated in their body fat. This is due, to some extent, to the physical characteristics related to ethnicity, in particular height, and not related to having increased body fat.[4] At the current time, there is no modifying formula that has been agreed to measure the differences in ethnic group, therefore the NCMP measurements as presented are correct but may, in the future be subject to changes for some ethnic groups, once more research is carried out by PHE and similar.

[4] (https://www.gov.uk/government/publications/differences-in-child-obesity-by-ethnic-group/differences-in-child-obesity-by-ethnic-group#fn:3)

- Black children in Year 6 with obesity rises to 31.5%, 26.5% for Asian children and 19.1% for White children. The obesity gap between Black and White children (12.4%) *may* signal a key public health challenge.
- In severe obesity, Black children in Year R and Year 6 continue to have the highest prevalence with a concerning high of 10.1% in Year 6 this year. That compares to 5.7% for Asian children and 3.9% for White children. This gives a prevalence gap of 6.2%
- Once in the excess weight category, in Year R, children of Asian ethnicity have the highest proportion of obesity, followed by Black and then White children.
- Black children in both Year R and Year 6 have the highest proportion of being severely obese once already having excess weight. Black children are more likely to be severely obese than obese, compared to Asian and White children. Studies have shown however, that BMI is less potentially less accurate in some ethnicities due to biological differences in height. This is found to particularly affect Black children and is being further investigated by Public Health England[5].
- The odds ratios show a marked difference between ethnicities in childhood obesity. Black children have an odds ratio of 2.03 of being obese once already having excess weight, in 2019/20 and Asian of 1.23, compared to White children.

Further findings

- It would appear there are very specific 'hotspots' or areas of geographical concern. See the map in chapter 3.4: 'Geographical representation of the district prevalence of excess weight, obesity and severe obesity in Year R and Year 6'.
- This clearly shows that the areas that need additional focus are Gravesham, Dartford, Swale and Thanet.
- Areas doing better on average are Tunbridge Wells, Tonbridge and Malling, Canterbury and Sevenoaks.
- In a few areas in Year 6, illustrated by Folkestone and Hythe there is evidence that a 'decreasing or stable' trend in overweight needs to be interpreted with caution. This is because in some areas, a reducing or stable overweight trend is accompanied by an increasing trend in obesity or severe obesity. Our hypothesis is that the children in the decreasing category could be moving into the obesity and severe obesity categories making the decreasing overweight category a confounder. Additional analysis to test this (See 6.10.2. Folkestone and Hythe: Year 6) supported our hypothesis in several districts.
- A point of interest is to see what is happening to children's weight as they progress through primary school. In general, NCMP provides a snap annual view showing children in each different year rather than by cohorts of children that move through school (Chapter 7, 'Longitudinal school cohorts 2010/11 - 2016/17 to 2013/14 –

[5] (https://www.gov.uk/government/publications/differences-in-child-obesity-by-ethnic-group/differences-in-child-obesity-by-ethnic-group#fn:3)

2019/20 for excess weight and obesity – what do they tell us?'). Assumptions were made that the majority of children from Year R through to Year 6 are the same cohort of children. The analysis has shown that children in the current cohort Year 6 who started Year R in 2013/14 have a 13.8% increase in excess weight and an 11.75% increase in obesity compared to the earliest cohort (2010/11 – 2016/17 where it was 9.79% and 9.53% respectively. This suggests the problem of obesity of worsens through the primary school years and that successive cohorts are having higher increases through school.

2 Findings for Kent Reception Year

2.1 Comparison of Kent to England and the South East, including trend.

Across Kent in 2019/20, **14.8%** and **10.4%** of reception year pupils were overweight and obese respectively (Table 1). This was **higher** in comparison to England (13.1% and 9.9% respectively). In 2019/20 1 in 4 reception year children were measured as having excess weight (25.2%). 2.5% of reception year pupils were severely obese, this was similar in comparison to England.

Both excess weight and overweight trends are stable, however obesity and severe obesity show increasing trends. The levels of overweight, obesity, severe obesity and excess weight are now **higher** than levels recorded in 2010/11.

Table 1. Comparison of Kent to England and the South East, including trend

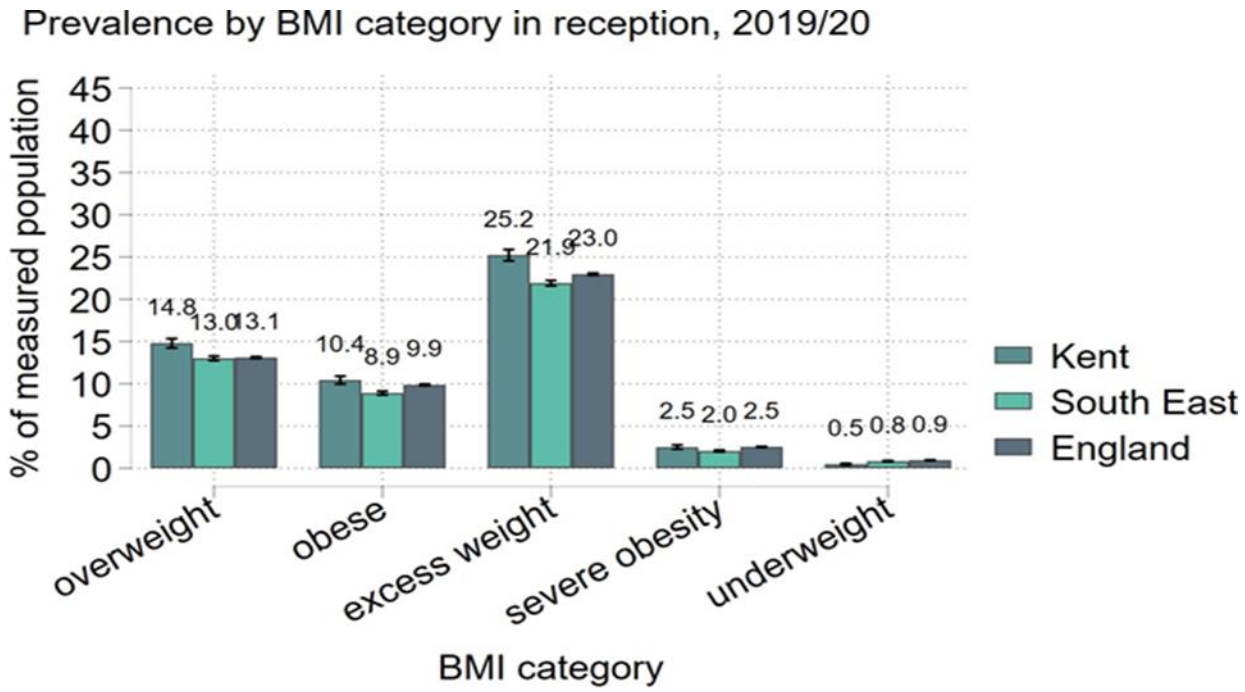
	Kent*	England	Kent trend	South East
Excess weight	25.2	23.0	Stable	21.9
Overweight	14.8	13.1	Stable	13.0
Obesity	10.4	9.9	Increasing	8.9
Severe obesity	2.5	2.5	Increasing	2.0

*colour coding shows comparison with England

2.2 Comparison of Kent to England and the South East for reception children in 2019/20

In 2019/20 the prevalence of overweight, obesity and excess weight was higher in Kent than in England (Figure 1). The prevalence of severe obesity is level with England.

Figure 1. Prevalence by BMI category in reception, 2019/20

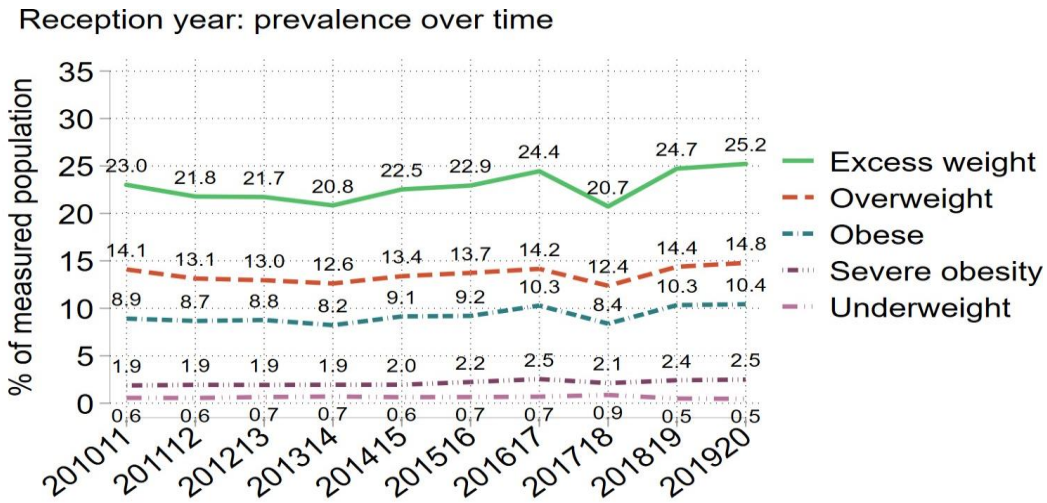


Source: NHS Digital, produced by KPHO (SR) Dec 20

2.3 This chart shows the trend in the prevalence of overweight, obesity, excess weight, severe obesity and underweight amongst reception year pupils resident in Kent.

As seen in Figure 2 below, the overall trend has increased for severe obesity from 1.9% in 2010/11 to 2.5% in 2019/20 and has increased for obesity from 8.9% to 10.4%. Obesity, excess weight and severe obesity are all now higher than levels recorded in 2010/11.

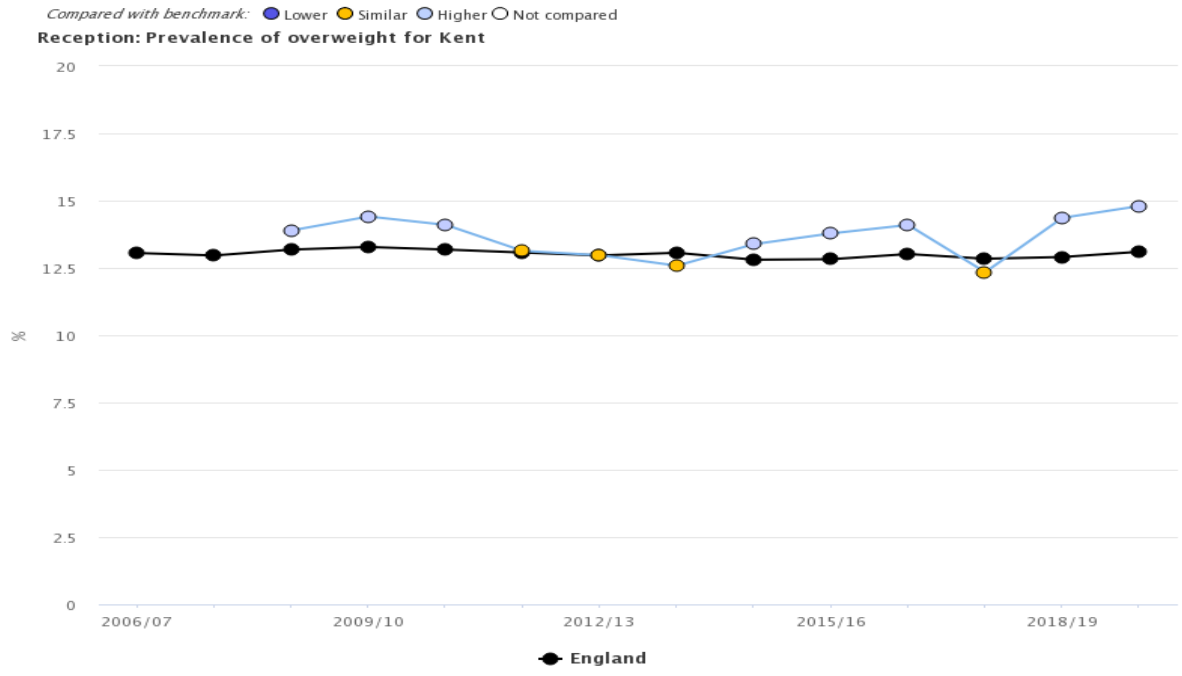
Figure 2. Reception year: prevalence over time



Source: NHS Digital, produced by KPHO (SR) Dec 20

Kent is higher than England in 2018/19 and 2019/20 for overweight children in Year R (Figure 3). The Kent trend however is stable for overweight prevalence in Year R.

Figure 3. Reception: Prevalence of overweight for Kent



There is a higher proportion of children in Year R with obesity (including severe obesity) in 2018/19 and 2019/20 (Figure 4). The trend is increasing.

Figure 4. Reception: Prevalence of obesity (including severe obesity) for Kent

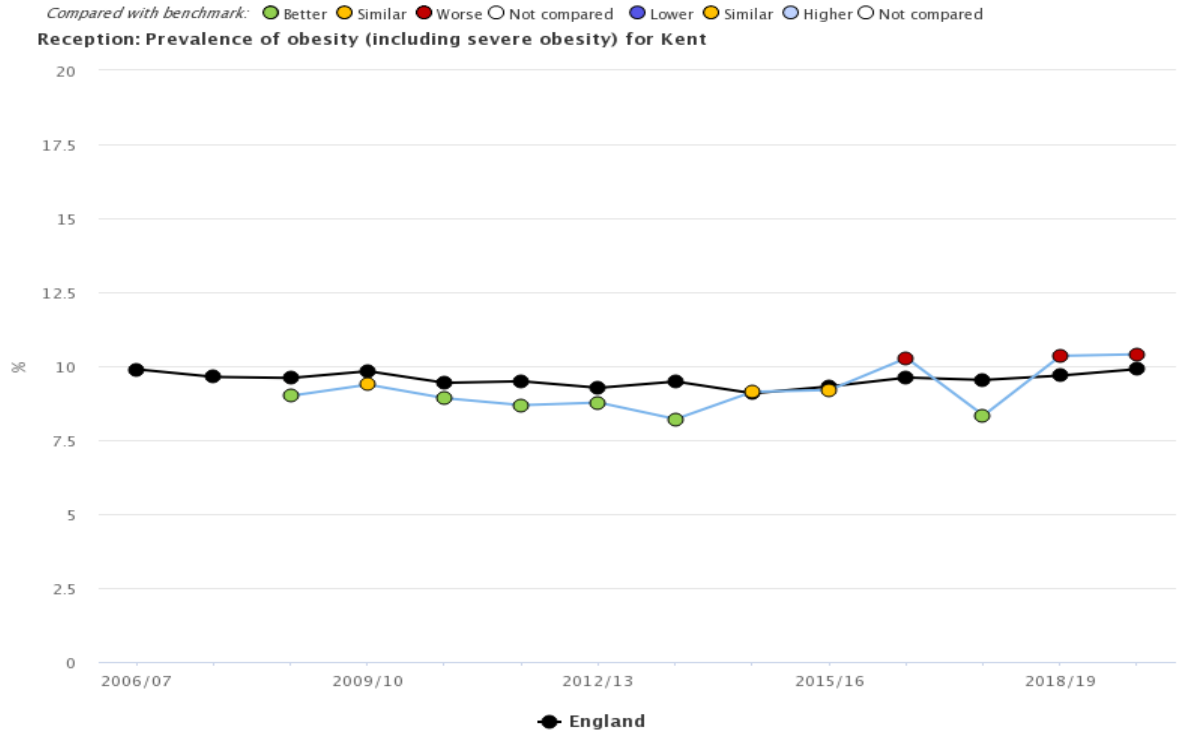


Figure 5. Reception: Prevalence (%) of severe obesity for Kent

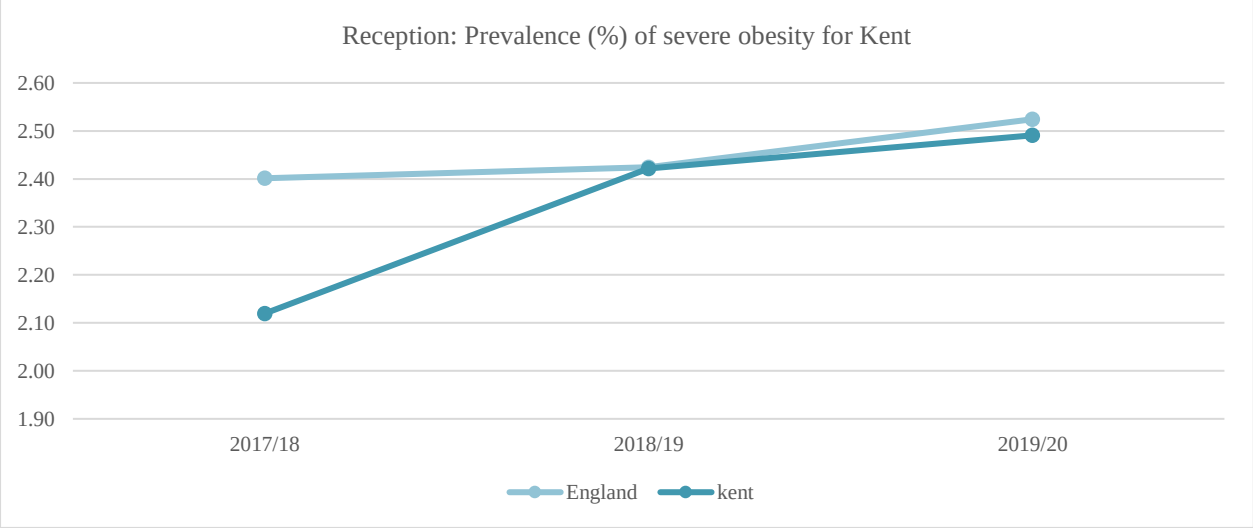
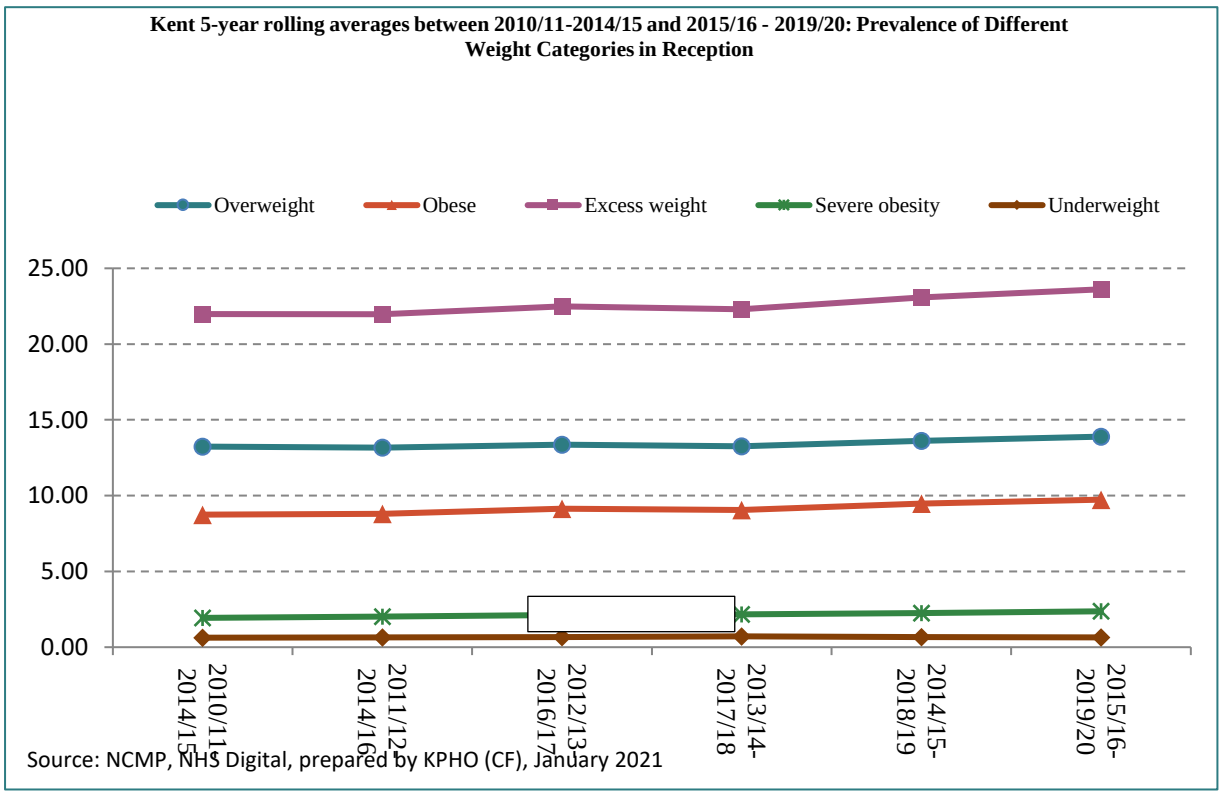


Figure 6. Kent 5-year rolling averages between 2010/11-2014/15 and 2015/16 – 2019/20: Prevalence of different weight categories in Reception.



The Kent 5-year rolling averages (between 2010/11-2014/15 and 2015/16- 2019/20) are remarkably flat apart from excess weight which shows an increasing prevalence (Figure 6). By looking at the prevalence of weight categories in 5-year rolling averages it helps to see trends more easily as it evens out year-on-year variations.

3 Findings for Kent Year 6

3.1 Comparison of Kent to England and the South East, including trend.

34.6% of Year 6 children in Kent in 2019/20 had excess weight (Table 2). The number of children affected is 5,675. **14.6%** and **20.0%** of Year 6 pupils were overweight and obese respectively. Levels of overweight and obesity were **similar** and **lower** in comparison to England (14.1% and 21.0% respectively). The level of severe obesity (4.2%) was **lower** in comparison to Kent.

Whilst overall trends are **stable** for excess weight, overweight and obesity, the trend is **increasing** for severe obesity. Obesity, excess weight and severe obesity are now **higher** than levels recorded in 2010/11.

Table 2. Comparison of Kent to England and the South East, including trend

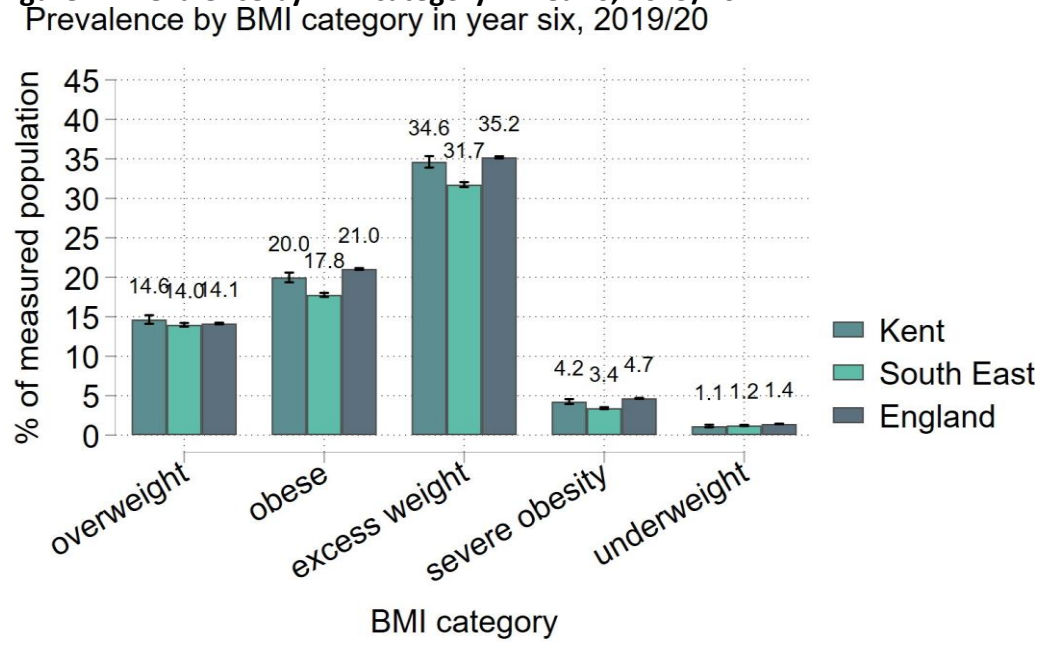
	Kent*	England	Kent trend	South East
Excess weight	34.6	35.2	Stable	31.7
Overweight	14.6	14.1	Stable	14.0
Obesity	20.0	21.0	Stable	17.8
Severe obesity	4.2	4.7	Increasing	3.4

*colour coding shows comparison with England

3.2 Comparison of Kent to England and the South East for Year 6 children in 2019/20.

In 2019/20, within Year 6 the prevalence of overweight, obesity, excess weight, severe obesity and underweight in comparison to the South East and England were measured as follows (Figure 7):

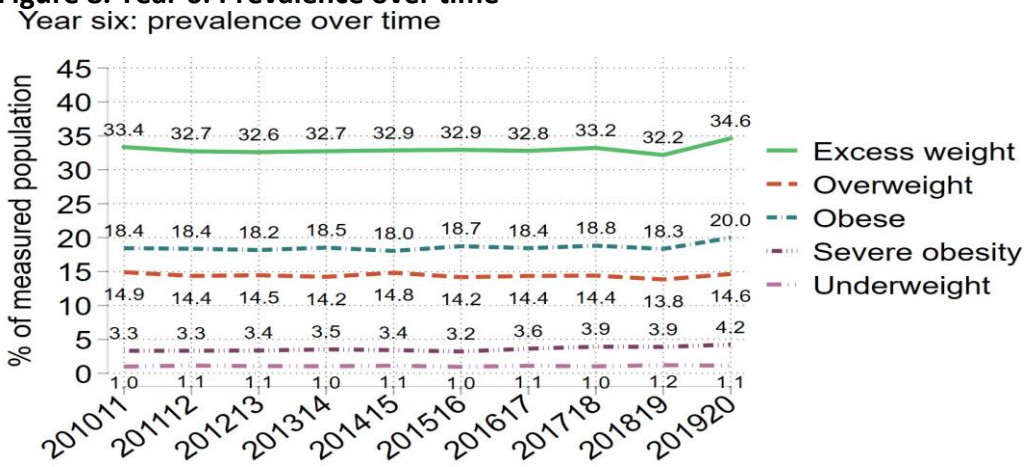
Figure 7. Prevalence by BMI category in Year 6, 2019/20



Source: NHS Digital, produced by KPHO (SR) Dec 20

3.3 This chart shows the trend in the prevalence of overweight, obesity, excess weight, severe obesity and underweight amongst year 6 pupils resident in Kent.

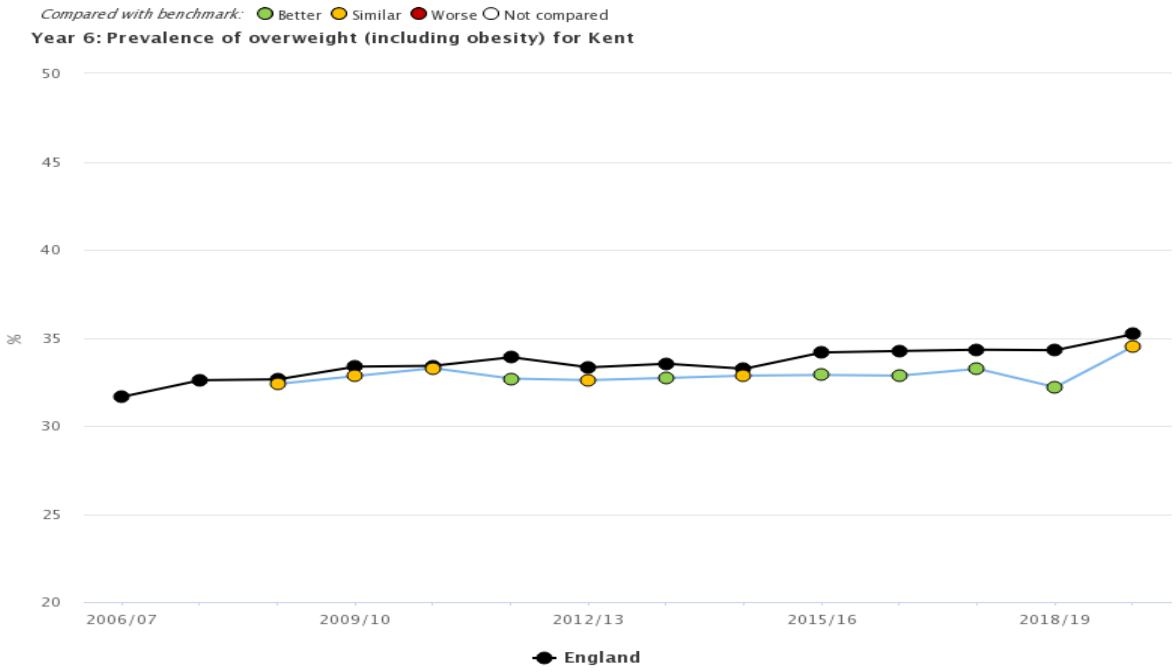
Figure 8. Year 6: Prevalence over time



Source: NHS Digital, produced by KPHO (SR) Dec 20

In Year 6 prevalence of overweight (including obesity) in Kent is of stable trend for the last five data points (Figure 9). In addition, compared to England, Kent has been consistently lower than the English average from 2015/16 until the latest year when it is more similar.

Figure 9. Prevalence of overweight (including obesity) for Kent



The levels for obesity in Kent for Year 6 pupils is lower than England for the last 6 data points and the trend is stable (Figure 10).

Figure 10. Year 6: Prevalence of obesity (including severe obesity) for Kent

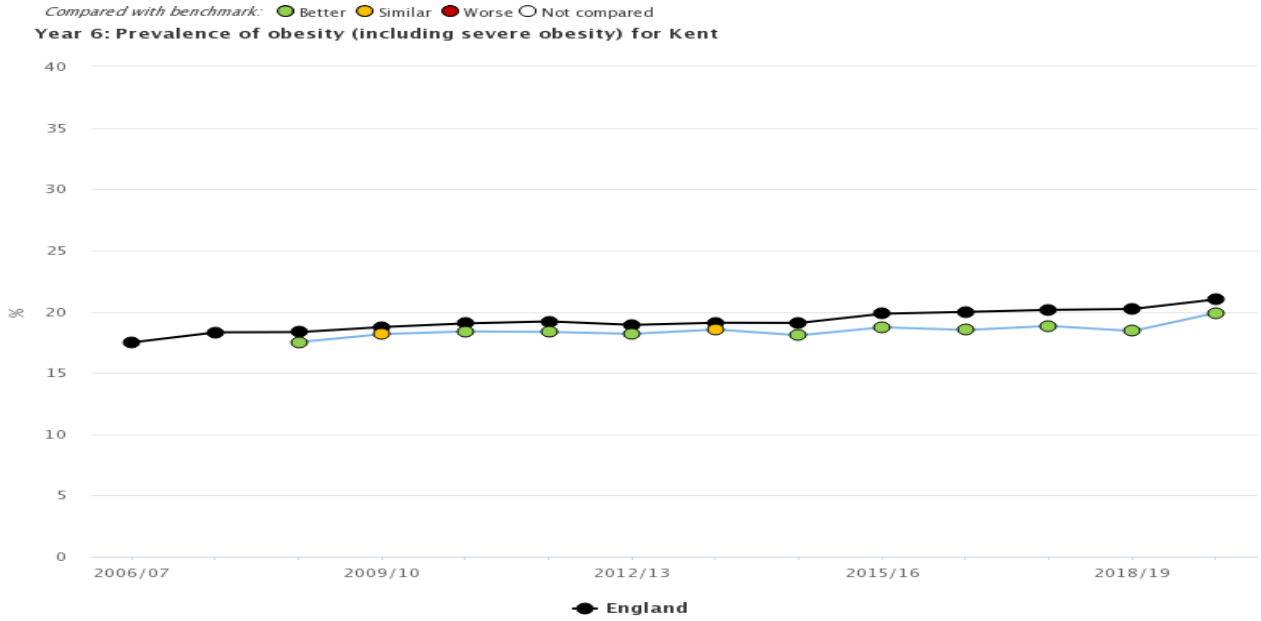
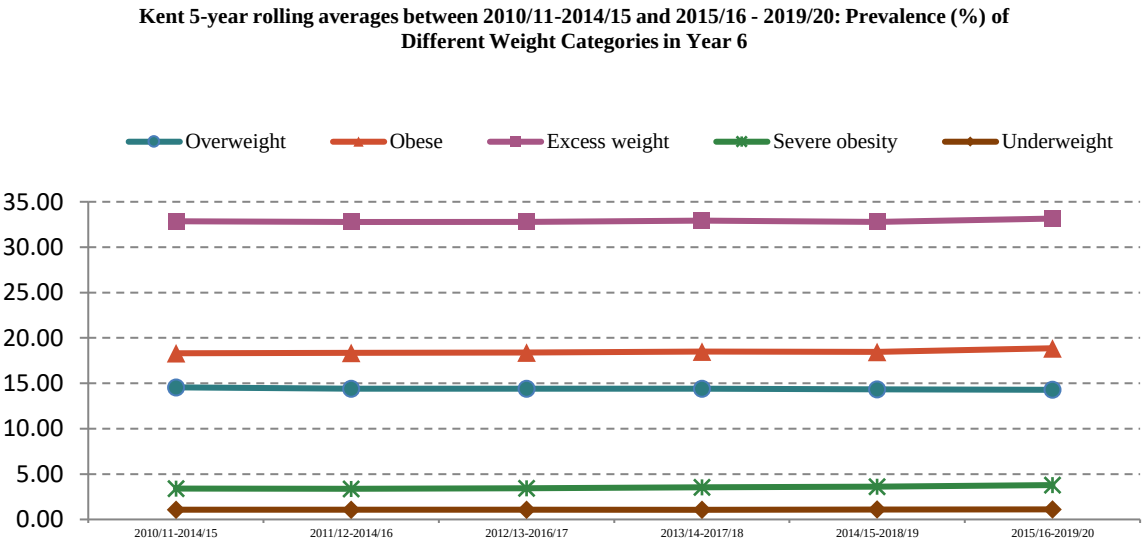


Figure 11. Kent 5-year rolling averages between 2010/11-2014/15 and 2015/16 – 2019/20: Prevalence (%) of different weight categories in Year 6

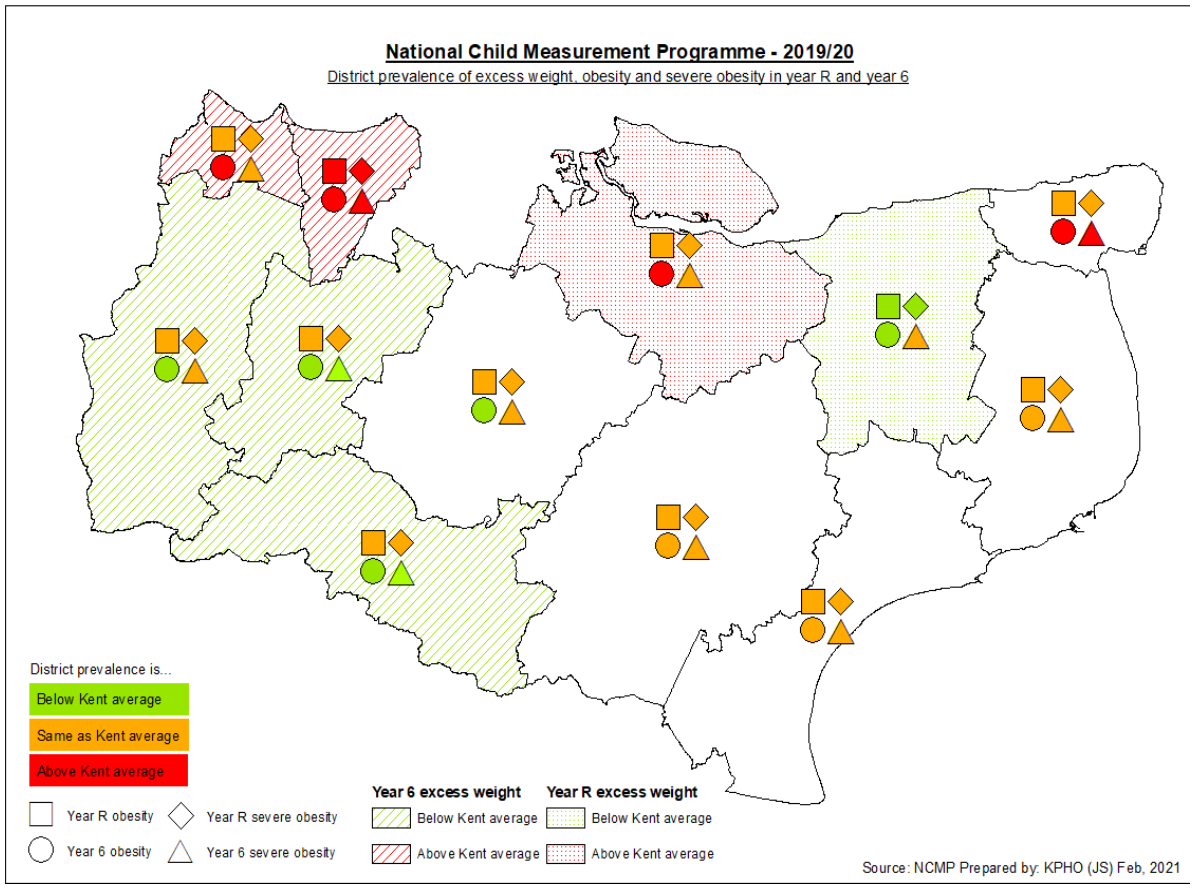


Source: NCMP, NHS Digital, prepared by KPHO (CF), January, 2021

The Kent 5-year rolling averages (between 2010/11-2014/15 and 2015/16- 2019/20) are remarkably flat across all weight categories (Figure 11). By looking at the prevalence of weight categories in 5-year rolling averages it helps to see trends more easily as it evens out year-on-year variations.

3.4 Geographical representation of the district prevalence of excess weight, obesity and severe obesity in Year R and Year 6.

Figure 12. District prevalence of excess weight, obesity and severe obesity in Year R and Year 6



The map (Figure 12) shows the geography of Year R and Year 6 obesity and severe obesity compared to Kent. The shading shows the districts in Kent and have below and above Kent average Year R and Year 6 excess weight. This demonstrates that child obesity is geographically related.

There are areas of concern 'hotspots' in Gravesham, Dartford, Swale and Thanet. There are areas that are doing comparatively well – Tunbridge Well, Tonbridge and Malling, Sevenoaks and Canterbury. The next chapters will focus on the districts in more detail.

4 Findings for Kent districts: Year R

4.1 Table showing the comparisons of districts within Kent to Kent for Year R in 2019/20.

Most districts showed similar prevalence in the weight categories to Kent. There were higher rates of excess weight in Swale, of overweight in Dover, of obese and severe obesity in Gravesham (Table 3).

Table 3. Findings for Kent Districts: Year R

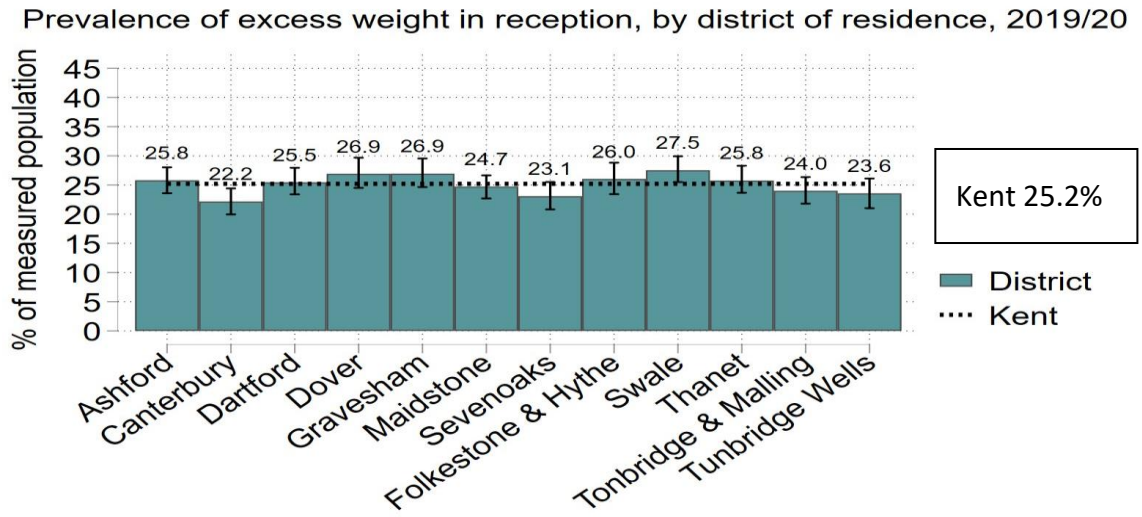
	Excess weight	Overweight	Obese	Severe obesity
Ashford	25.8*	15.1	10.7	2.7
Canterbury	22.1	13.5	8.6	1.5
Dartford	25.5	14.9	10.6	2.5
Dover	26.9	17.2	9.7	2.2
Gravesham	26.9	14.3	13.1	3.6
Maidstone	24.7	14.0	10.7	2.7
Sevenoaks	23.1	14.2	8.9	1.6
Folkestone & Hythe	26.0	13.8	12.3	2.5
Swale	27.5	16.3	11.2	2.9
Thanet	25.8	15.2	10.5	2.5
Tonbridge & Malling	24.0	14.4	9.6	1.8
Tunbridge Wells	23.6	14.1	9.4	2.4
Kent	25.2	14.8	10.4	2.5

*Colour coding shows comparison with Kent.

4.2 Charts showing the prevalence of excess weight, overweight, obesity and severe obesity in Year R children by district of residence in 2019/20.

In 2019/20, for the majority of Kent Districts, the prevalence of excess weight was similar to Kent (25.2%) (Figure 13). The district with the highest prevalence is Swale (27.5%) and the lowest is Canterbury (22.2%)

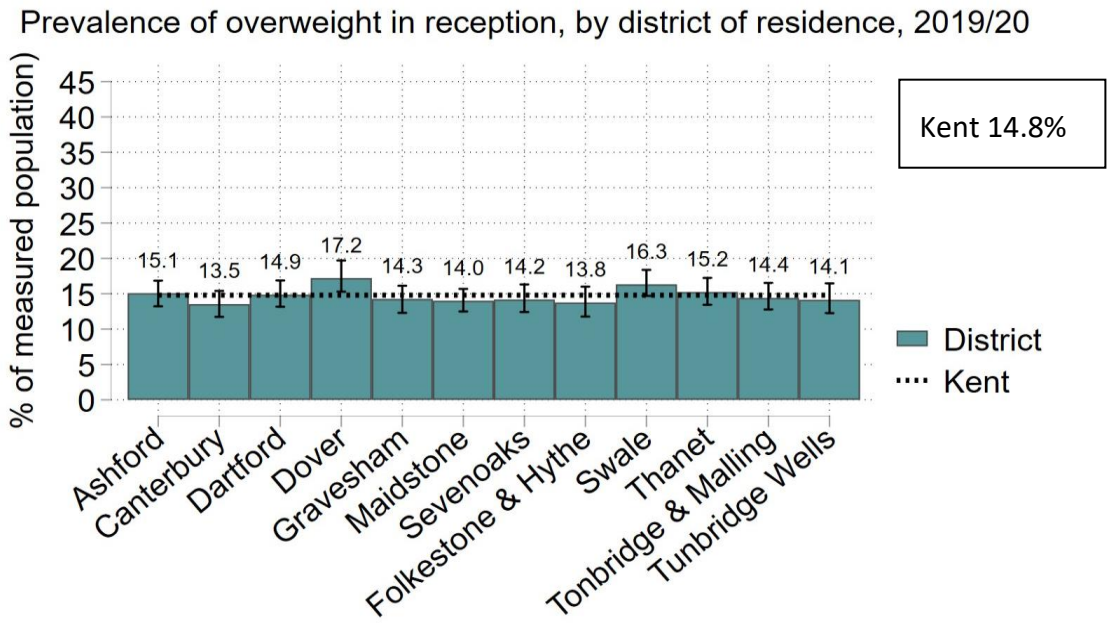
Figure 13. Prevalence of excess weight in reception, by district of residence, 2019/20



Source: NHS Digital, produced by KPHO (SR) Jan 21

Most districts have similar or lower prevalence of overweight in Year R compared to Kent (Figure 14). Dover however is the highest at 17.2% and is higher than Kent, at 14.8%. Swale is also higher than Kent at 16.3%. Thanet, Ashford and Dartford are all slightly higher than Kent on 15.2%, 15.1% and 14.9%.

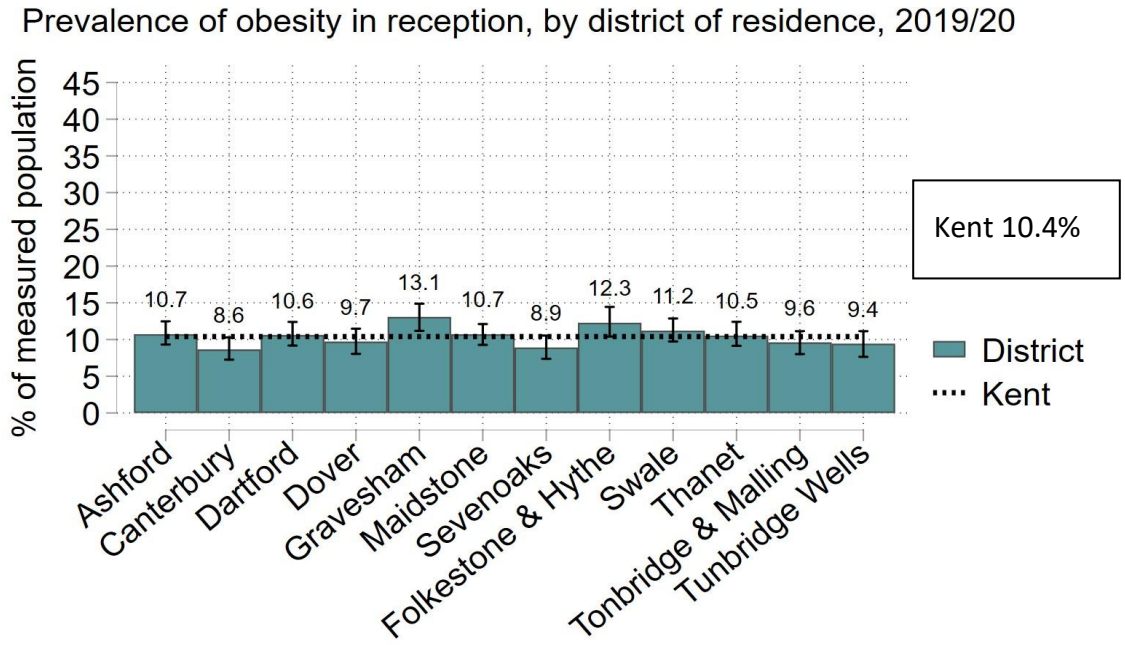
Figure 14. Prevalence of overweight in reception, by district of residence, 2019/20



Source: NHS Digital, produced by KPHO (SR) Jan 21

Approximately half of the districts have a higher prevalence of obesity in Year R than Kent (10.4%) (Figure 15). The district with the highest prevalence is Gravesham (13.1%), followed by Folkestone and Hythe (12.3%), with the lowest prevalence being in Canterbury (8.6%) and Sevenoaks (8.9%).

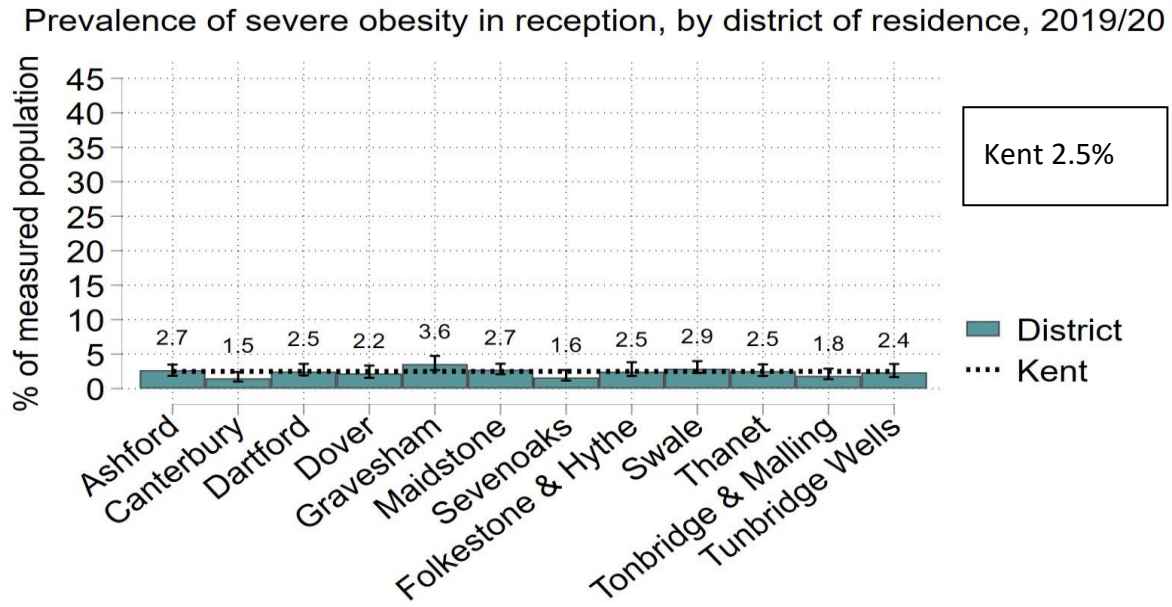
Figure 15. Prevalence of obesity in reception, by district of residence, 2019/20



Source: NHS Digital, produced by KPHO (SR) Jan 21

Some districts have a higher prevalence of severe obesity when compared to Kent (2.5%) (Figure 16). Gravesham has the highest at 3.6%, followed by Swale at 2.9% and Ashford at 2.7%. There are 5 districts with lower than Kent prevalence, these are; Tunbridge Wells (2.4%), Dover (2.2%), Tonbridge and Malling (1.8%), Sevenoaks (1.6%) and Canterbury with the overall lowest prevalence of severe obesity at 1.5%.

Figure 16. Prevalence of severe obesity in reception, by district of residence, 2019/20



Source: NHS Digital, produced by KPHO (SR) Jan 21

5 Findings for Kent Districts: Year 6

5.1 Table showing the comparisons of districts within Kent to Kent for Year 6 in 2019/20

Table 4. Findings for Kent Districts: Year 6

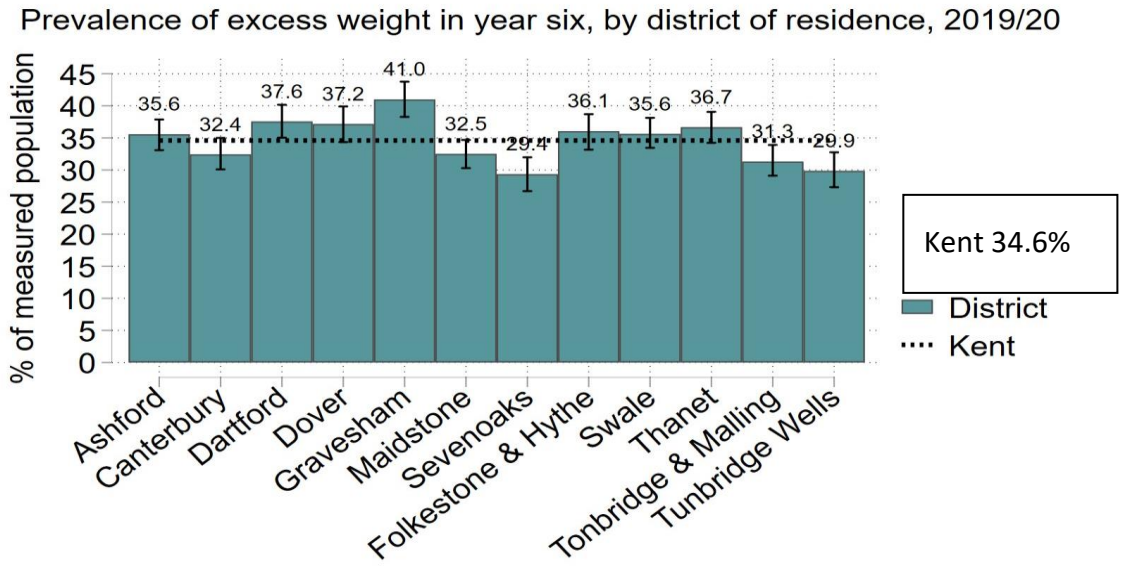
	Excess weight	Overweight	Obese	Severe obesity
Ashford	35.6*	13.4	21.9	4.6
Canterbury	32.4	15.0	17.5	3.6
Dartford	37.6	15.0	22.6	4.4
Dover	37.2	16.4	20.7	3.9
Gravesham	41.0	16.6	24.4	6.9
Maidstone	32.5	15.0	17.5	3.5
Sevenoaks	29.4	13.1	16.2	3.5
Folkestone & Hythe	36.1	13.9	21.7	5.2
Swale	35.6	13.3	22.3	4.3
Thanet	36.7	13.4	23.2	6.2
Tonbridge & Malling	31.3	15.7	15.7	2.8
Tunbridge Wells	29.9	15.2	14.7	2.3
Kent	34.6	14.6	20.0	4.2

*Colour coding shows comparison with Kent.

5.2 Charts showing the prevalence of excess weight, overweight, obesity, and severe obesity in Year 6 children by district of residence in 2019/20.

The prevalence of excess weight in Kent in 2019/20 was 34.6% (Figure 16). There were seven districts with a higher prevalence, with Gravesham having the highest at 41%, followed by Dartford (37.6%) and Thanet (36.7%). The lowest prevalence was in Sevenoaks with 29.4%.

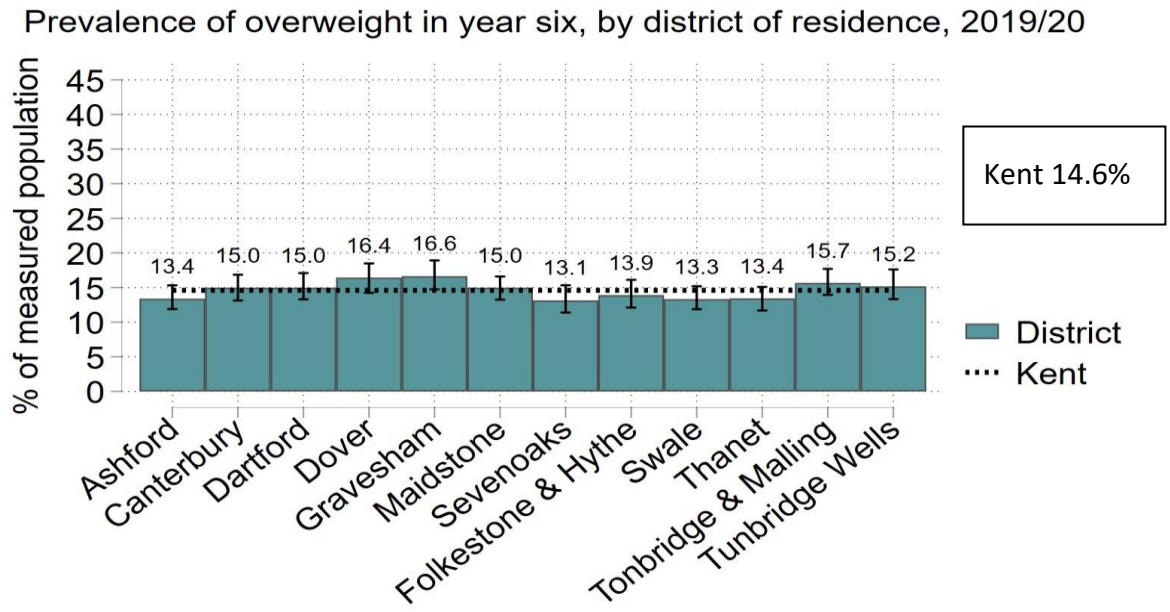
Figure 16. Prevalence of excess weight in Year 6, by district of residence, 2019/20



Source: NHS Digital, produced by KPHO (SR) Jan 21

Gravesham had the highest prevalence of overweight children in Year 6 in 2019/20 at 16.6% (Figure 17). There are seven districts with a higher prevalence than Kent (14.6%).

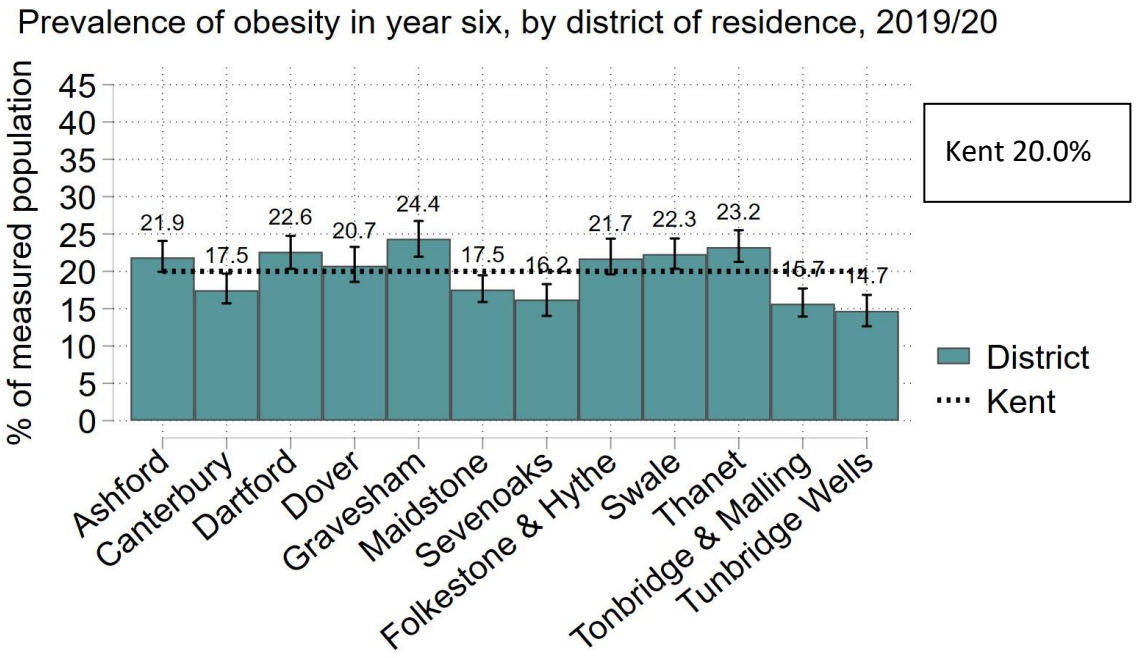
Figure 17. Prevalence of overweight in Year 6, by district of residence, 2019/20



Source: NHS Digital, produced by KPHO (SR) Jan 21

Gravesham had the highest prevalence of obesity in Year 6 at 24.4% (Figure 18). This is higher than Kent at 20%. The next highest is Thanet at 23.2%.

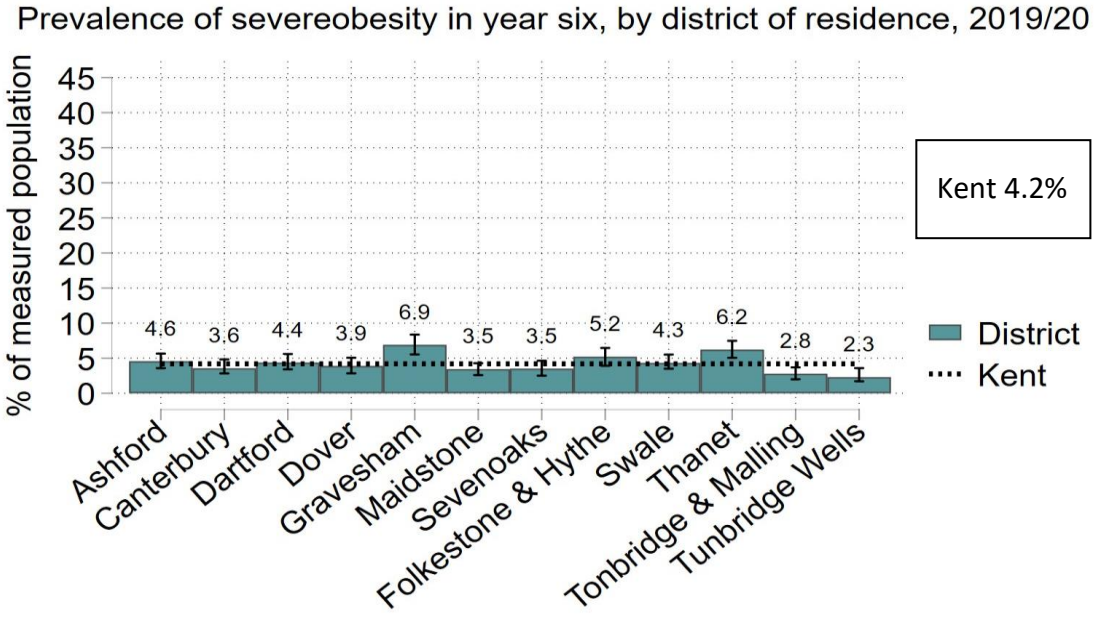
Figure 18. Prevalence of obesity in Year 6, district of residence, 2019/20



Source: NHS Digital, produced by KPHO (SR) Jan 21

Gravesham has the highest prevalence of severe obesity in Kent (Year 6) in 2019/20 at 6.9% (Figure 19). This is compared to Kent at 4.2%. Thanet is the next highest at 6.2% with the lowest districts for severe obesity being Tonbridge and Malling (2.8%) and Tunbridge Wells (2.3%).

Figure 19. Prevalence of severe obesity in Year 6, by district of residence, 2019/20



Source: NHS Digital, produced by KPHO (SR) Jan 21

6 Findings for Kent Districts: Year R and Year 6 Trends

6.1 Four tables to show how the Year R children in the districts compared to Kent over time (between 2010/11 to 2019/20)

Table 5. Excess Weight Trends

	Trend
Ashford	Stable
Canterbury	Stable
Dartford	Stable
Dover	Increasing
Gravesham	Stable
Maidstone	Stable
Sevenoaks	Stable
Folkestone & Hythe	Increasing
Swale	Increasing
Thanet	Increasing
Tonbridge & Malling	Stable
Tunbridge Wells	Stable

Table 6. Overweight Trends

	Trend
Ashford	Stable
Canterbury	Stable
Dartford	Stable
Dover	Increasing
Gravesham	Stable
Maidstone	Stable
Sevenoaks	Stable
Folkestone & Hythe	Stable
Swale	Stable
Thanet	Stable
Tonbridge & Malling	Stable
Tunbridge Wells	Stable

Table 7. Obesity Trends

	Trend
Ashford	Stable
Canterbury	Stable
Dartford	Increasing
Dover	Stable
Gravesham	Stable
Maidstone	Stable
Sevenoaks	Stable
Folkestone & Hythe	Increasing
Swale	Stable
Thanet	Increasing
Tonbridge & Malling	Stable
Tunbridge Wells	Stable

Table 8. Severe Obesity Trends

	Trend
Ashford	Stable
Canterbury	Stable
Dartford	Stable
Dover	Stable
Gravesham	Stable
Maidstone	Stable
Sevenoaks	Stable
Folkestone & Hythe	Increasing
Swale	Stable
Thanet	Increasing
Tonbridge & Malling	Stable
Tunbridge Wells	Increasing

6.2 Four tables to show how the Year 6 children in the districts compared to Kent over time (between 2010/11 to 2019/20).

Table 9. Excess Weight Trends

	Trend
Ashford	Stable
Canterbury	Stable
Dartford	Stable
Dover	Stable
Gravesham	Increasing
Maidstone	Stable
Sevenoaks	Stable
Folkestone & Hythe	Stable
Swale	Increasing
Thanet	Stable
Tonbridge & Malling	Stable
Tunbridge Wells	Stable

Table 10. Overweight Trends

	Trend
Ashford	Decreasing
Canterbury	Stable
Dartford	Stable
Dover	Stable
Gravesham	Stable
Maidstone	Increasing
Sevenoaks	Stable
Folkestone & Hythe	Decreasing
Swale	Stable
Thanet	Stable
Tonbridge & Malling	Stable
Tunbridge Wells	Stable

Table 11. Obesity Trends

	Trend
Ashford	Stable
Canterbury	Increasing
Dartford	Stable
Dover	Stable
Gravesham	Increasing
Maidstone	Stable
Sevenoaks	Stable
Folkestone & Hythe	Increasing
Swale	Increasing
Thanet	Stable
Tonbridge & Malling	Stable
Tunbridge Wells	Stable

Table 12. Severe Obesity

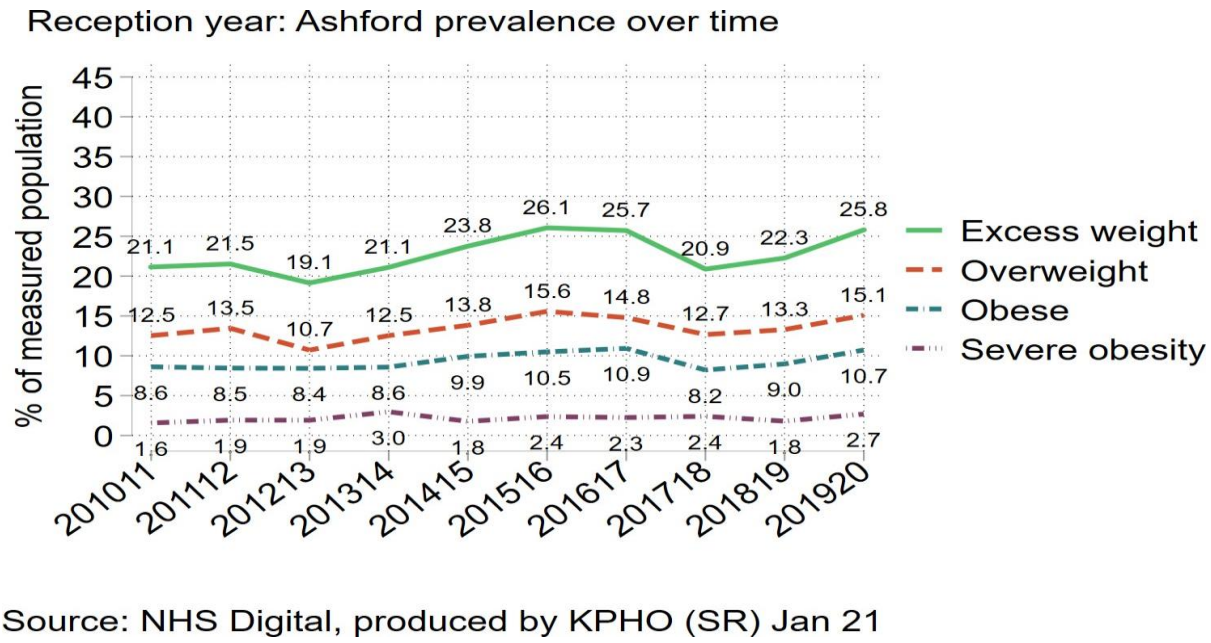
	Trend
Ashford	Stable
Canterbury	Increasing
Dartford	Stable
Dover	Stable
Gravesham	Increasing
Maidstone	Stable
Sevenoaks	Stable
Folkestone & Hythe	Increasing
Swale	Stable
Thanet	Stable
Tonbridge & Malling	Stable
Tunbridge Wells	Stable

6.3 Ashford

Ashford has a stable trend in all weight categories in Year R. For Year 6 however, whilst excess weight, obesity and severe obesity have a stable trend, the overweight category is decreasing, although aspect of the trend needs to be treated with caution (see 6.3.2 Year 6).

6.3.1 Year R

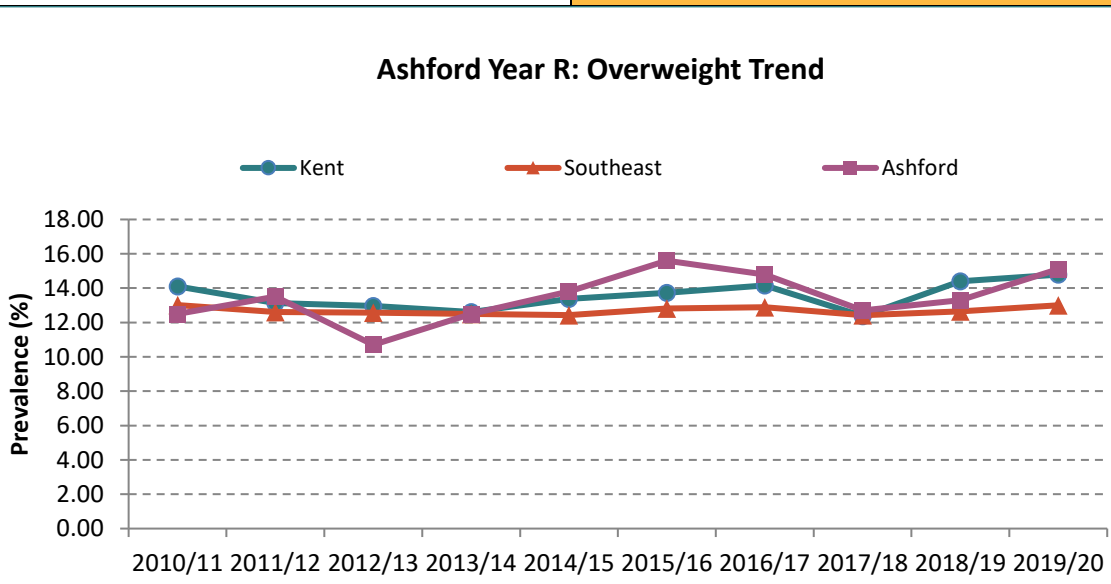
Figure 20. Reception year: Ashford prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 21. Ashford Year R: Overweight trend

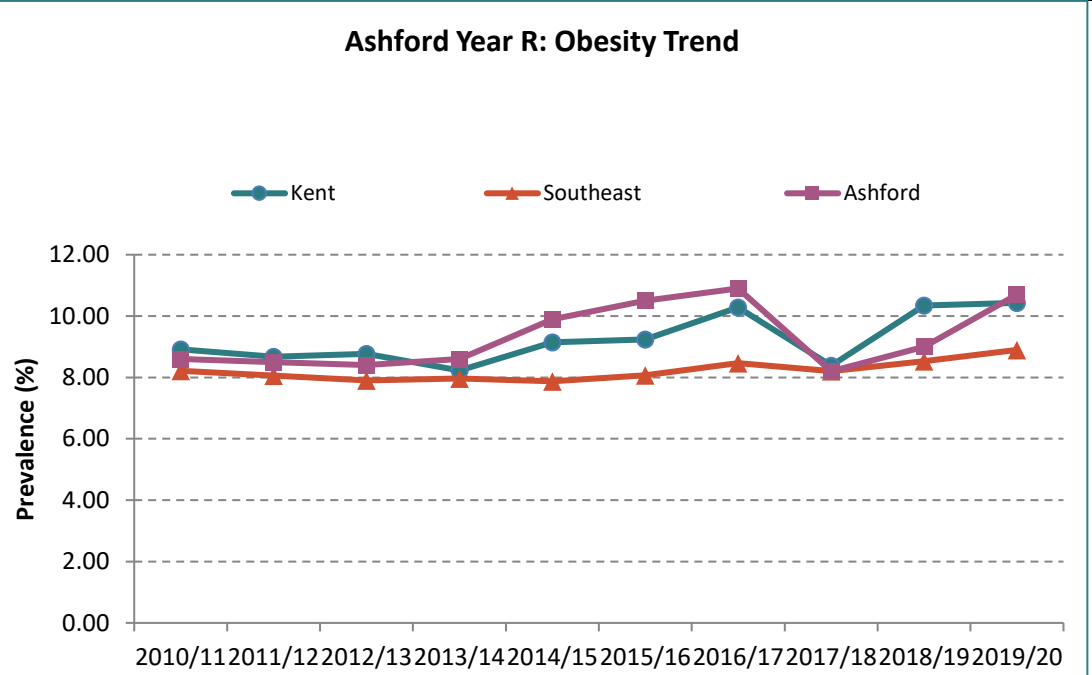
Ashford	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 22. Ashford Year R: Obesity trend

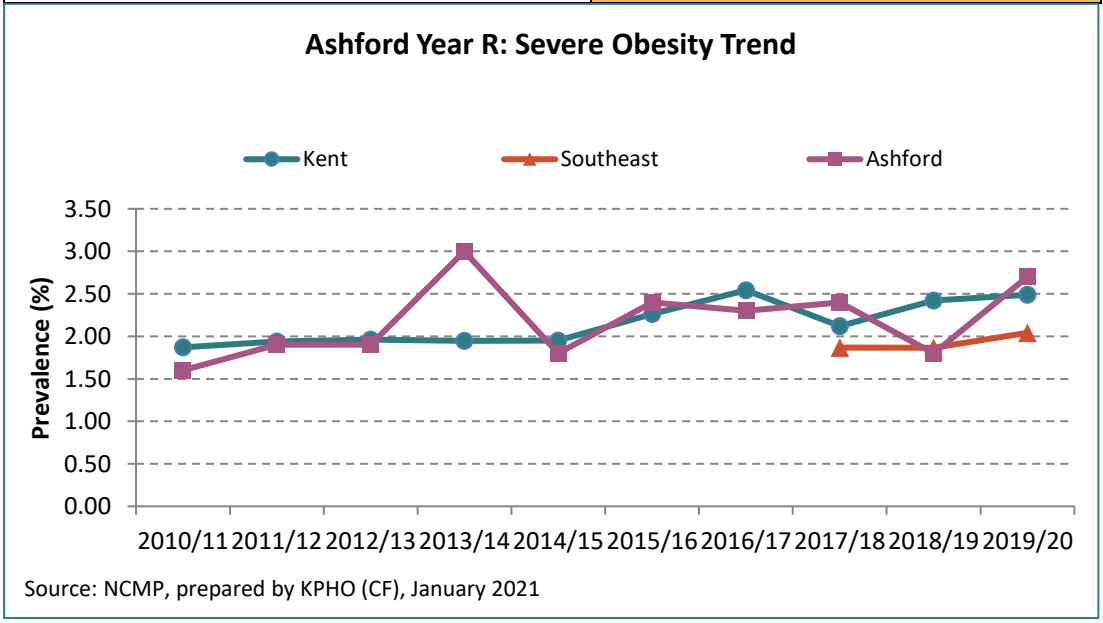
Ashford	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 23. Ashford Year R: Severe obesity trend

Ashford	Stable

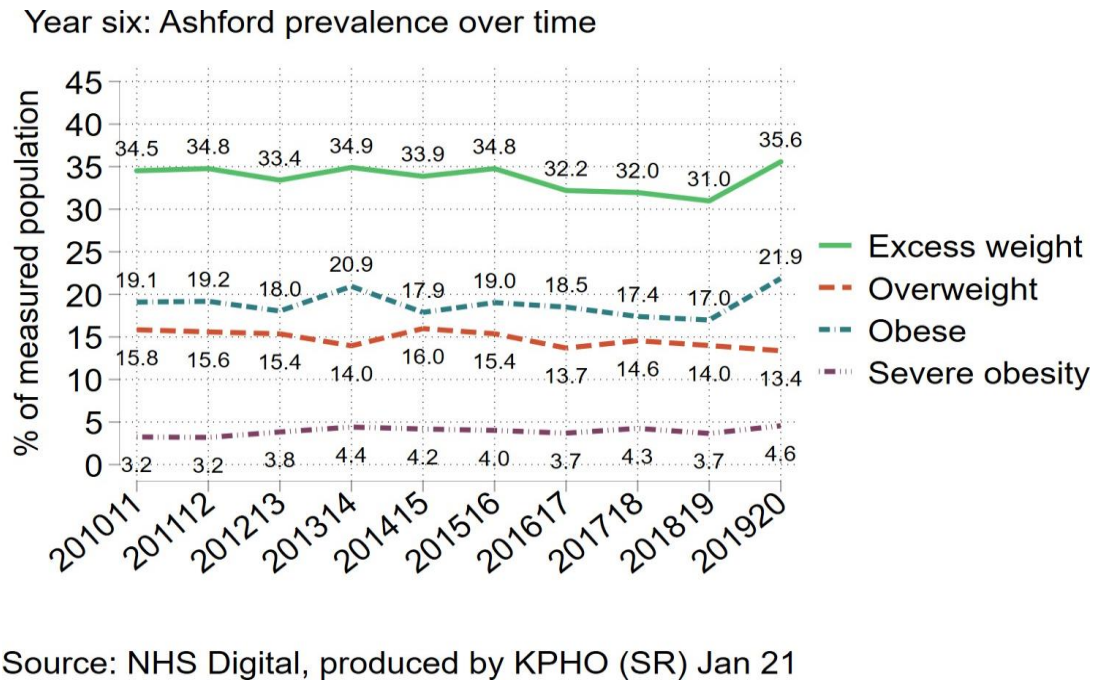


Source: NCMP, prepared by KPHO (CF), January 2021

6.3.2 Year 6

Year 6 children in Ashford had a stable trend for excess weight, obesity and severe obesity with a decreasing trend for overweight. However, caution should be exercised when looking at the decreasing overweight trend (Figure 25).

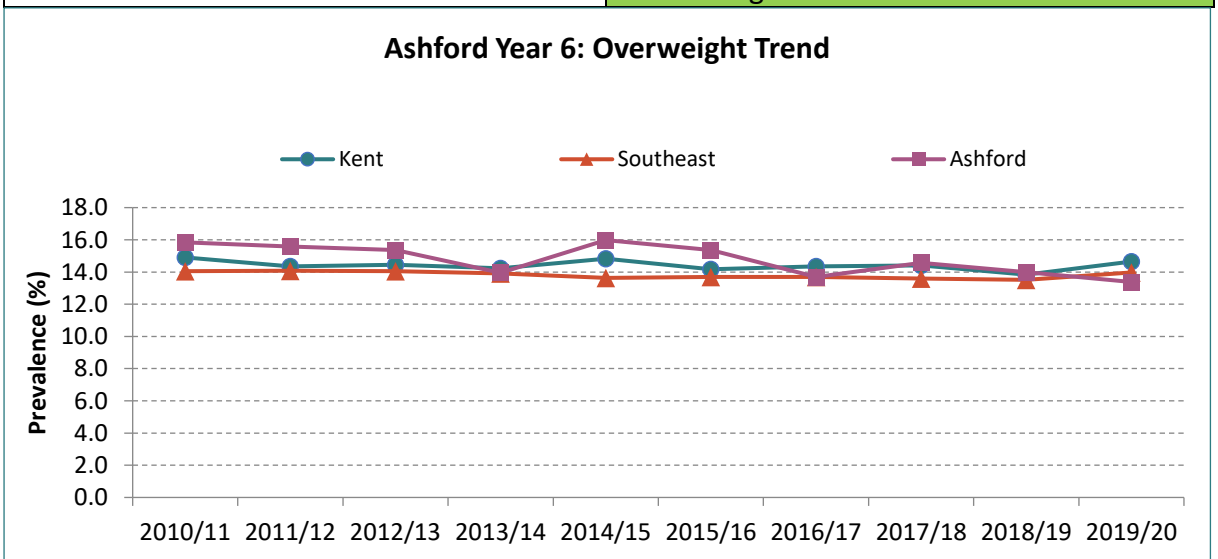
Figure 24: Year six: Ashford prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 25: Ashford Year 6: Overweight trend

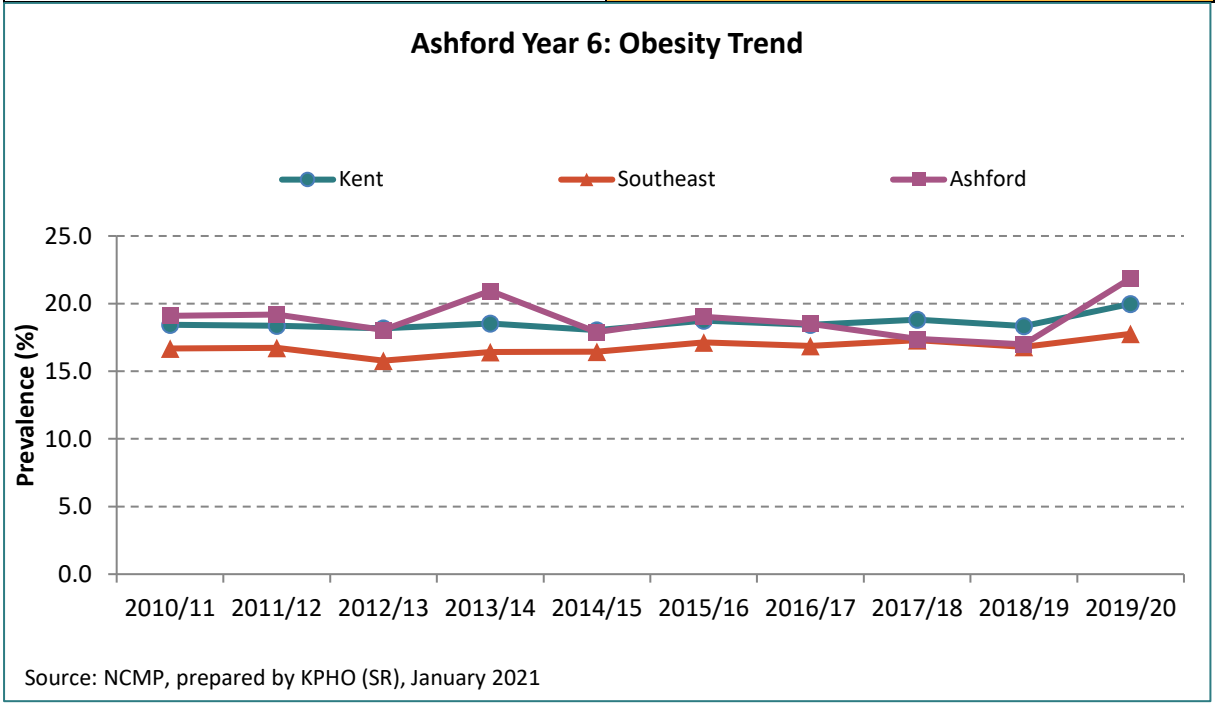
Ashford	Decreasing



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 26: Ashford Year 6: Obesity trend

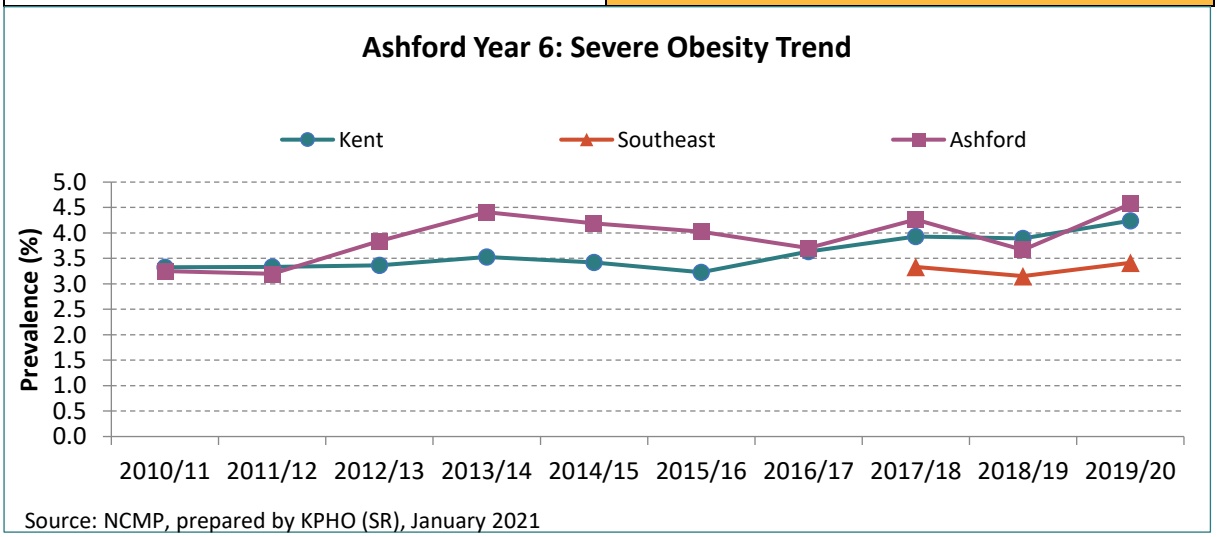
Ashford	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 27: Ashford Year 6: Severe obesity trend

Ashford	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Although the 'overweight' category in Ashford is decreasing, caution needs to be exercised in interpreting this. This is because Figures 28 and 29 show both obesity and severe obesity, as a proportion of total excess weight, are increasing. This indicates that the children who previously stopped at 'overweight' in Year 6 are now progressing to obesity and severe obesity.

Figure 28 shows that obesity as a proportion of total excess weight in Year 6 children in Ashford is now higher and is on an increasing trend.

Figure 28. Obesity as a proportion of excess weight: Year 6 Ashford trend

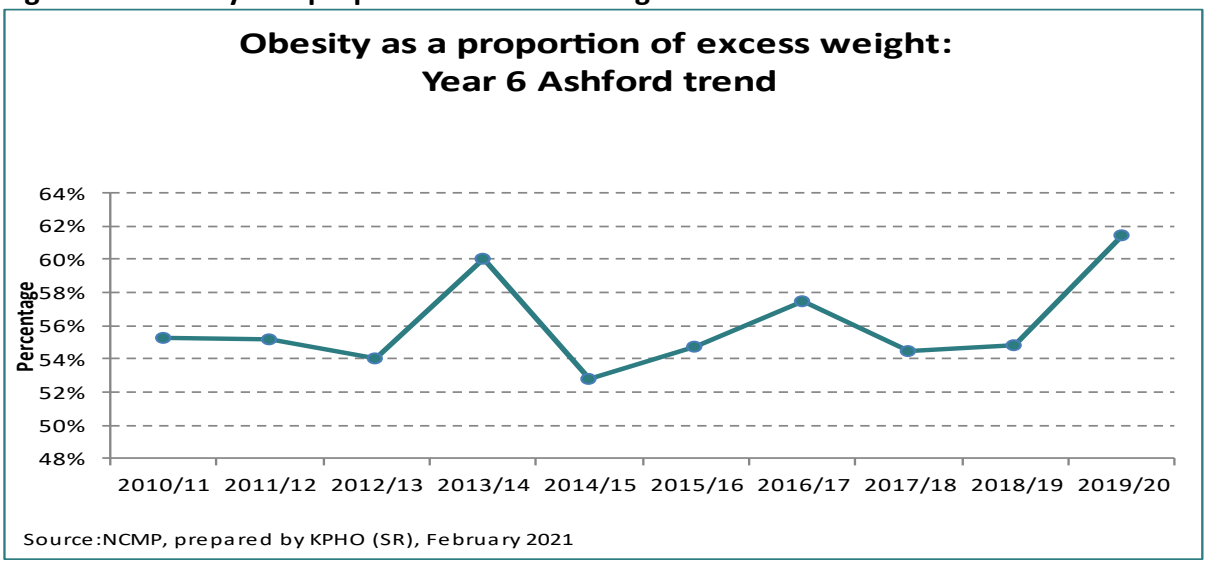
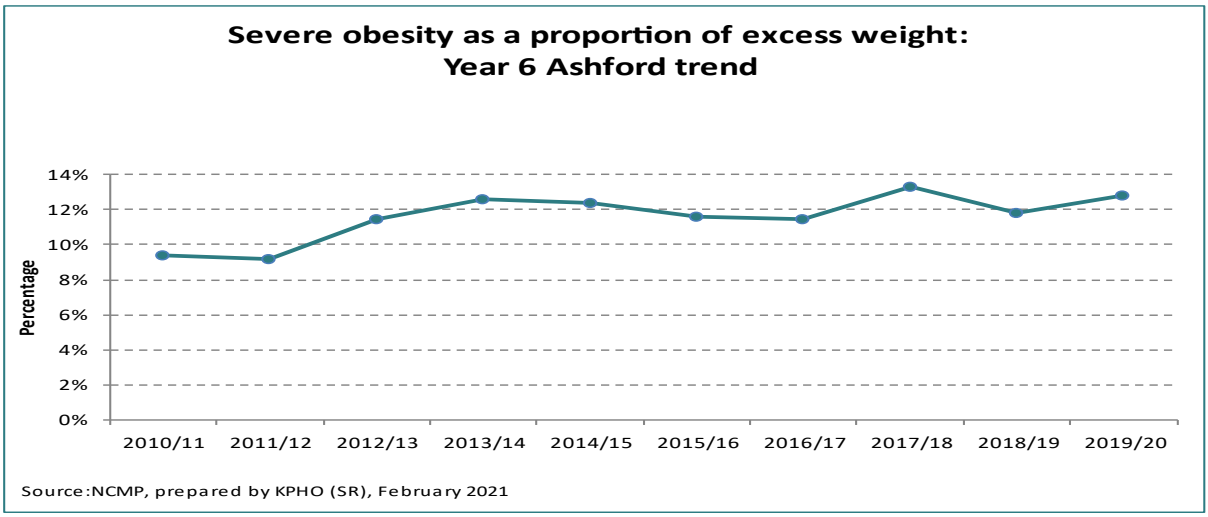


Figure 29 shows a similar picture with the proportion of severe obesity out of total excess weight increasing.

Figure 29. Severe obesity as a proportion of excess weight: Year 6 Ashford trend

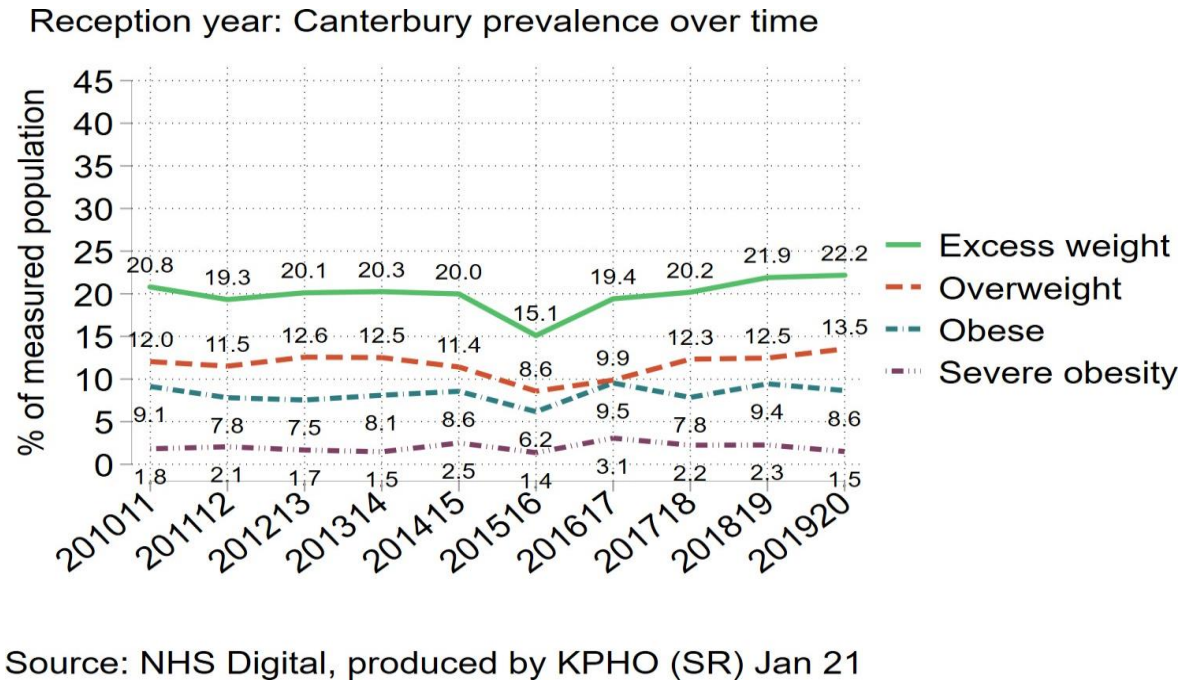


6.4 Canterbury

6.4.1 Year R

Canterbury has stable trends in all four weight categories in Year R (Figures 30-33). In Year 6 in Canterbury there is an increasing trend in obesity and severe obesity whilst the excess weight and overweight trends are stable (Figures 34-37). However, these need to be interpreted with caution (6.4.2 Year 6).

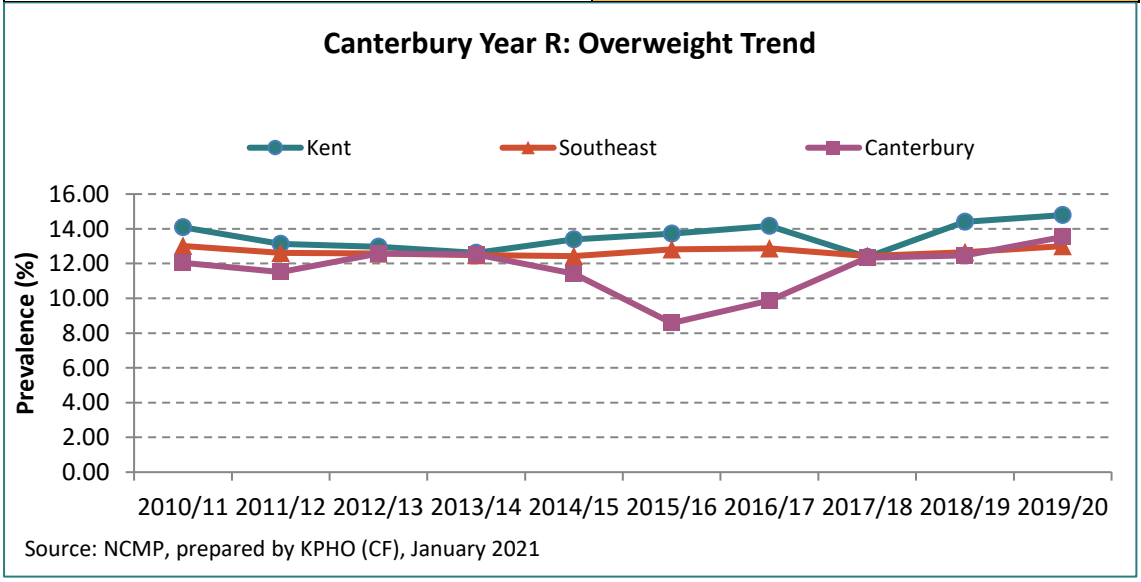
Figure 30: Reception year: Canterbury prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 31. Canterbury Year R: Overweight trend

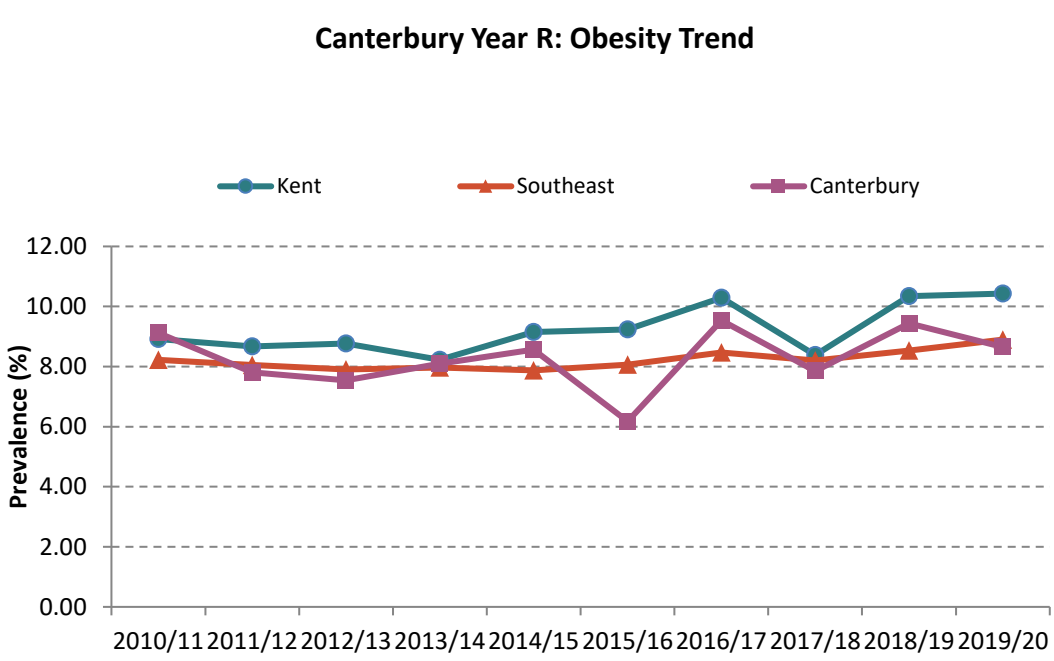
Canterbury	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 32. Canterbury Year R. Obesity trend

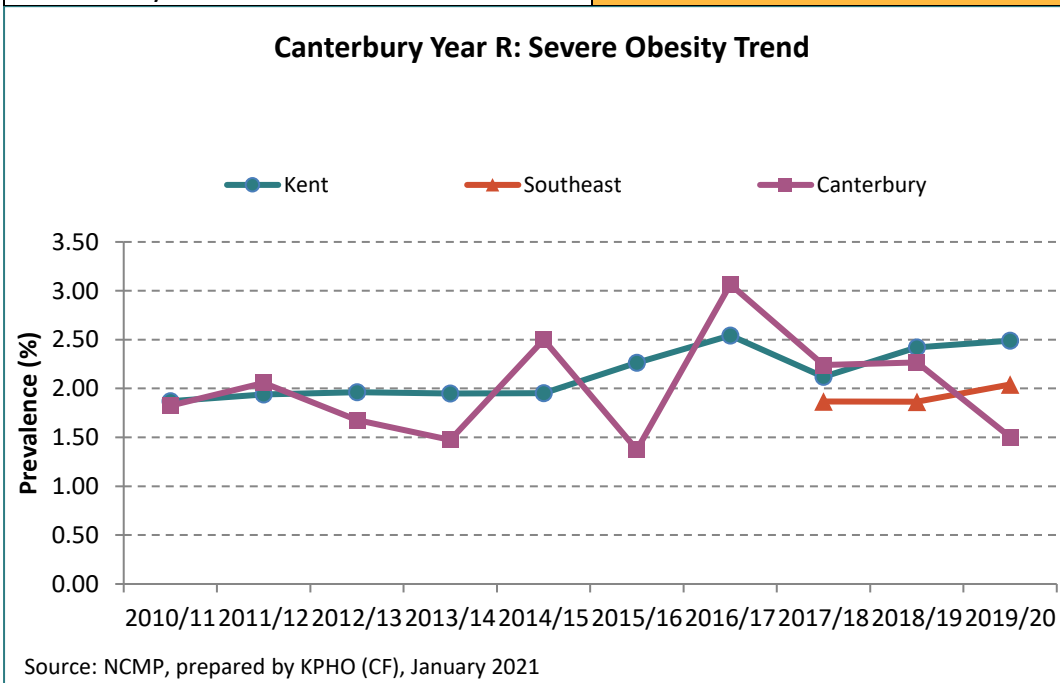
Canterbury	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 33. Canterbury Year R: Severe obesity trend

Canterbury	Stable

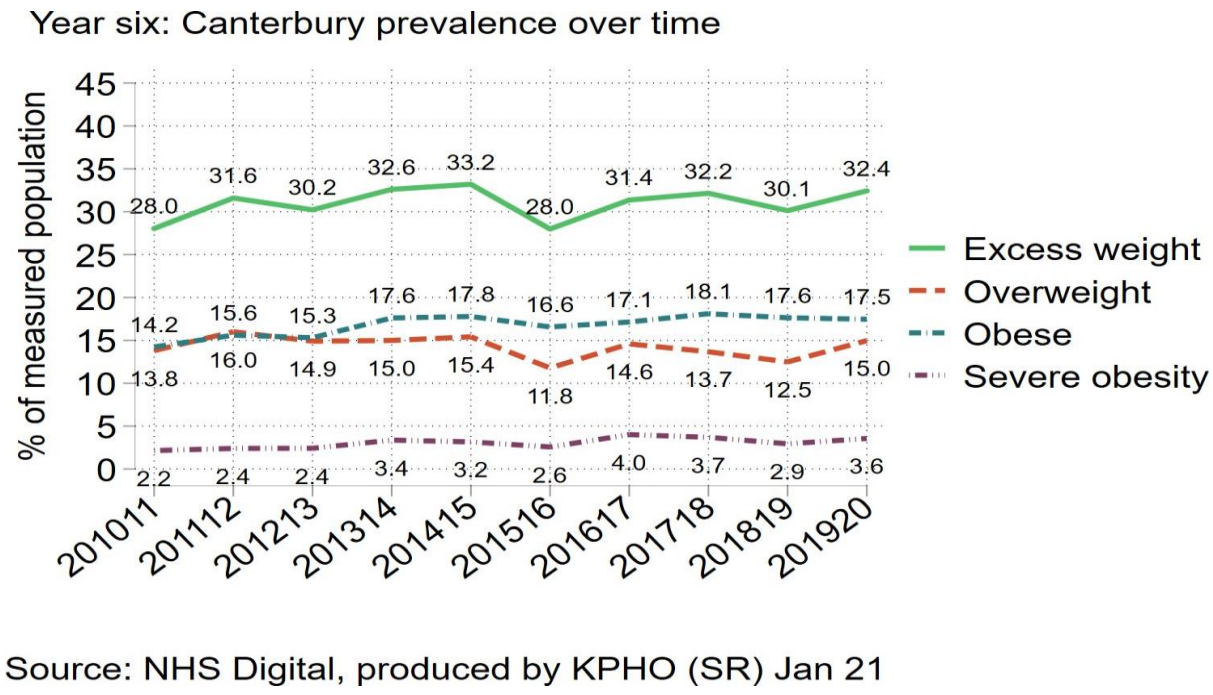


Source: NCMP, prepared by KPHO (CF), January 2021

6.4.2 Year 6

In Year 6 in Canterbury there is an increasing trend in obesity and severe obesity whilst the excess weight and overweight trends are stable (Figure 34-37). This means, in 2019/20, that there are 245 children with obesity (17.5%) and 50 children (3.7%) with severe obesity. Caution needs to be adopted when considering the overweight trend is stable (Figure 35).

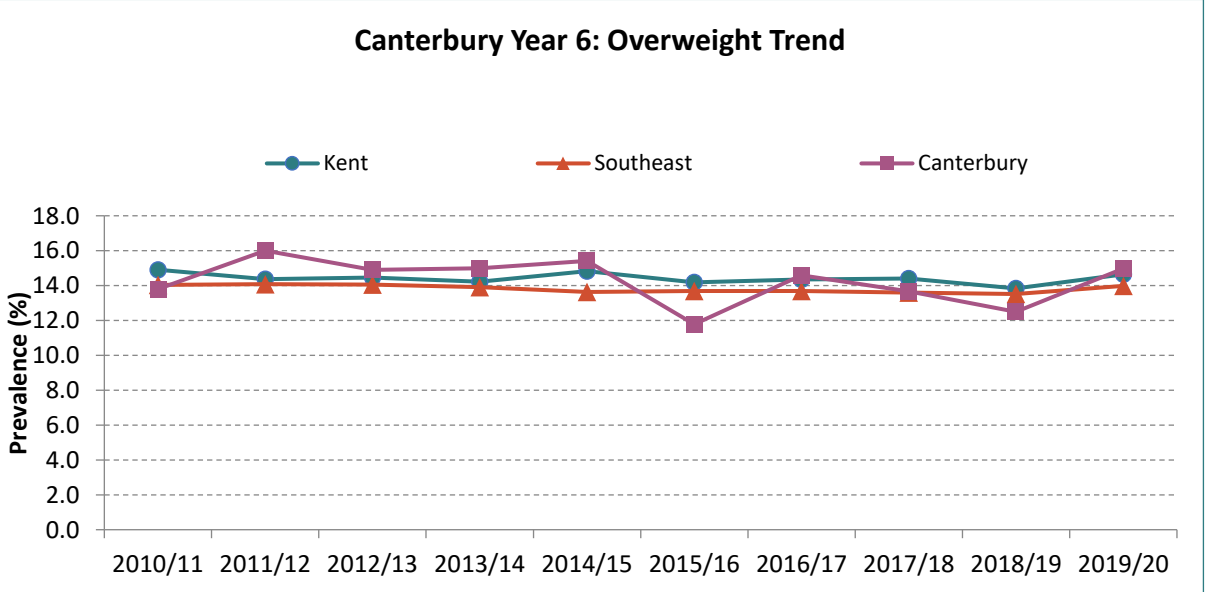
Figure 34. Year 6: Canterbury prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 35. Canterbury Year 6: Overweight trend

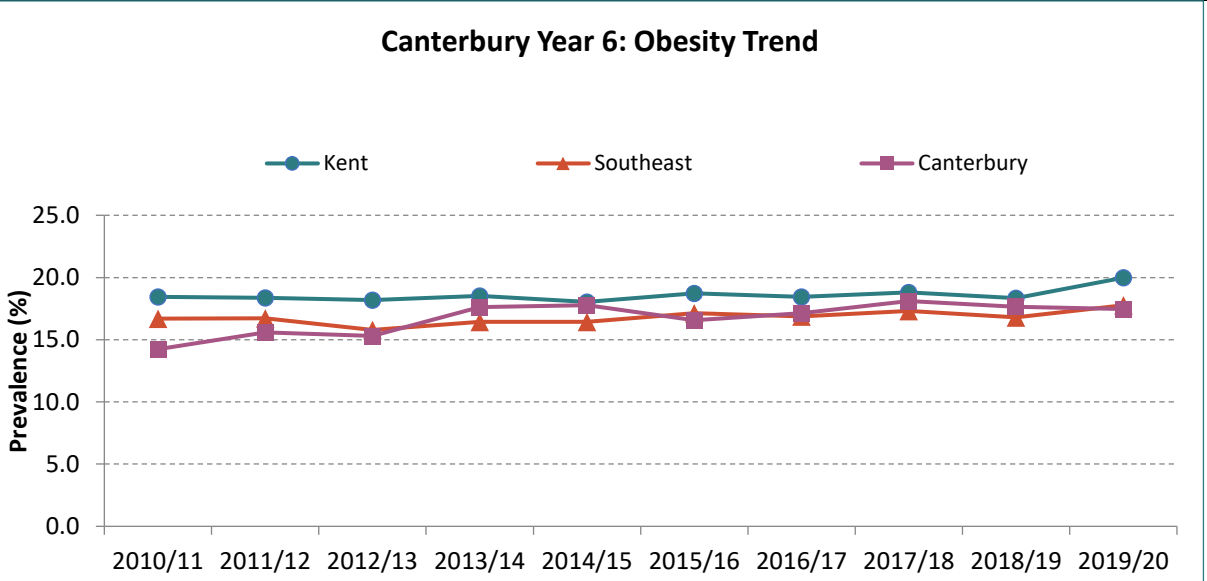
Canterbury	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 36. Canterbury Year 6: Obesity trend

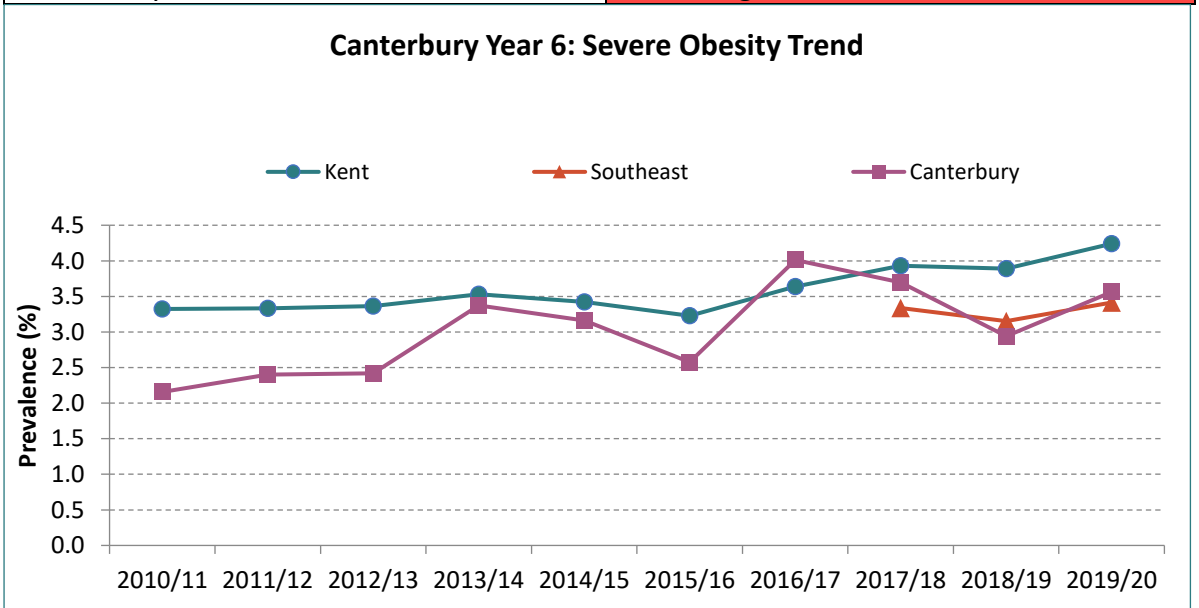
Canterbury	Increasing



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 37. Canterbury Year 6: Severe obesity trend

Canterbury	Increasing



Source: NCMP, prepared by KPHO (SR), January 2021

Looking further into the differences in the charts above, we analysed both obesity and severe obesity as a proportion of total excess weight (Figures 38 and 39). Both obesity and severe obesity show an increasing trend. This is concerning, as even though, the 'overweight' cateogory is showing a stable trend, this suggests that a greater proportion Year 6 children in Canterbury are becoming obese and severely obese and no longer being 'held' in the overweight category.

Figure 38. Obesity as a proportion of excess weight: Year 6 Canterbury trend

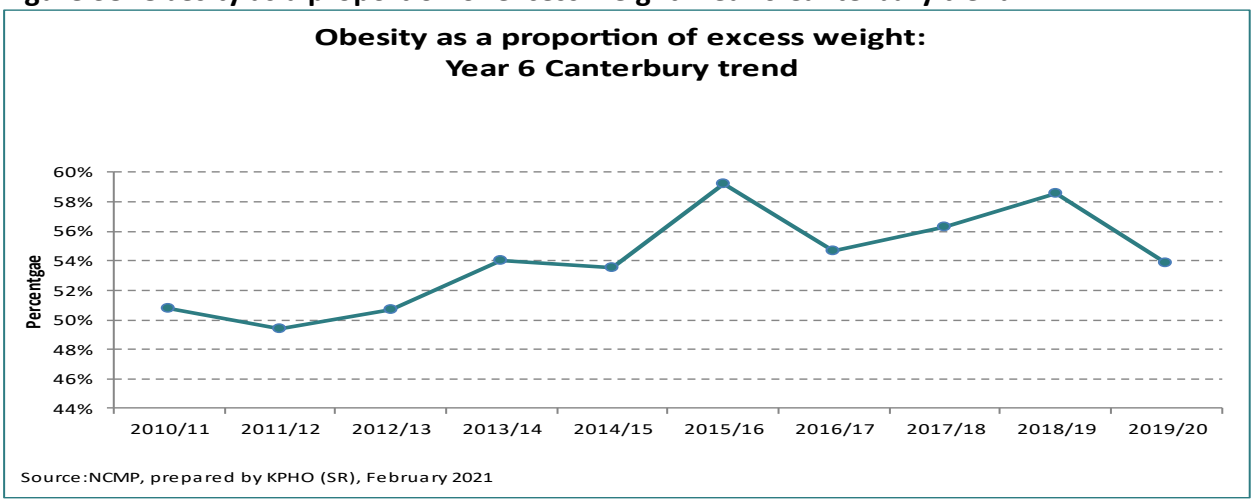
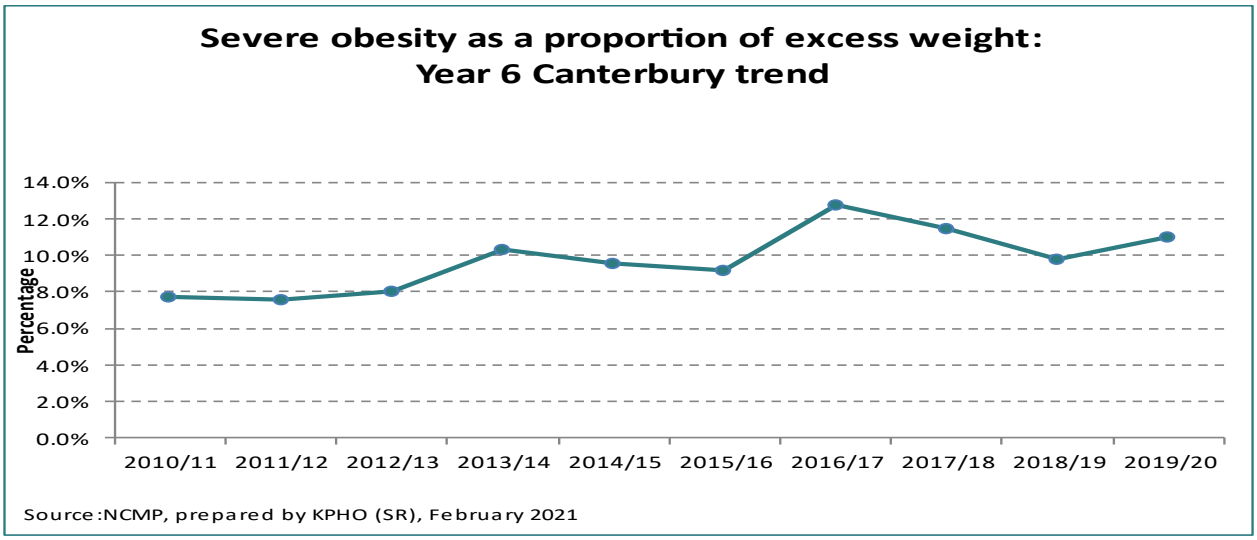


Figure 39. Severe obesity as a proportion of excess weight: Year 6 Canterbury trend

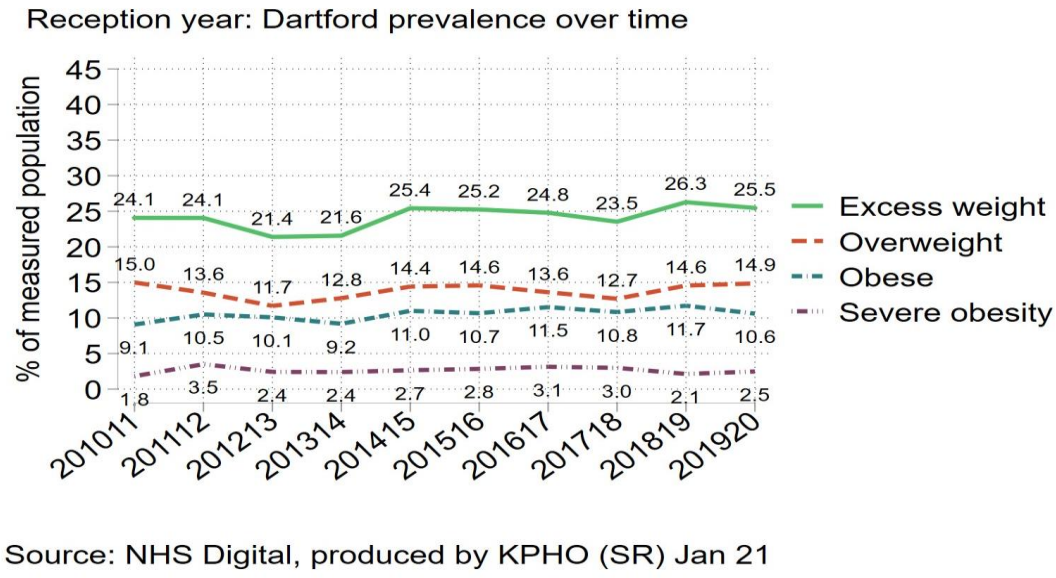


6.5 Dartford

6.5.1 Year R

In Dartford Year R children, obesity is increasing and for the year 2019/20 there were 150 children (10.6%) (Figure 40-43). In all other weight categories, the trend is stable.

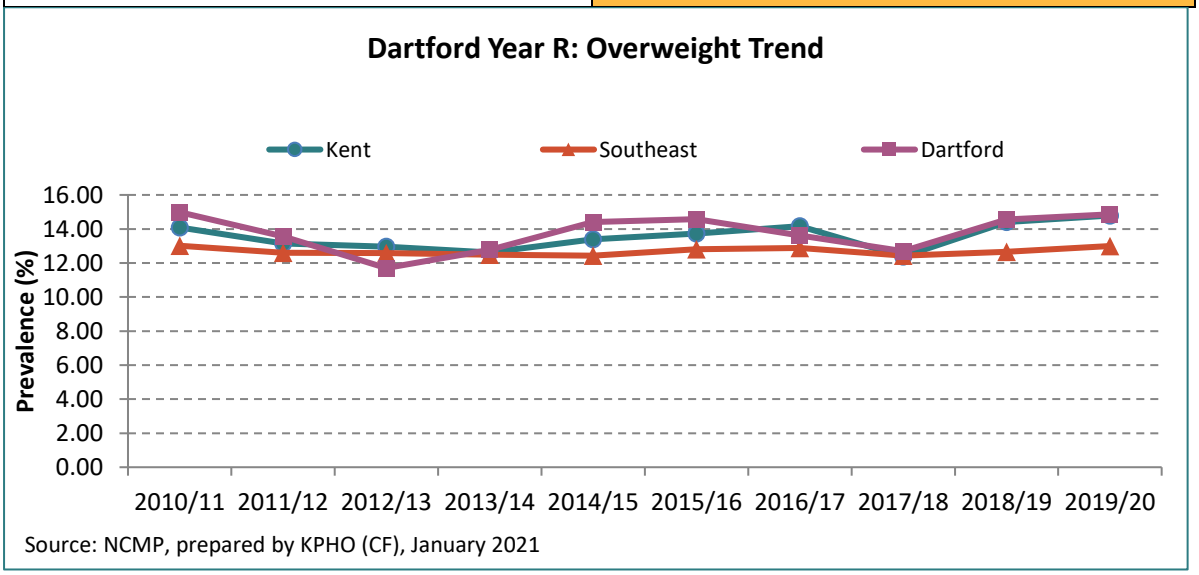
Figure 40. Reception year: Dartford prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 41. Dartford Year R: Overweight trend

Dartford	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 42. Dartford Year R: Obesity trend

Dartford	Increasing

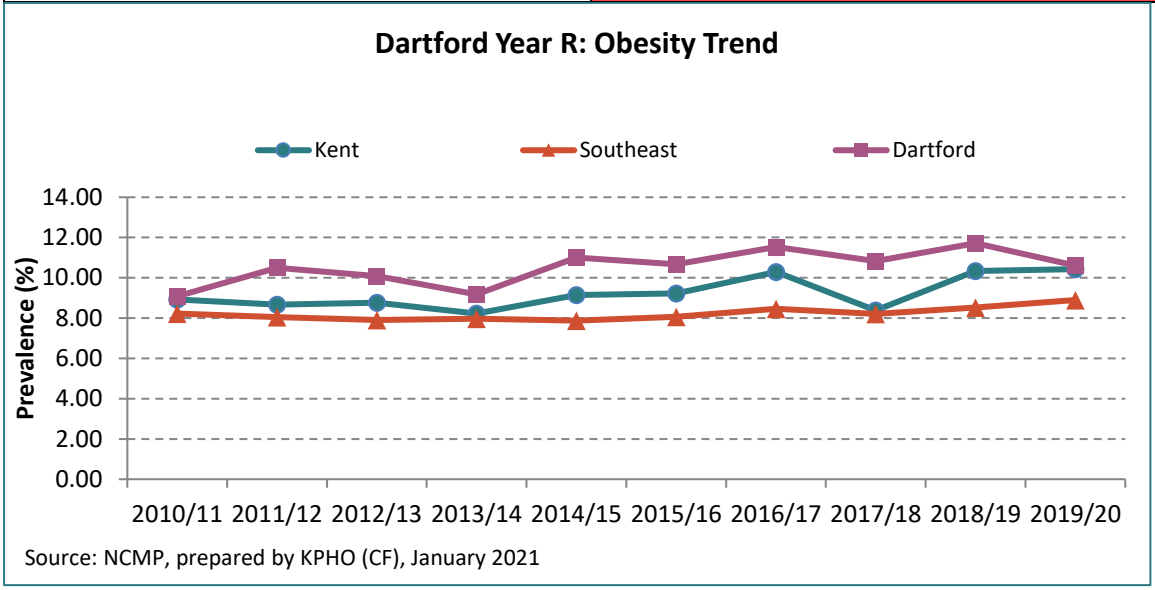
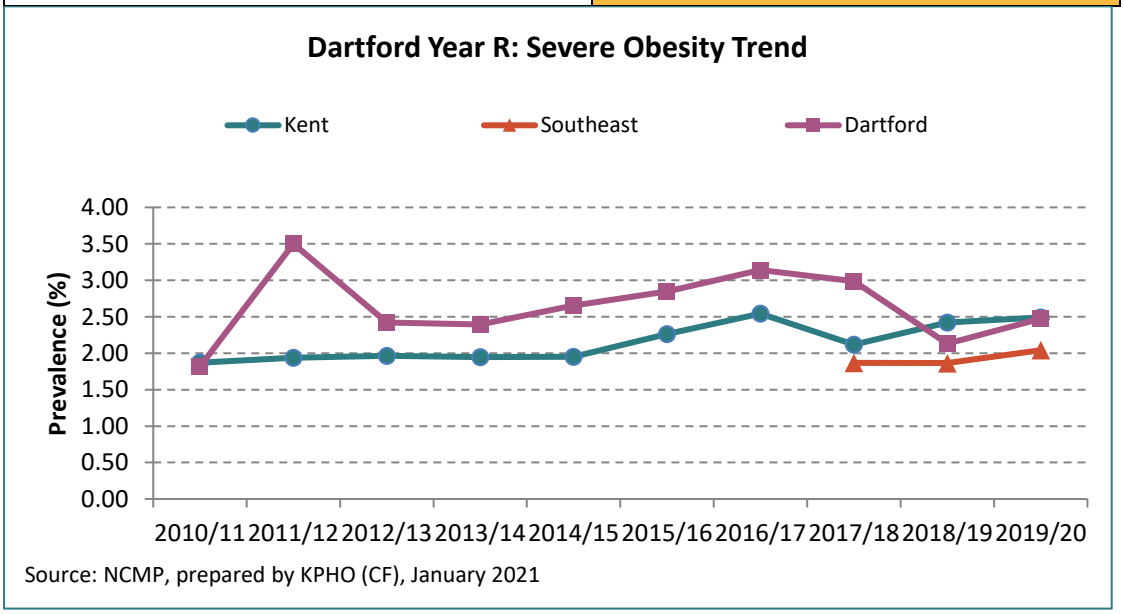


Figure 43. Dartford Year R: Severe obesity trend

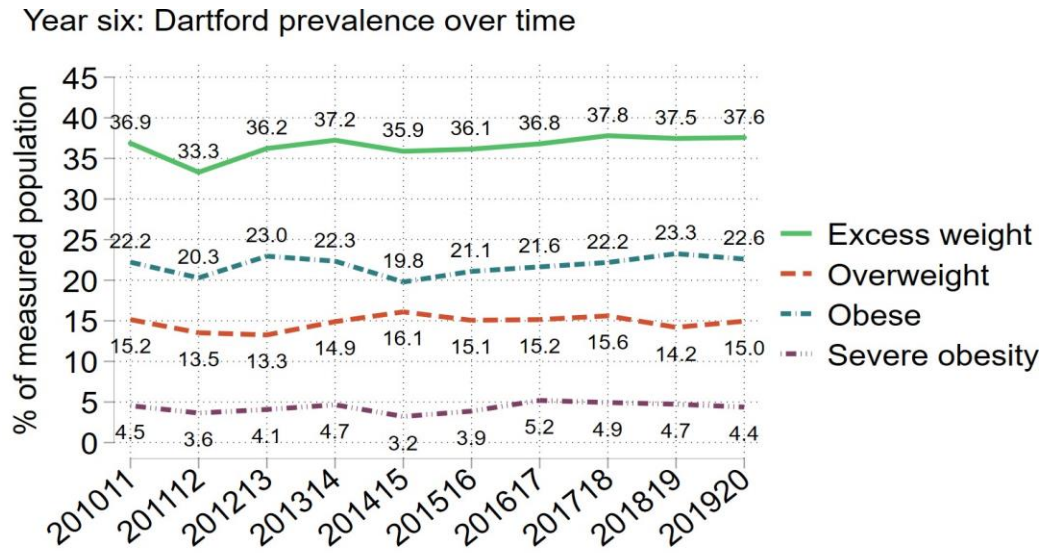
Dartford	Stable



6.5.2 Year 6

The trends in Dartford for Year 6 for all weight categories are stable (Figures 44-47).

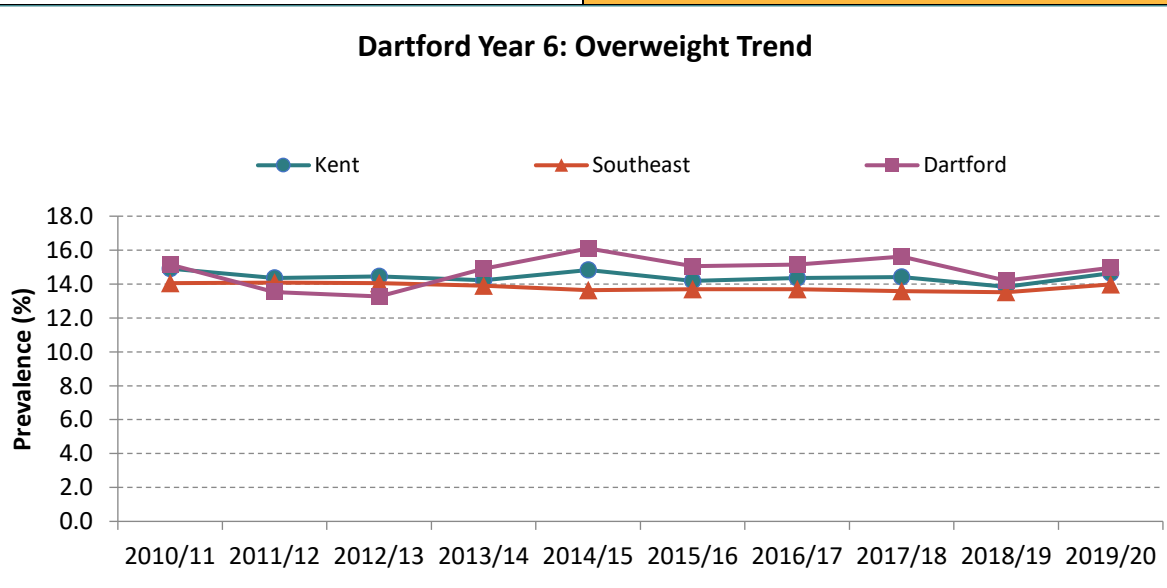
Figure 44. Dartford prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 45. Dartford Year 6: Overweight trend

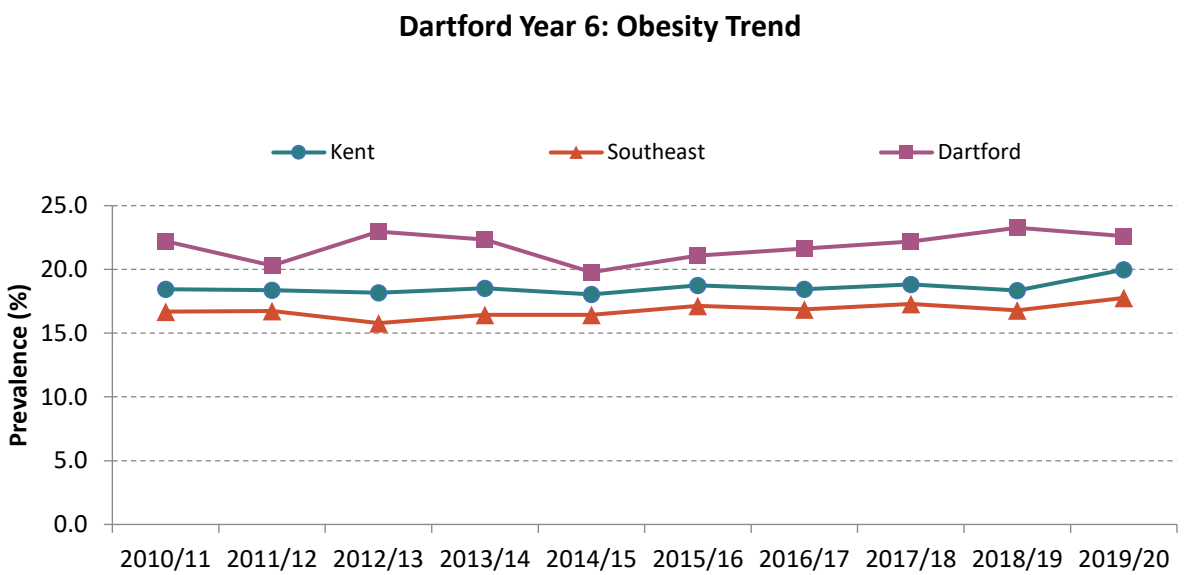
Dartford	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 46. Dartford Year 6: Obesity trend

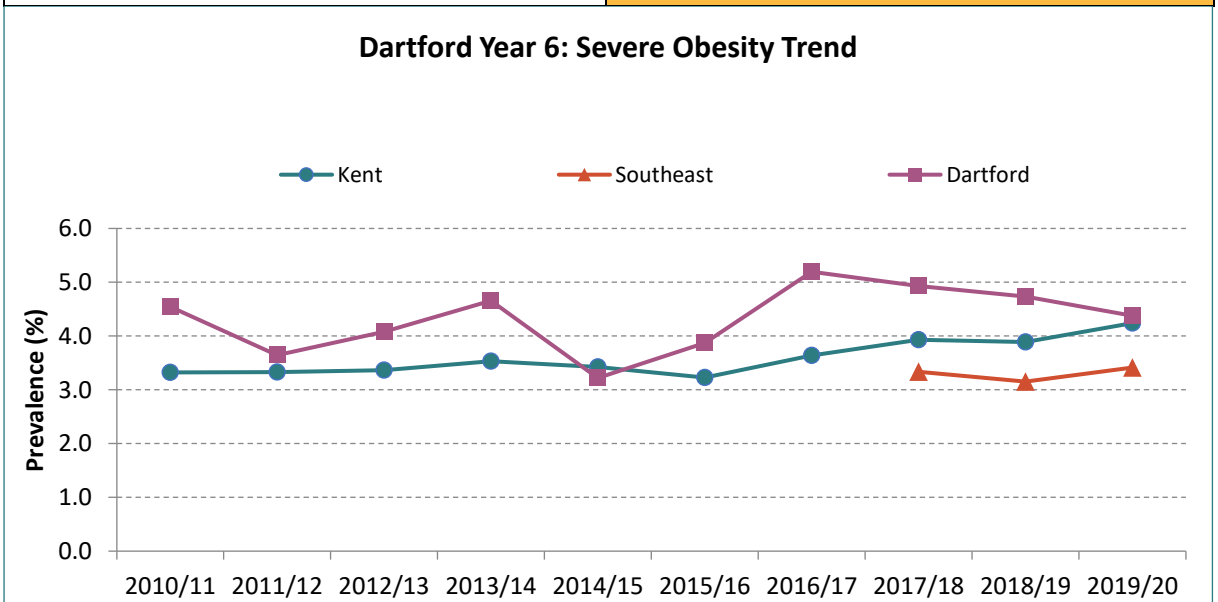
Dartford	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 47. Dartford Year 6: Severe obesity trend

Dartford	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

6.6 Dover

6.6.1 Year R

In Dover in Year R the excess weight and overweight trends are increasing (Figures 48-51). There are, in 2019/20, 305 children (26.9%) who have excess weight with 195 children (17.2) who are overweight. The trends of obesity and severe obesity are stable.

Figure 48. Reception year: Dover prevalence over time

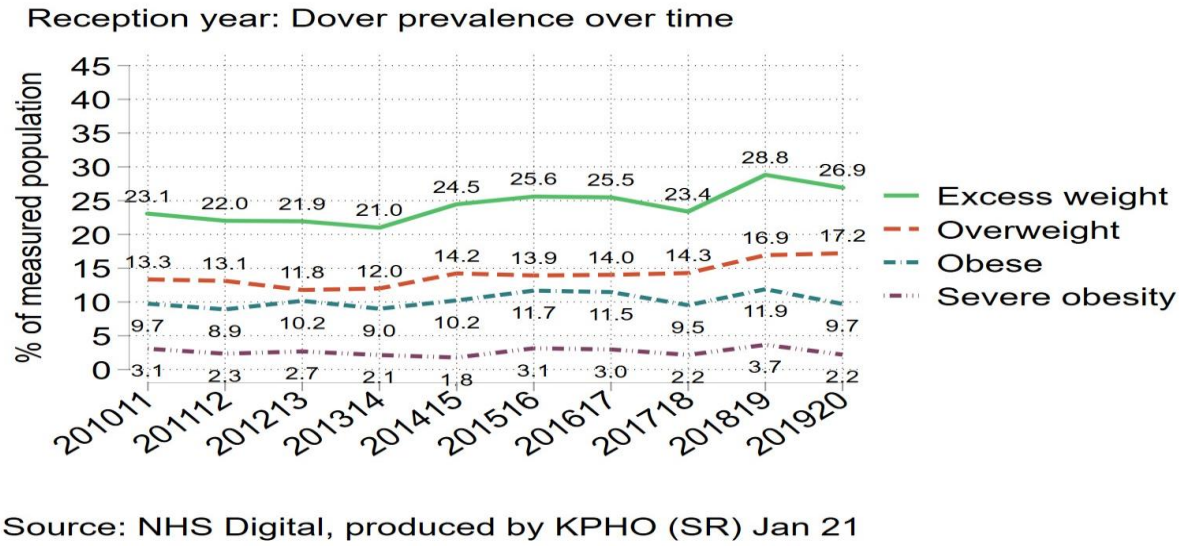


Figure 49. Dover Year R: Overweight Trend

Dover	Increasing

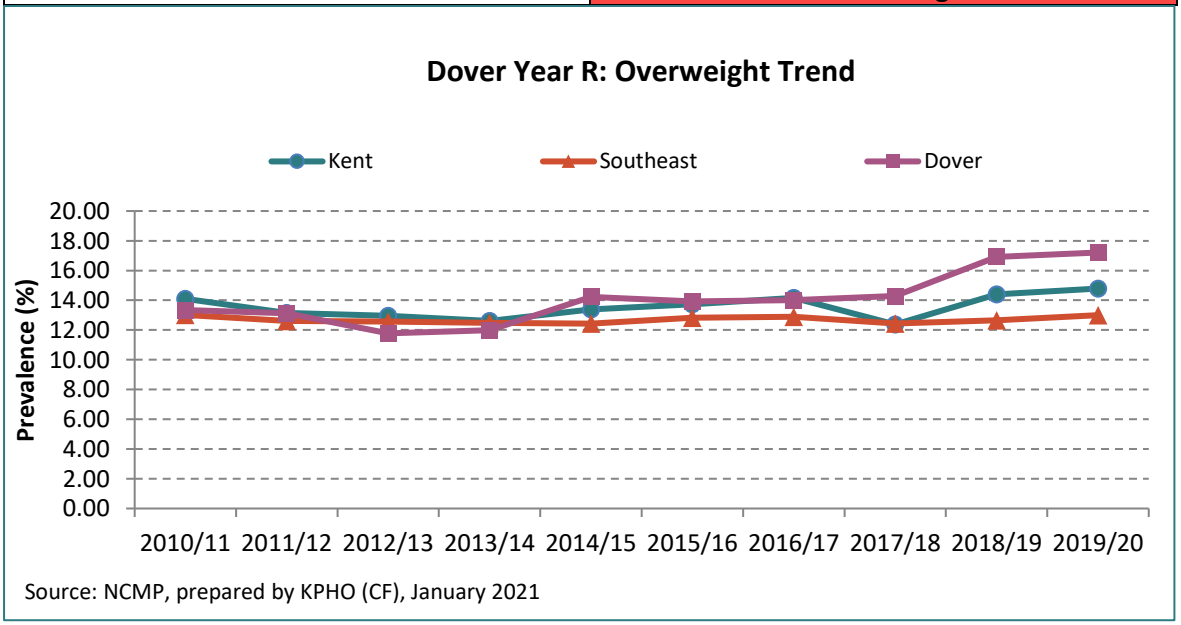
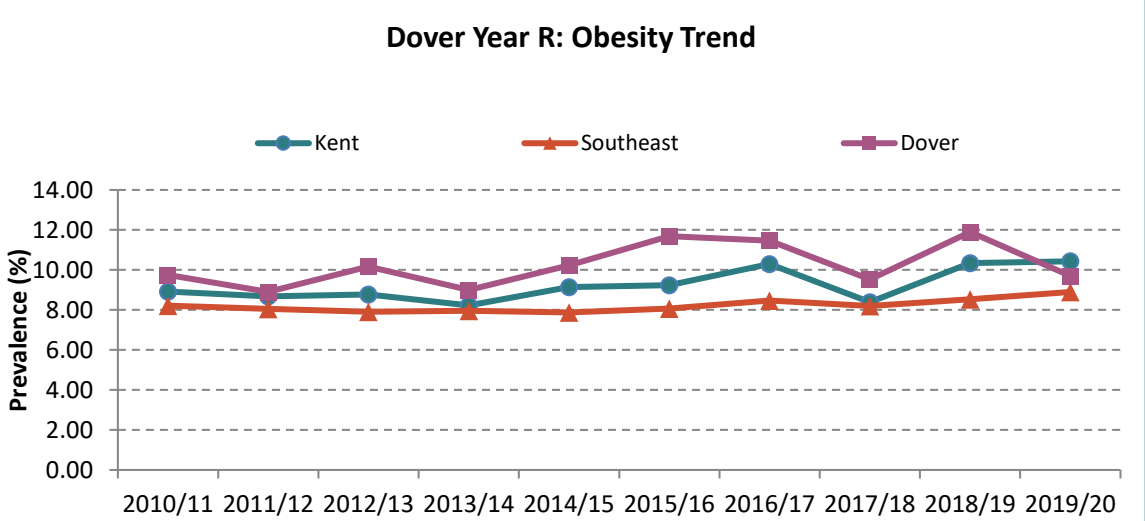


Figure 50. Dover Year R: Obesity trend

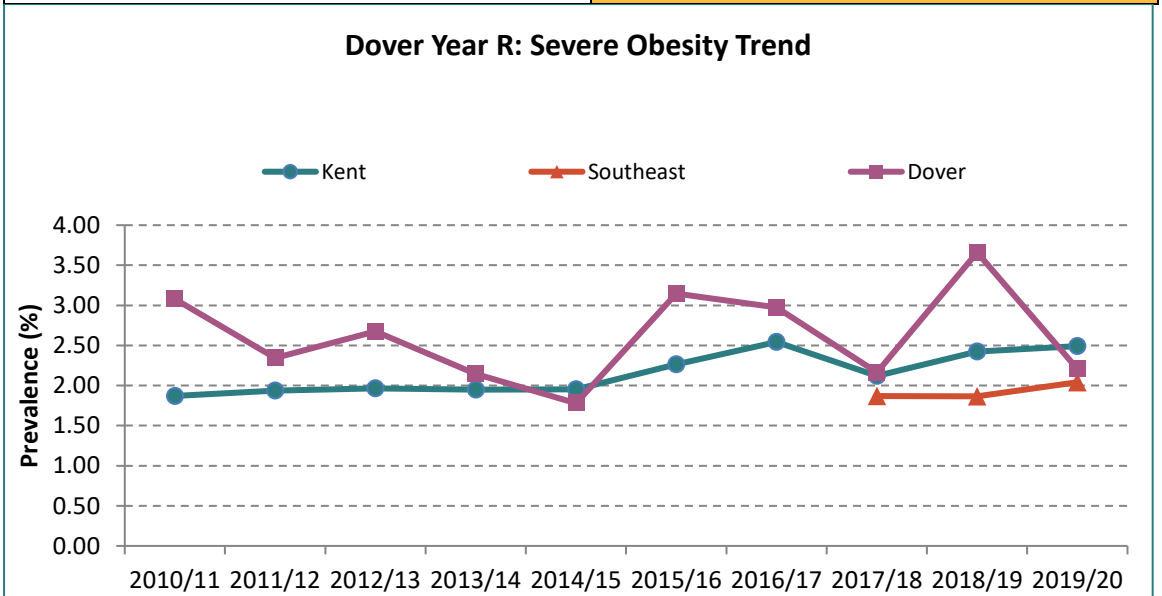
Dover	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 51. Dover Year R: Severe obesity trend

Dover	Stable

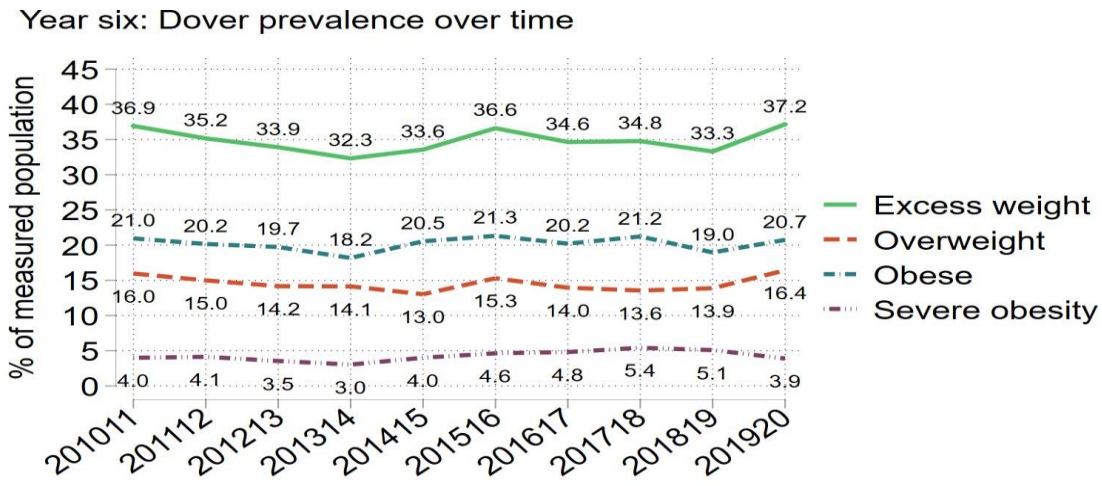


Source: NCMP, prepared by KPHO (CF), January 2021

6.6.2 Year 6

The trends in Dover for Year 6 for all weight categories are stable (Figures 52-55).

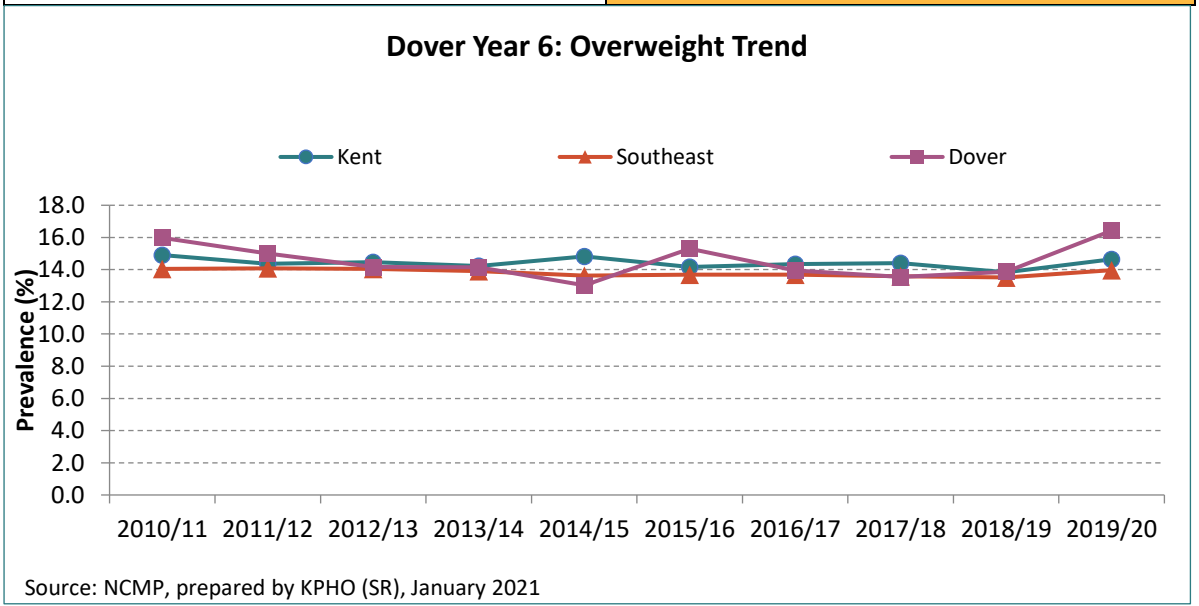
Figure 52. Year 6: Dover prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 53. Year 6: Overweight trend

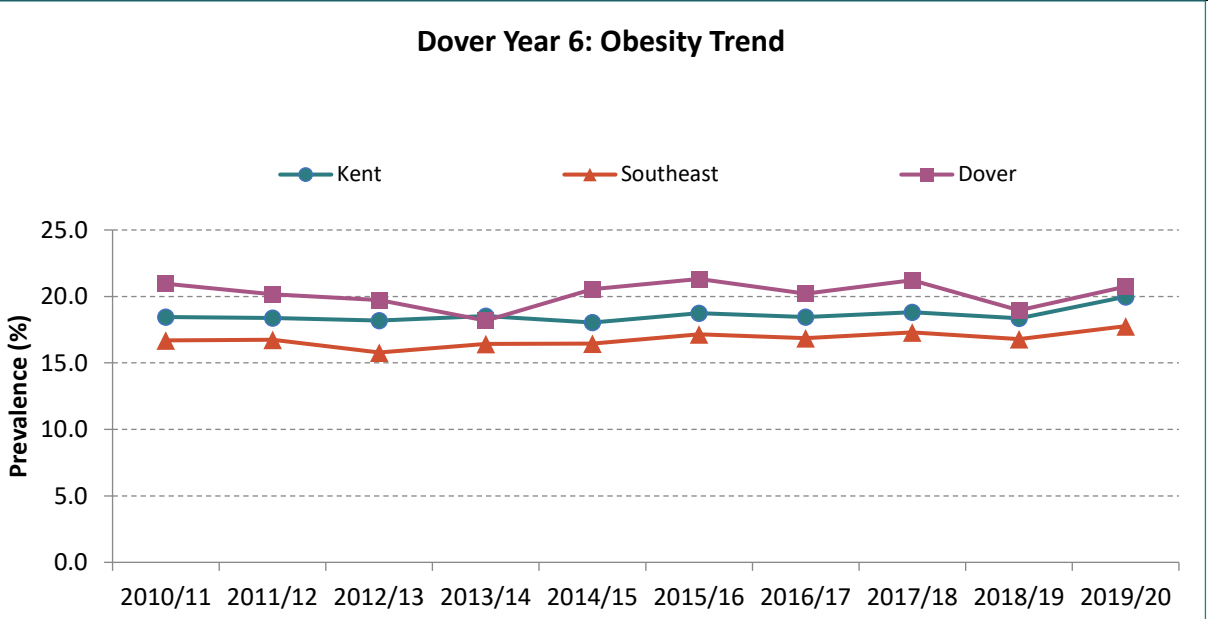
Dover	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 54. Year 6: Obesity trend

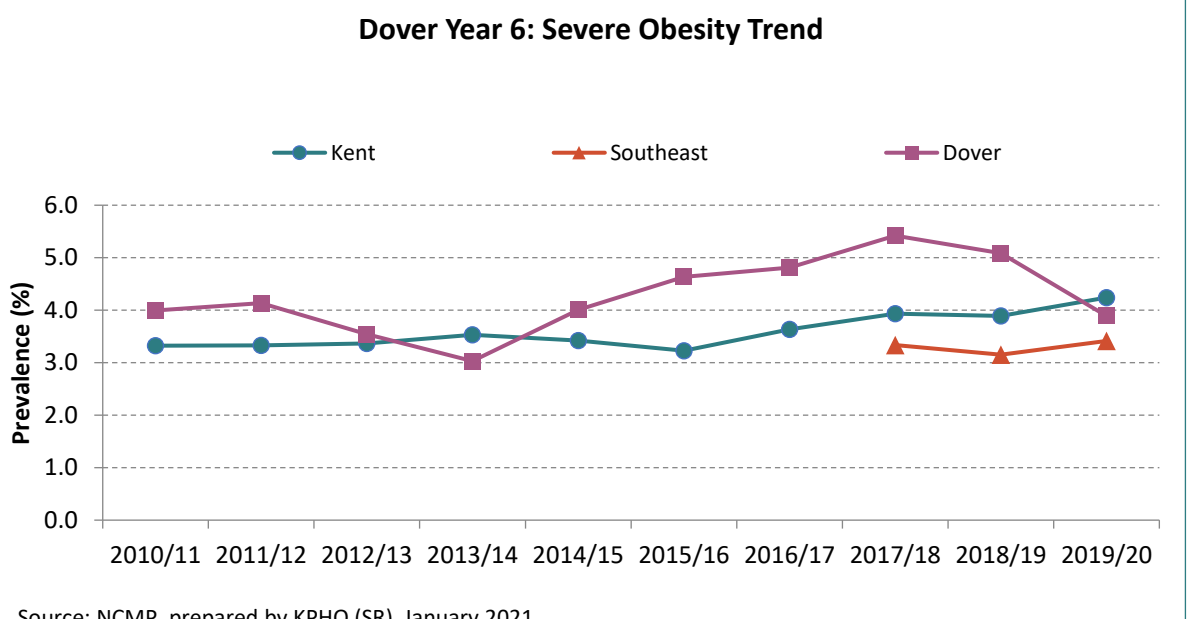
Dover	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 55. Year 6: Severe obesity trend

Dover	Stable



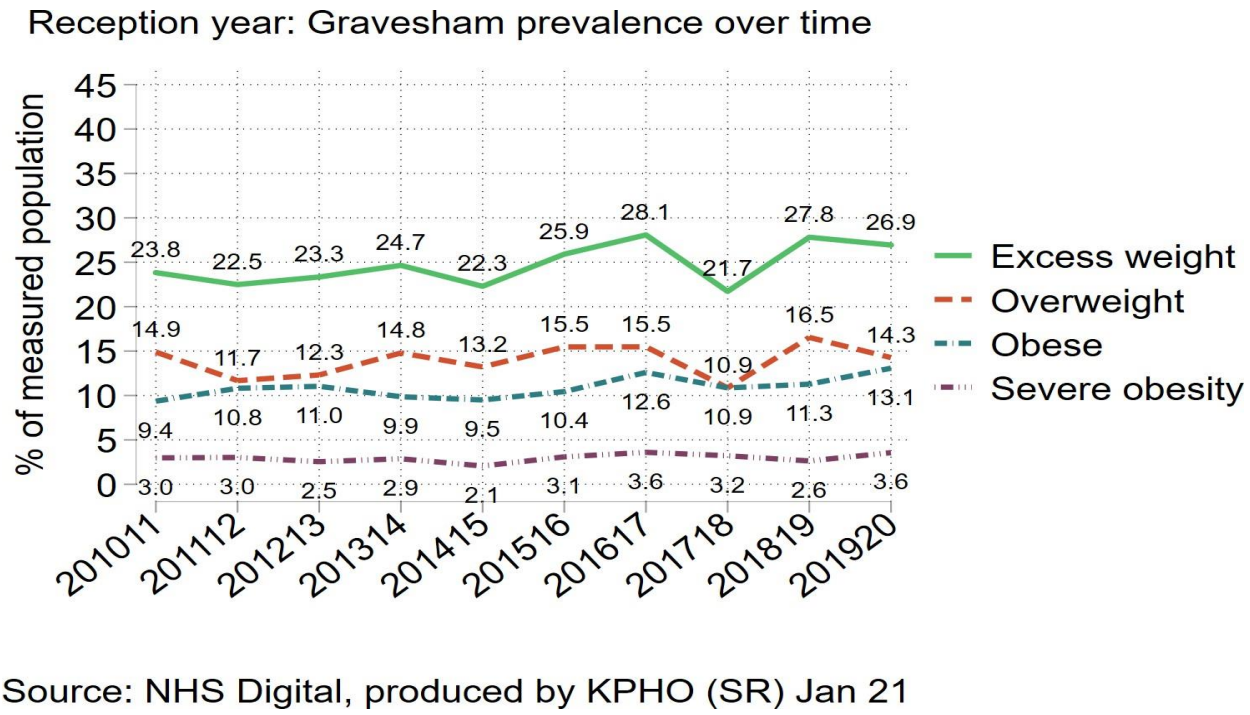
Source: NCMP, prepared by KPHO (SR), January 2021

6.7 Gravesham

6.7.1 Year R

The trends in Gravesham for Year R for all weight categories are stable (Figure 56-59).

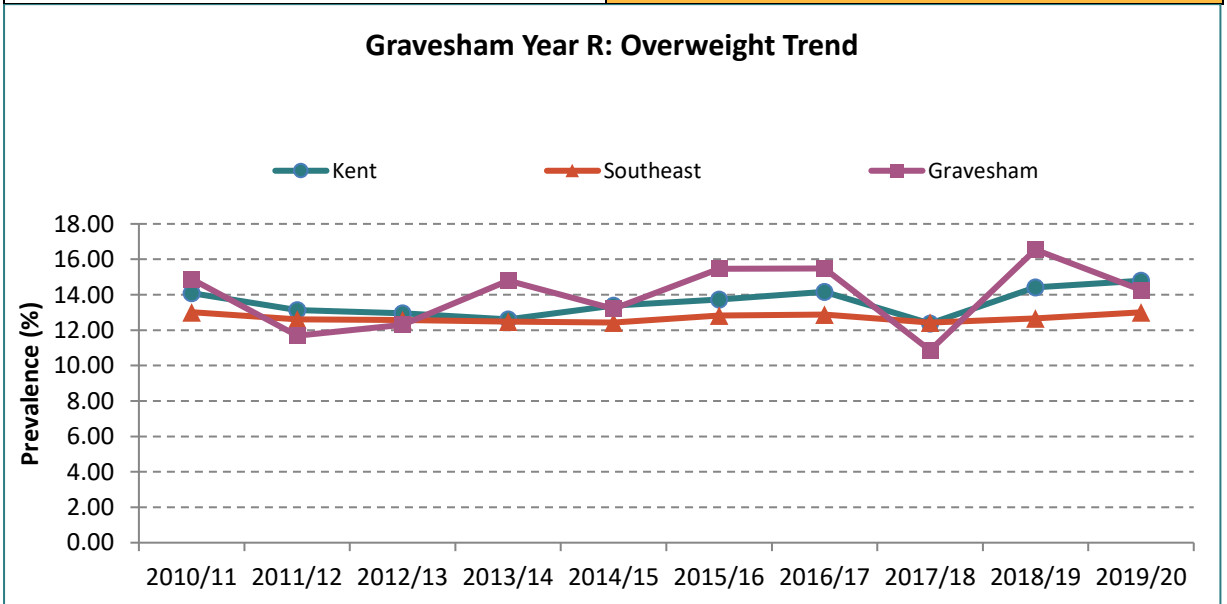
Figure 56. Reception year: Gravesham prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 57. Gravesham Year R: Overweight trend

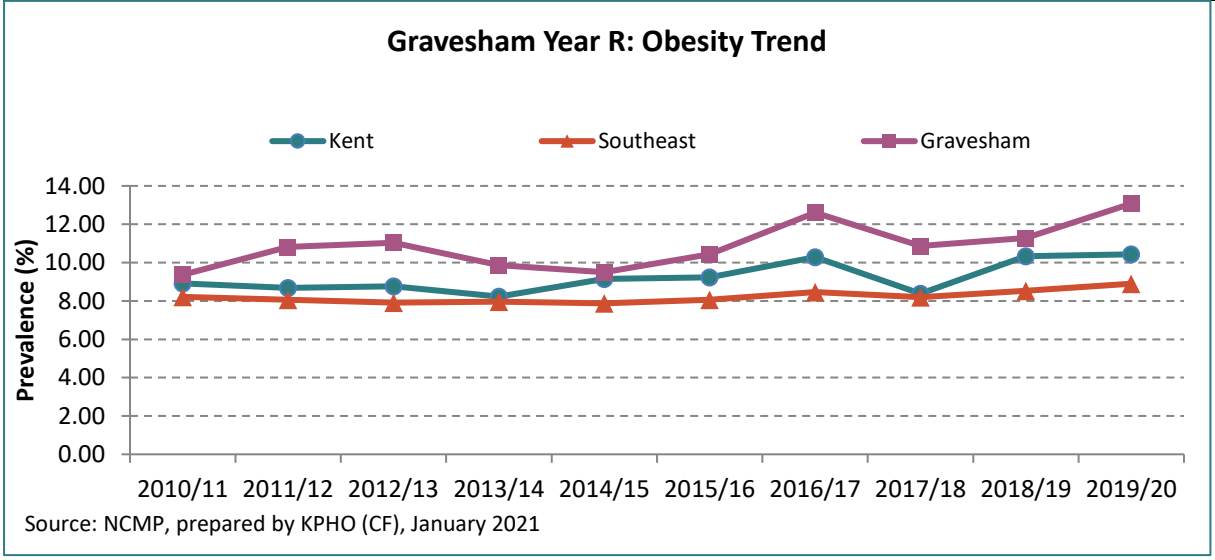
Gravesham	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 58. Gravesham Year R: Obesity trend

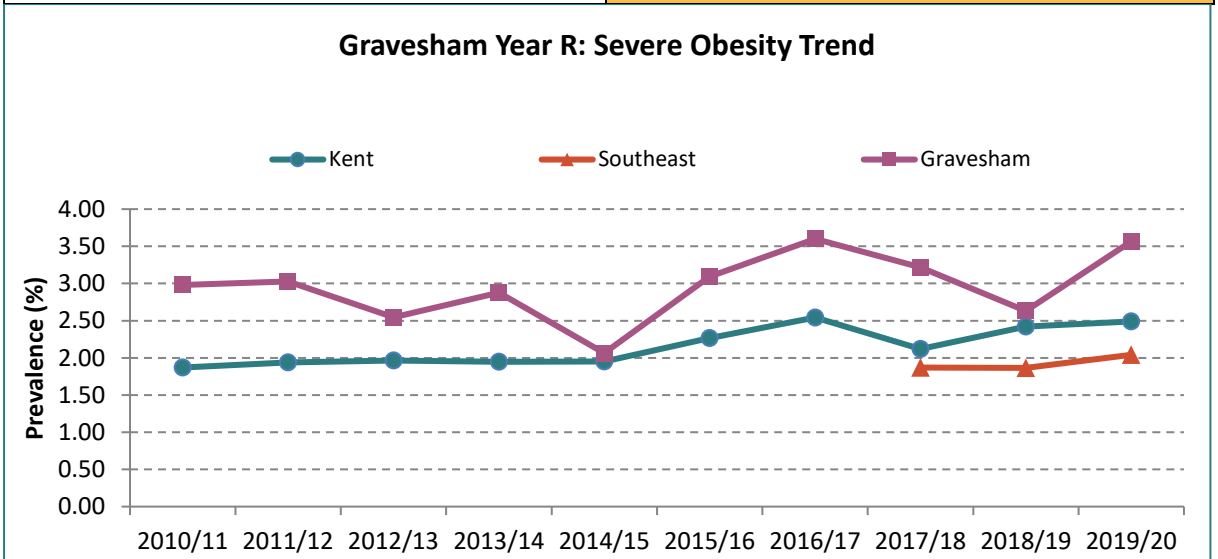
Gravesham	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 59. Gravesham Year R: Severe obesity trend

Gravesham	Stable

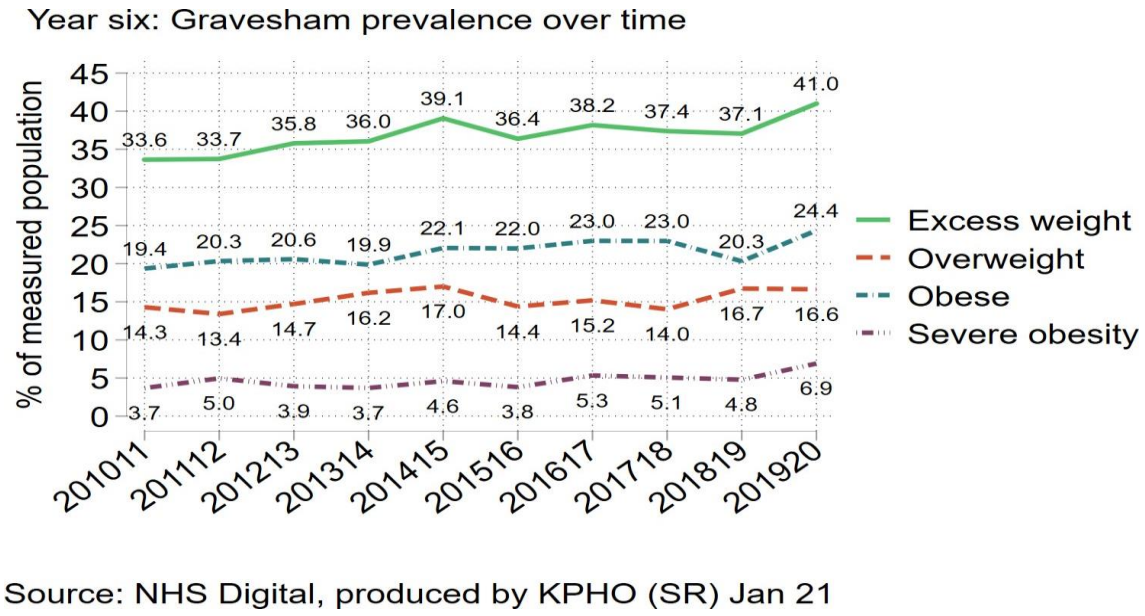


Source: NCMP, prepared by KPHO (CF), January 2021

6.7.2 Year 6

The charts for Gravesham show a stable trend for overweight and increasing trends for obesity and severe obesity (Figures 60-63). This means that in 2019/20 there are 300 children (24.4%) with obesity and 85 (6.9%) with severe obesity.

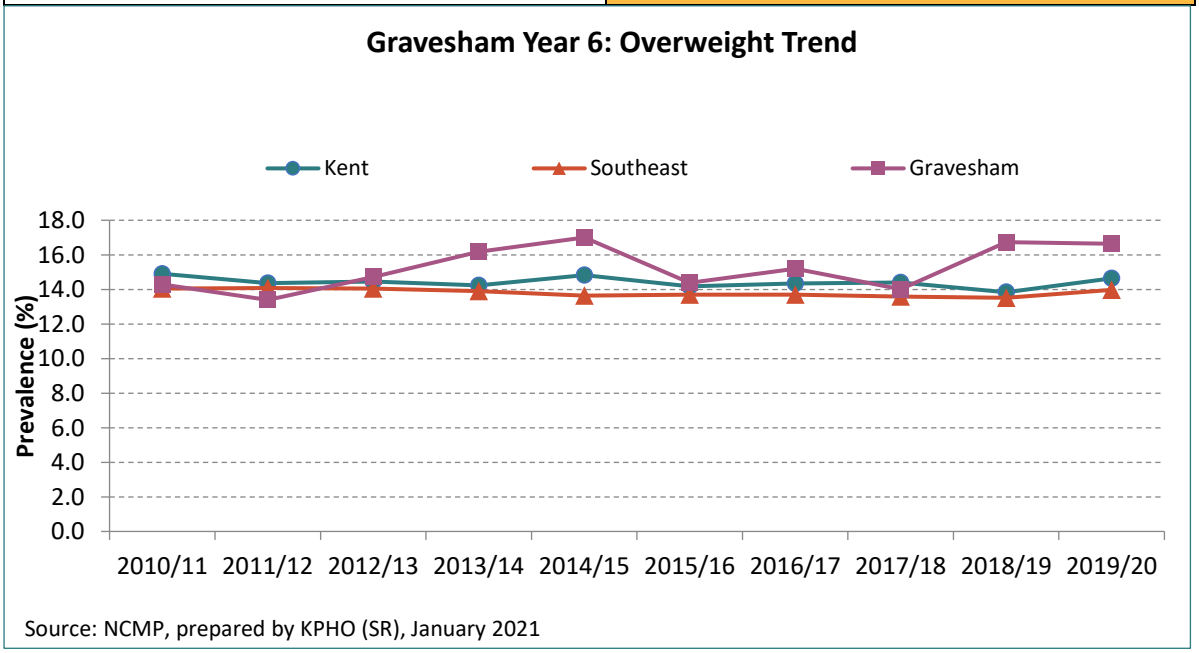
Figure 60. Year 6: Gravesham prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 61. Gravesham Year 6: Overweight trend

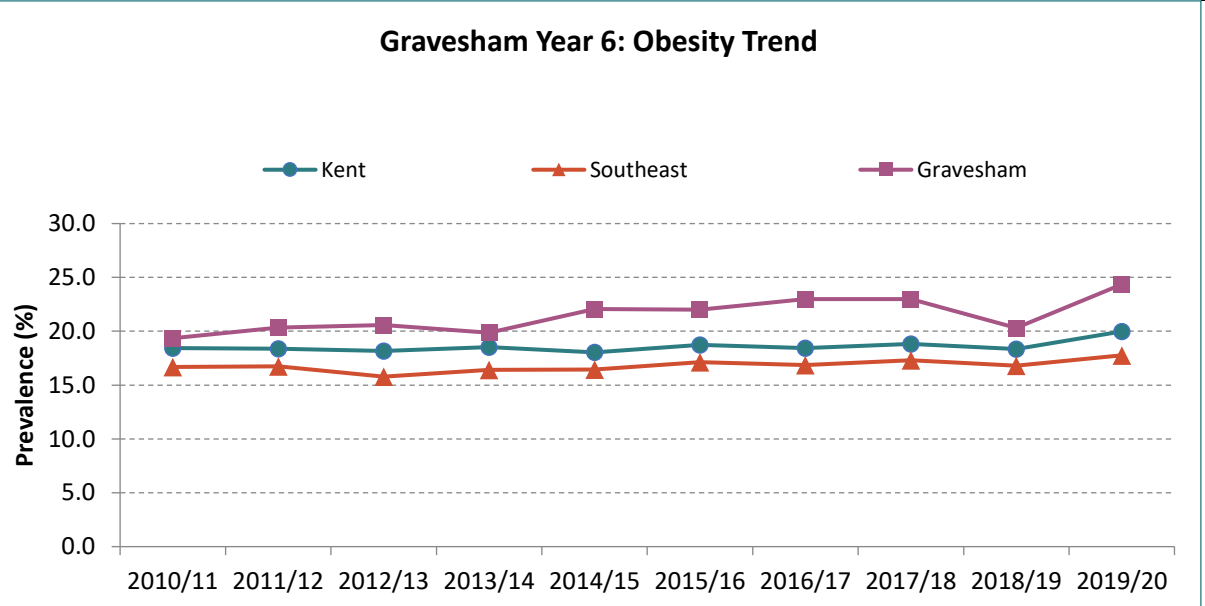
Gravesham	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 62. Gravesham Year 6: Obesity trend

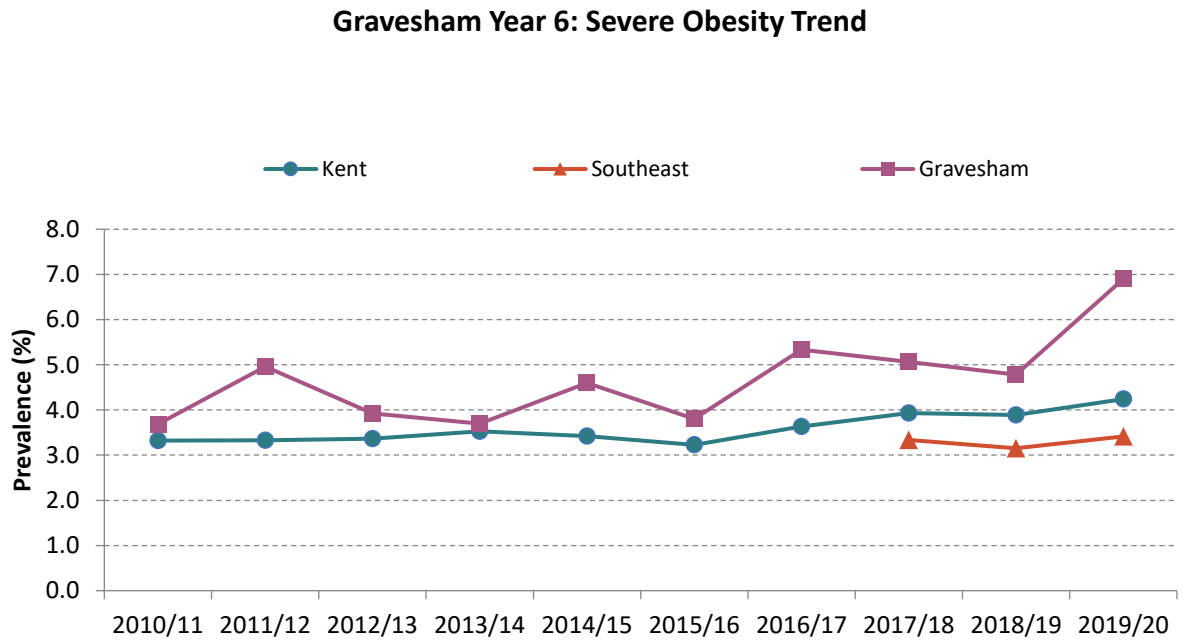
Gravesham	Increasing



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 63. Gravesham Year 6: Severe obesity trend

Gravesham	Increasing



Source: NCMP, prepared by KPHO (SR), January 2021

This analysis highlights the relative proportions of obesity and severe obesity as a proportion of total excess weight (Figures 64-65). The charts show that whilst obesity has a fairly stable trend there is a slight increase from 2010/11 to 2019/20 with lots of variation year on year. However, concerningly, it is apparent that there is an increasing trend in severe obesity as a proportion of total excess weight. This means that children who were, in previous years, stopping at the 'overweight' category in Year 6 may now be more likely to be severely obese, than in previous years.

Figure 64. Obesity as a proportion of excess weight: Year 6 Gravesham trend

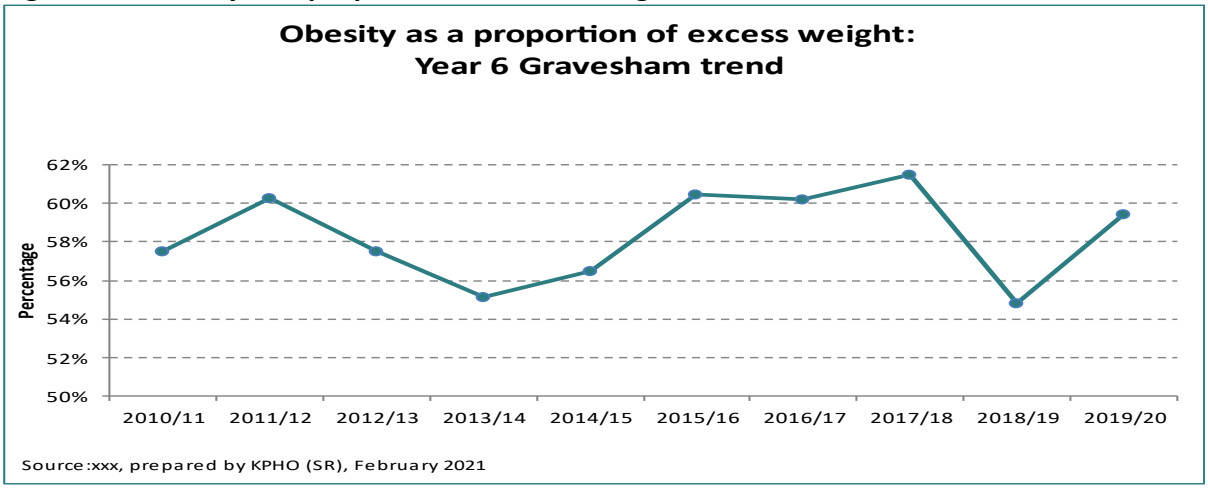
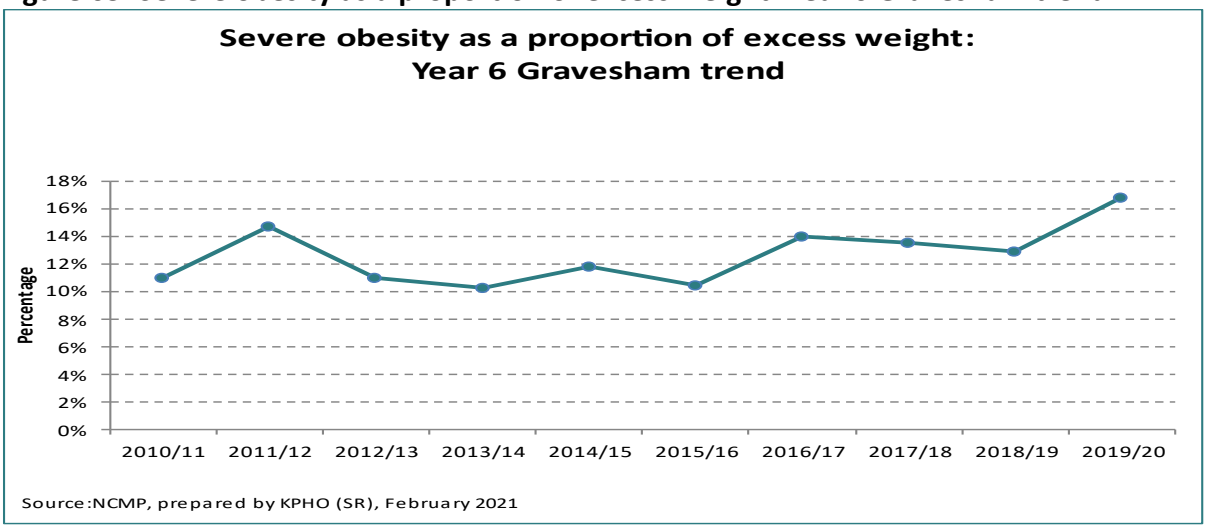


Figure 65. Severe obesity as a proportion of excess weight: Year 6 Gravesham trend

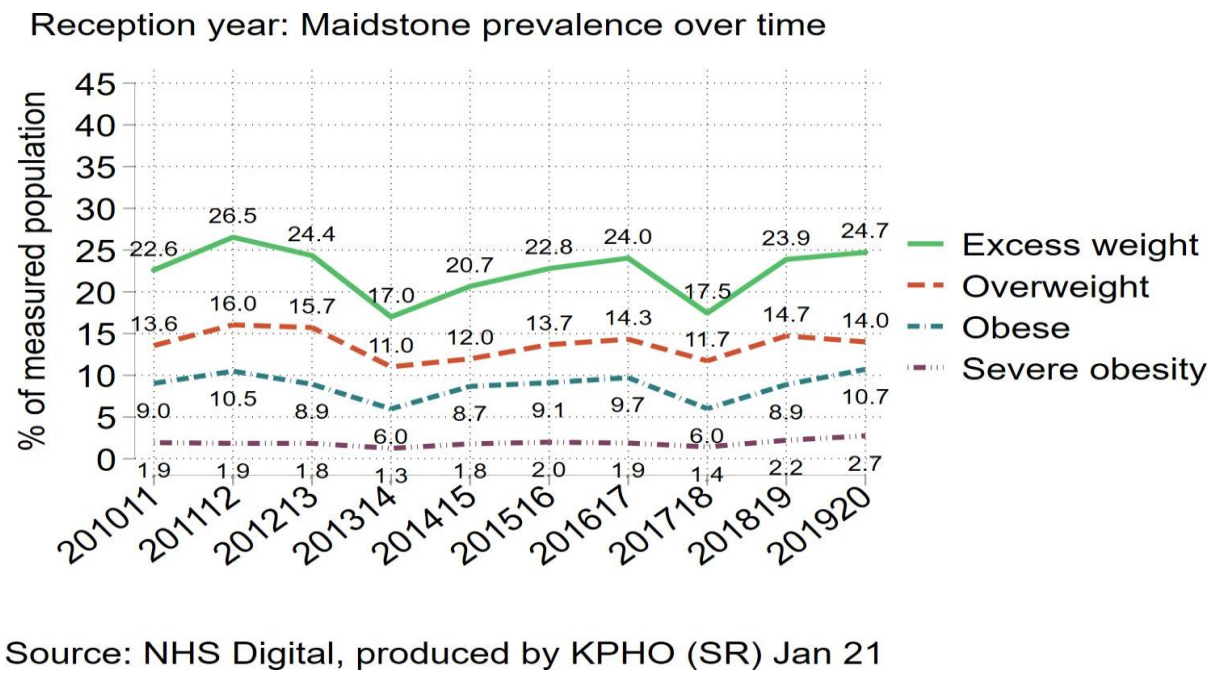


6.8 Maidstone

6.8.1 Year R

The trends in Maidstone for Year R for all weight categories are stable Figures (66-69).

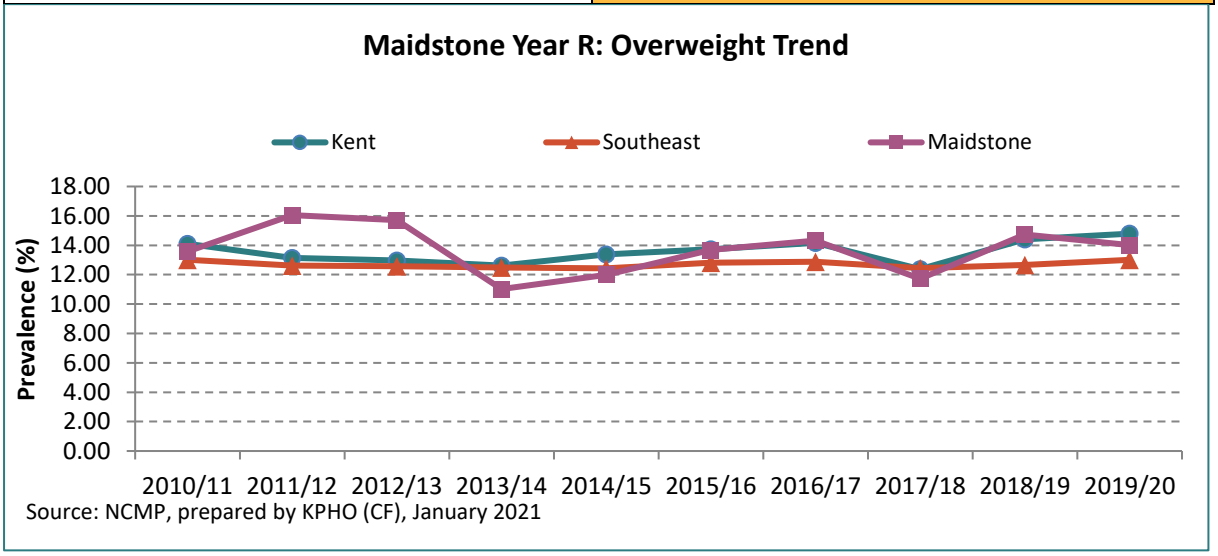
Figure 66. Reception year: Maidstone prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 67. Maidstone Year R: Overweight trend

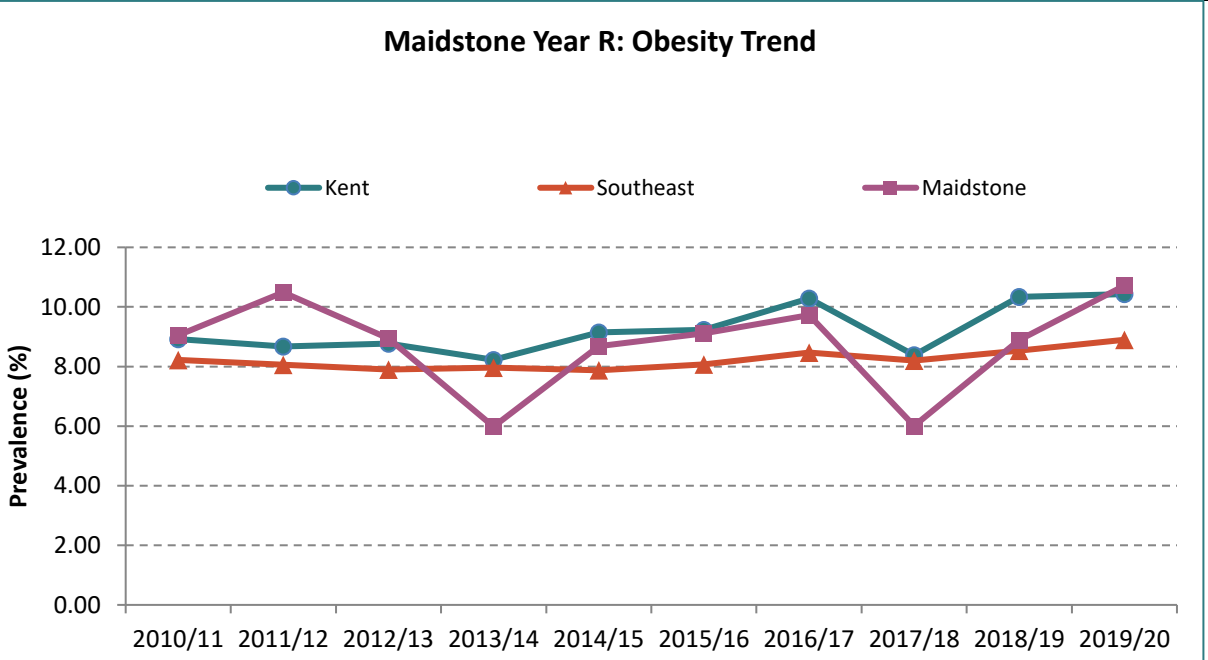
Maidstone	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 68. Maidstone Year R: Obesity trend

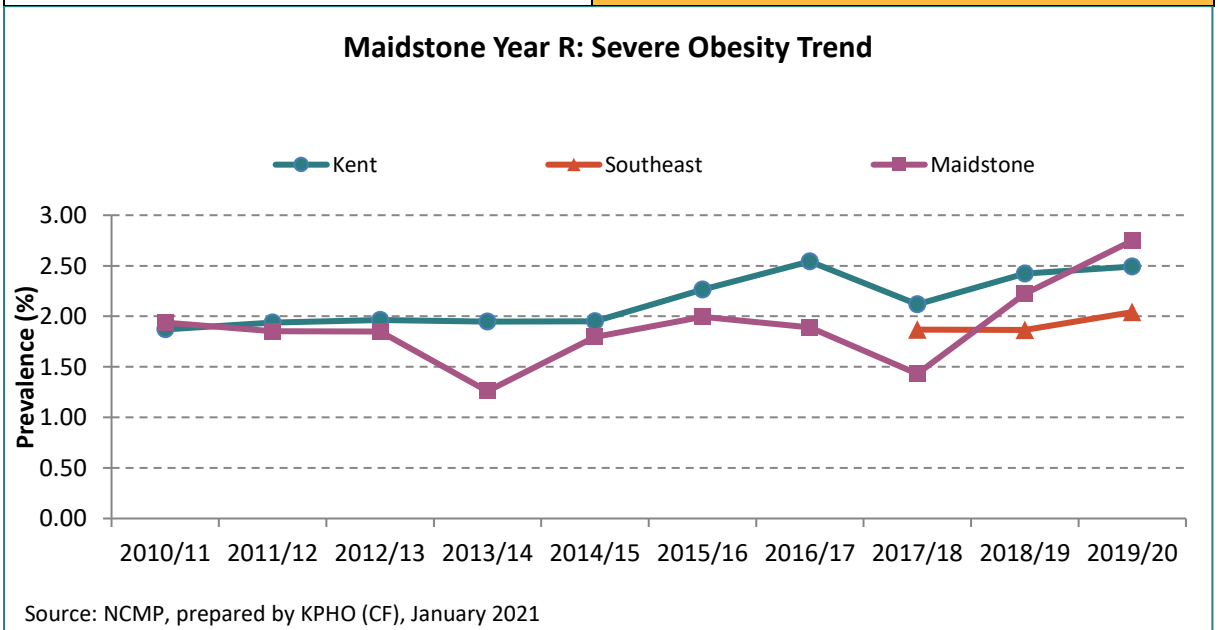
Maidstone	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 69. Maidstone Year R: Severe obesity trend

Maidstone	Stable

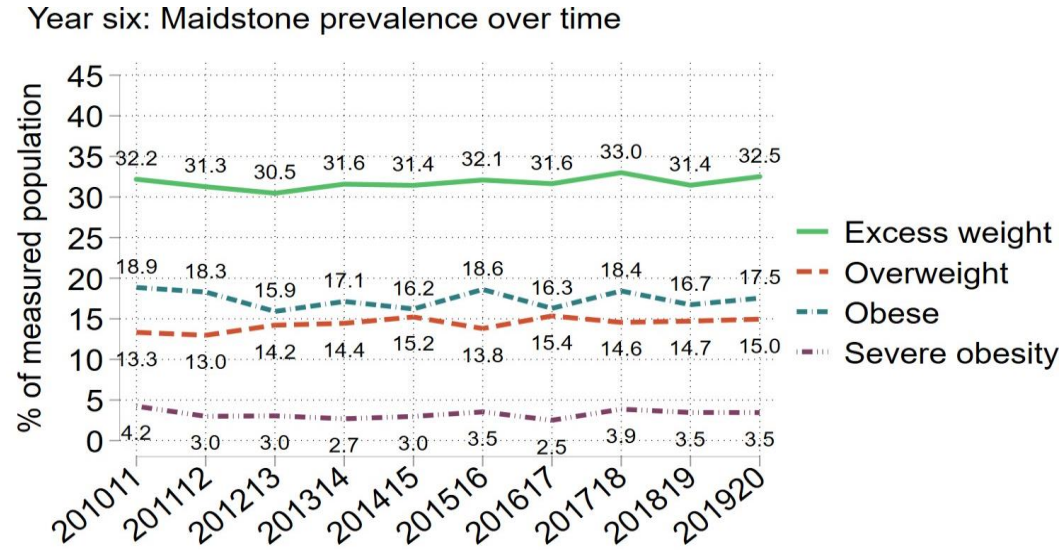


Source: NCMP, prepared by KPHO (CF), January 2021

6.8.2 Year 6

Year 6 children in Maidstone have stable trends in excess weight, obesity and severe obesity (Figures 70; 72-73). However, overweight is increasing (Figure 71). This means that in 2019/20 there were 260 overweight children (15.0%).

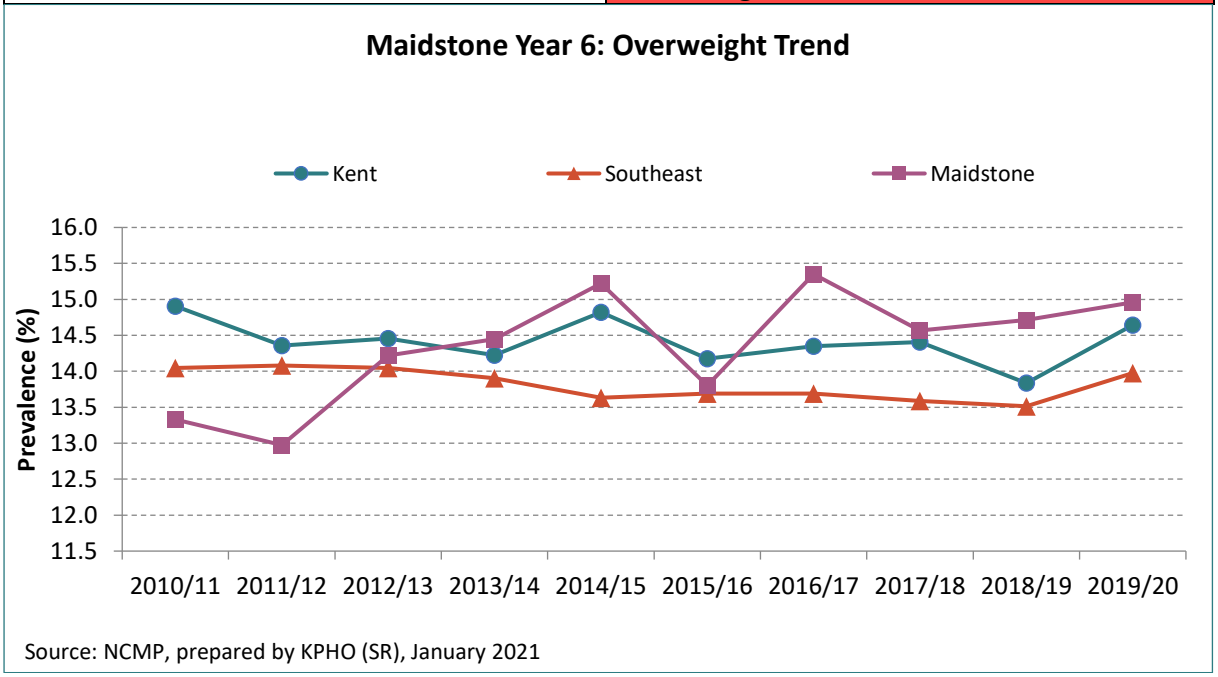
Figure 70. Year 6: Maidstone prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 71. Maidstone Year 6: Overweight trend

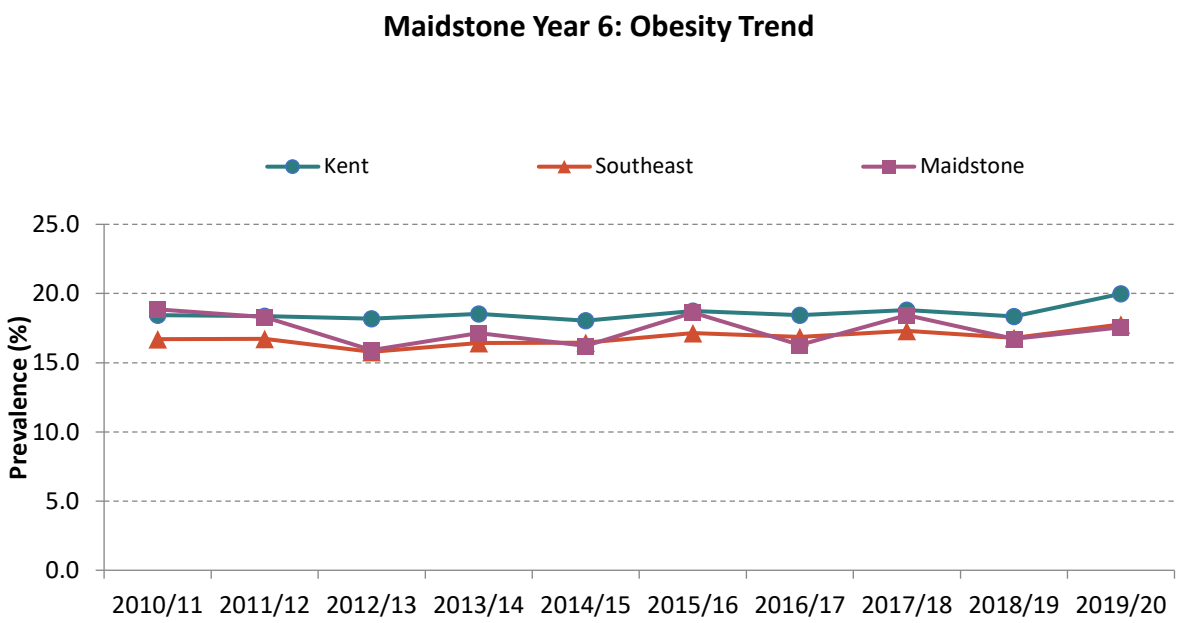
Maidstone	Increasing



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 72. Maidstone Year 6: Obesity trend

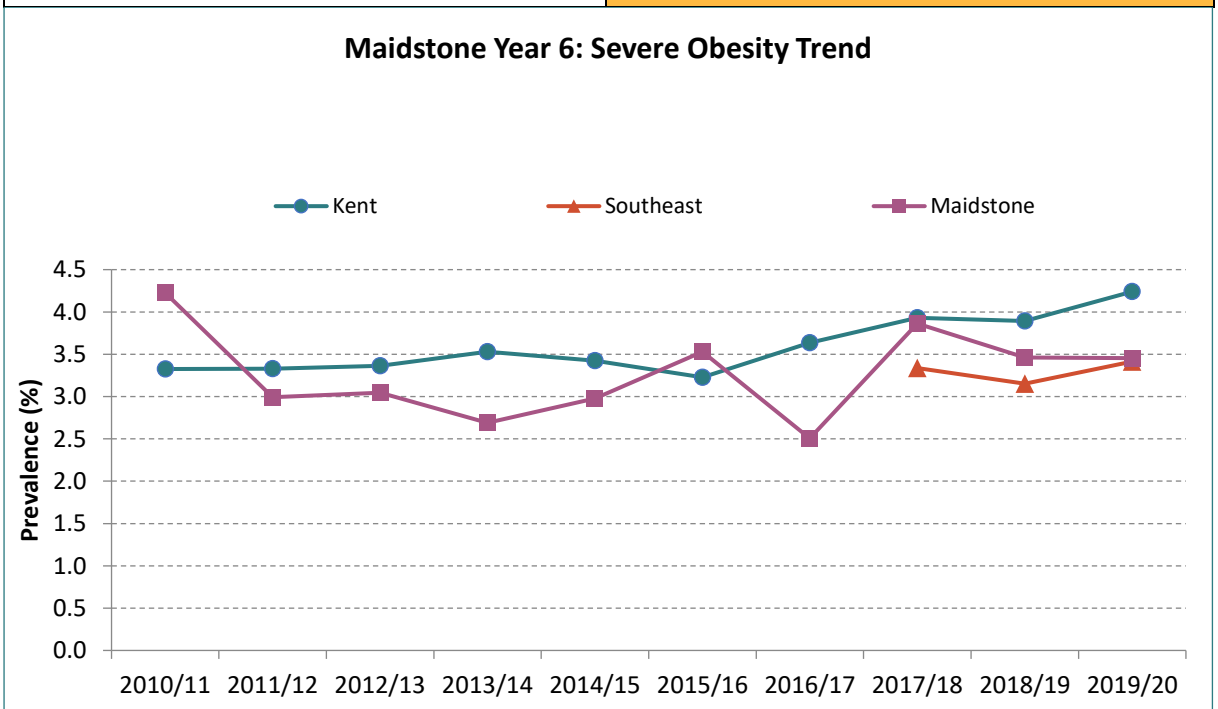
Maidstone	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 73. Maidstone Year 6: Severe obesity trend

Maidstone	Stable



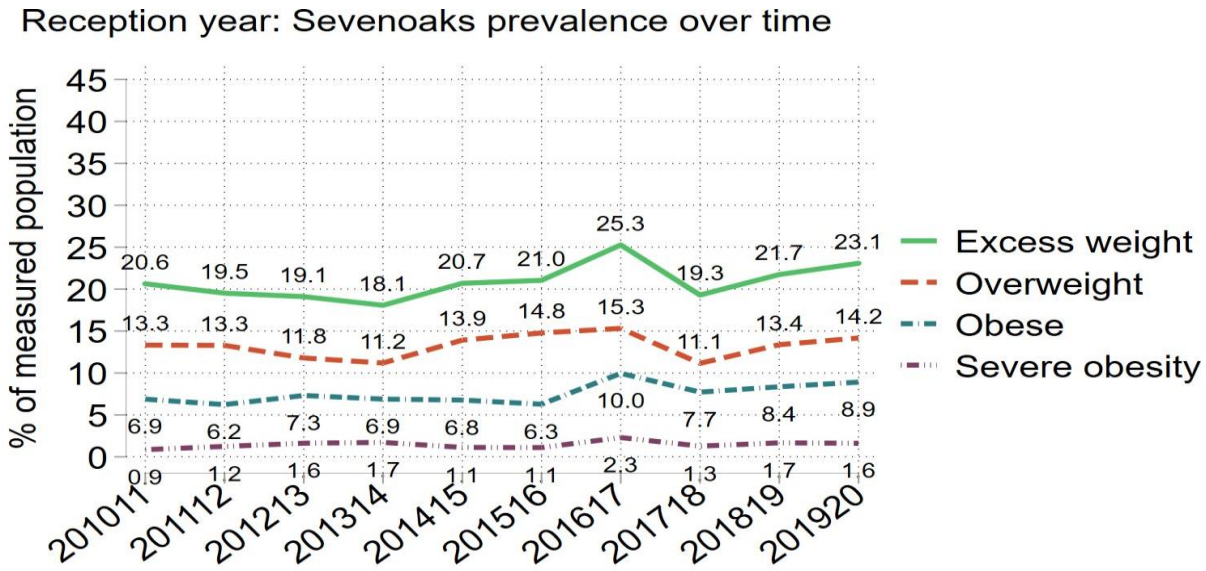
Source: NCMP, prepared by KPHO (SR), January 2021

6.9 Sevenoaks

6.9.1 Year R

The trends in Sevenoaks for Year R for all weight categories are stable (Figures 74-77).

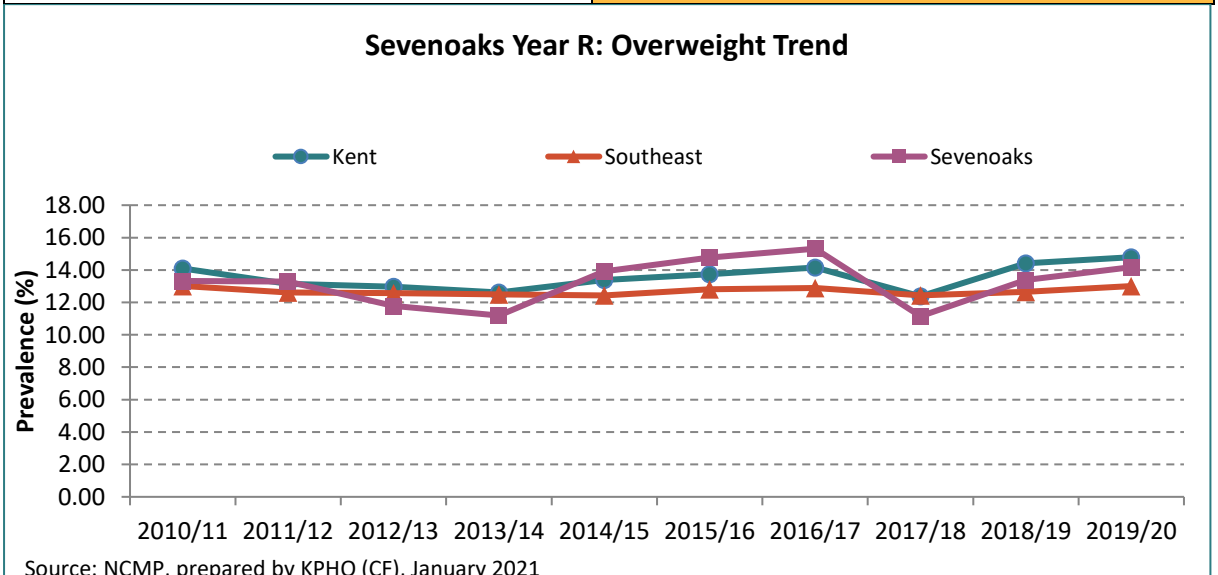
Figure 74. Reception year: Sevenoaks prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 75. Sevenoaks Year R: Overweight trend

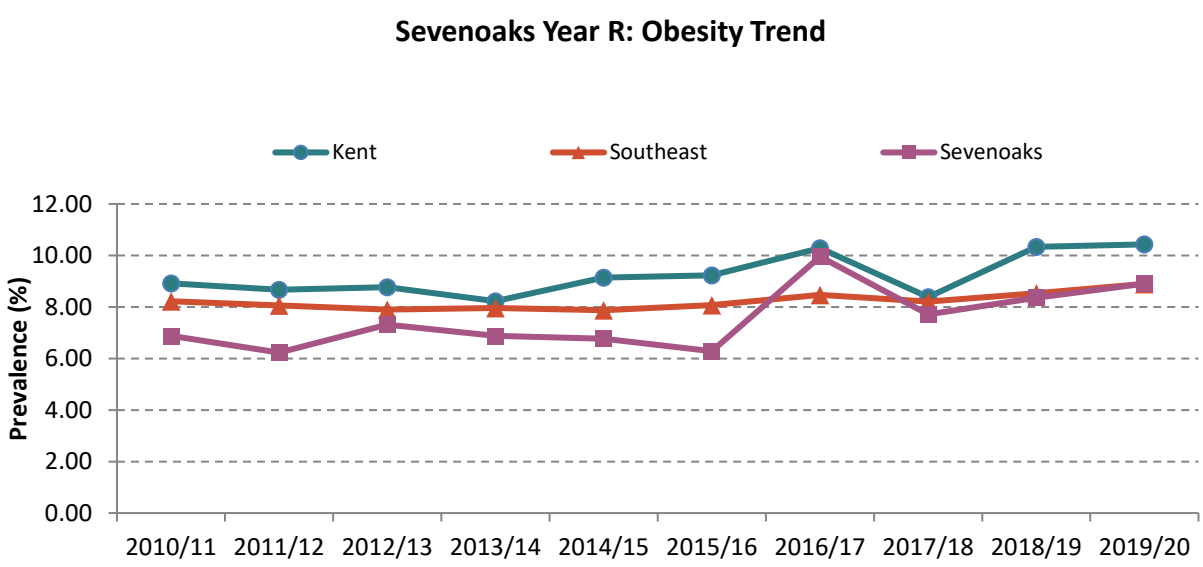
Sevenoaks	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 76. Sevenoaks Year R: Obesity trend

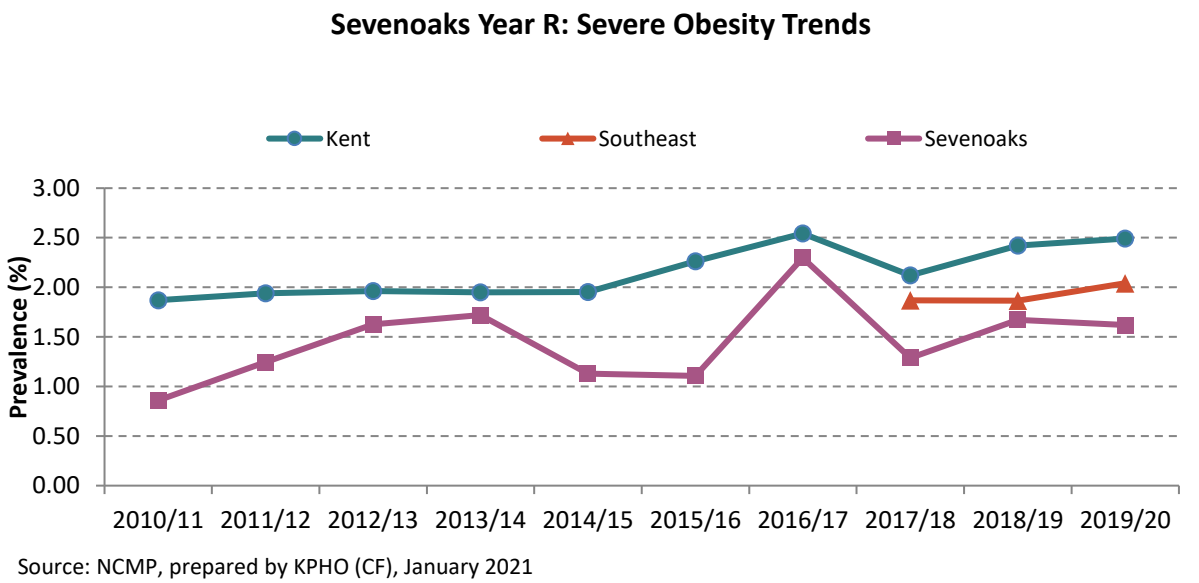
Sevenoaks	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 77. Sevenoaks Year R: Severe obesity trend

Sevenoaks	Stable

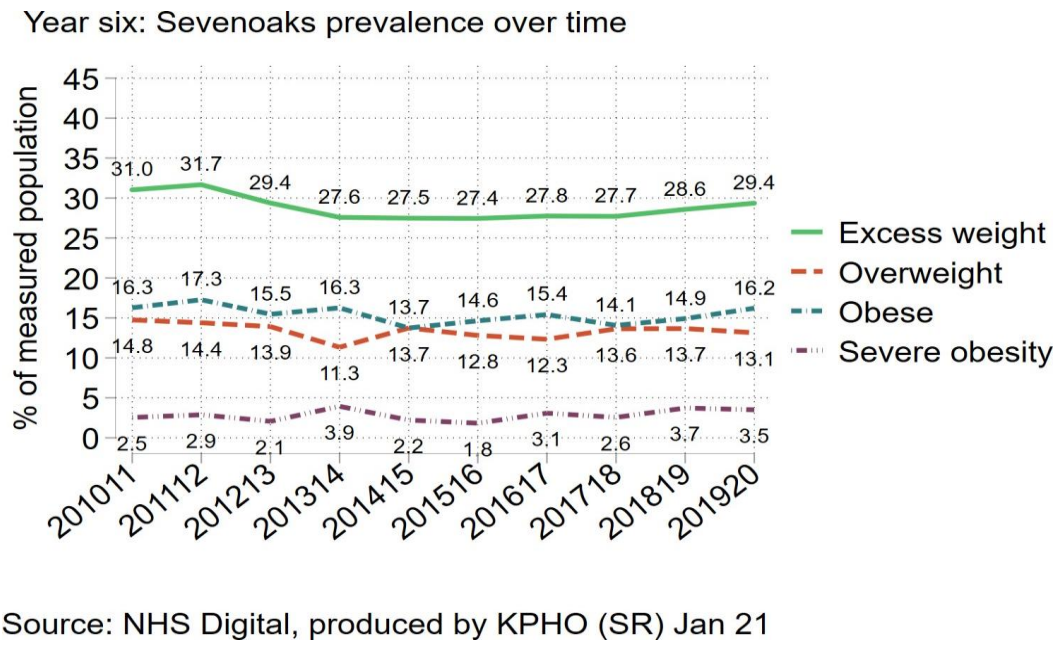


Source: NCMP, prepared by KPHO (CF), January 2021

6.9.2 Year 6

The trends in Sevenoaks for Year 6 for all weight categories are stable (Figures 78-81).

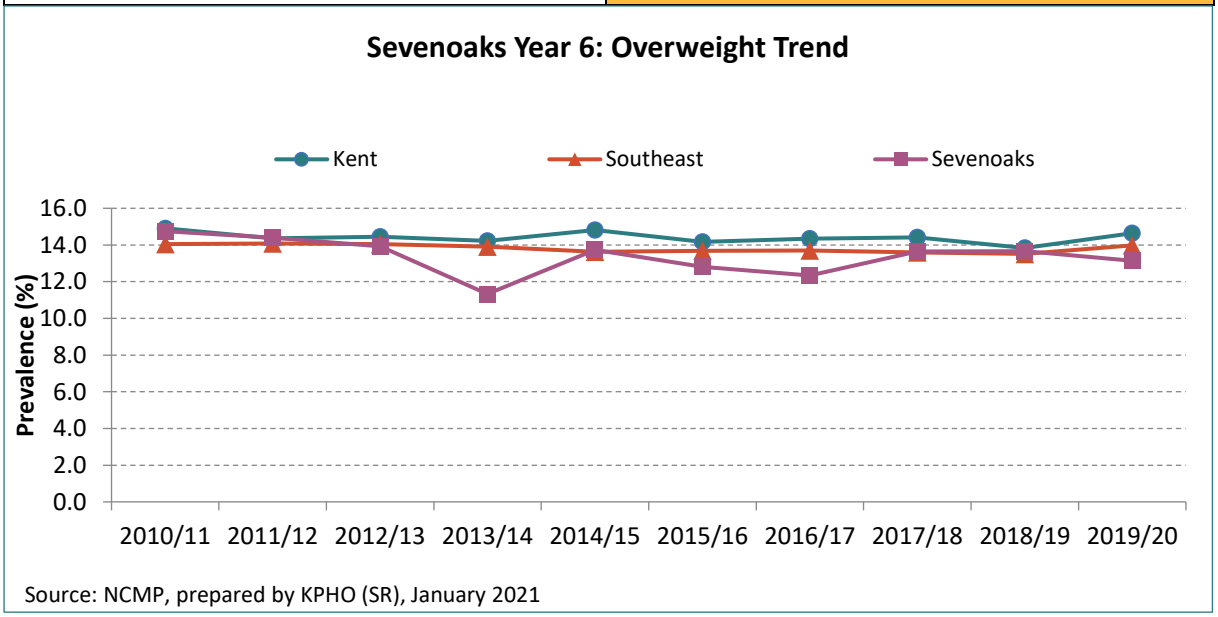
Figure 78. Year 6: Sevenoaks prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 79. Sevenoaks Year 6: Overweight trend

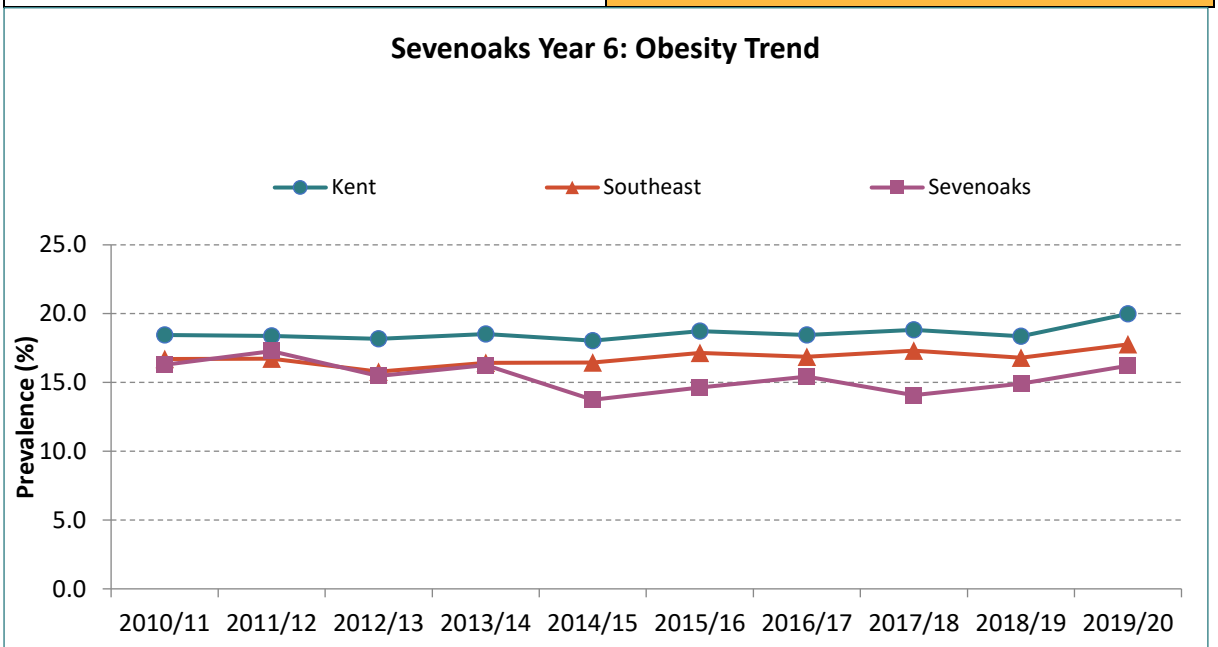
Sevenoaks	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 80. Sevenoaks Year 6: Obesity trend

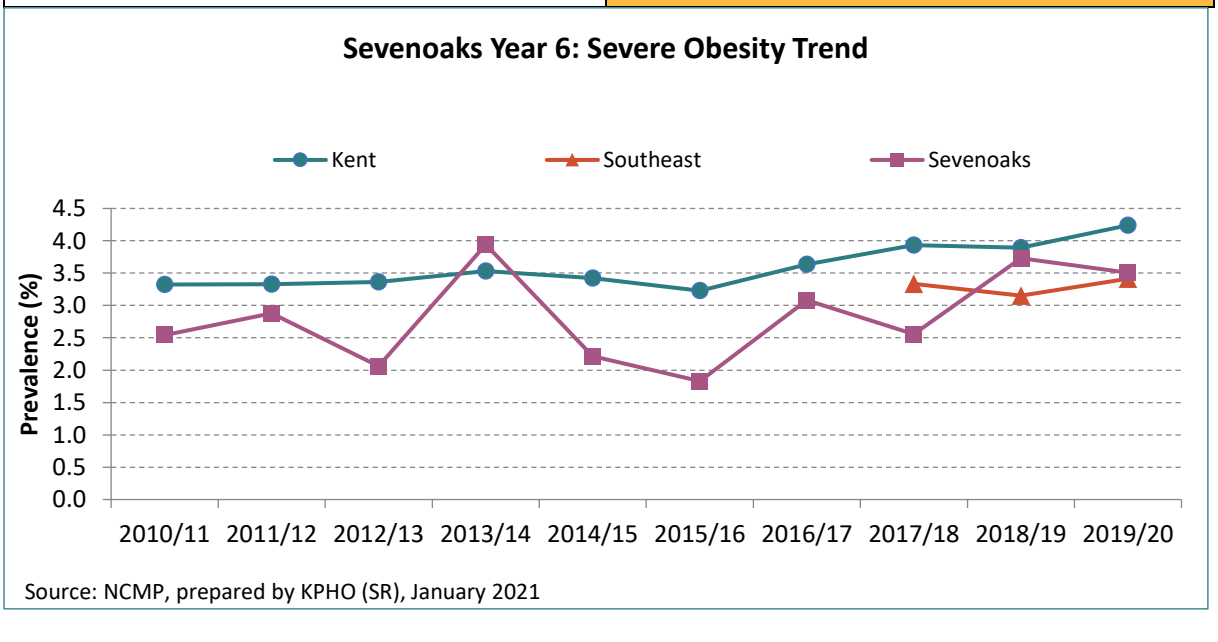
Sevenoaks	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 81. Sevenoaks Year 6: Severe obesity trend

Sevenoaks	Stable



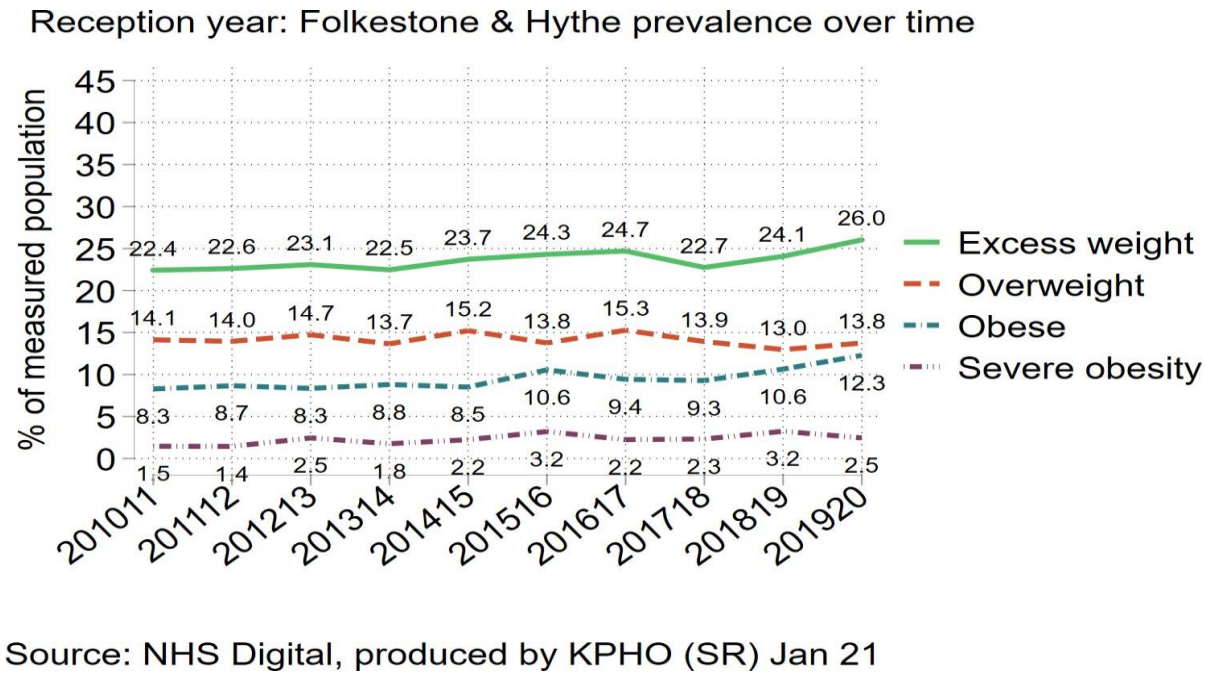
Source: NCMP, prepared by KPHO (SR), January 2021

6.10 Folkestone and Hythe

6.10.1 Year R

In Year R children in Folkestone and Hythe, excess weight, obesity and severe obesity all have an increasing trend (Figures 82; 84-85). This means that in 2019/20, 265 (26.0%) children are carrying excess weight, 125 (12.3%) are obese and 25 (2.5%) are severely obese. Folkestone and Hythe at Year R carry one of the worst profiles (as well as Thanet) as they have three categories of weight gain with increasing trends.

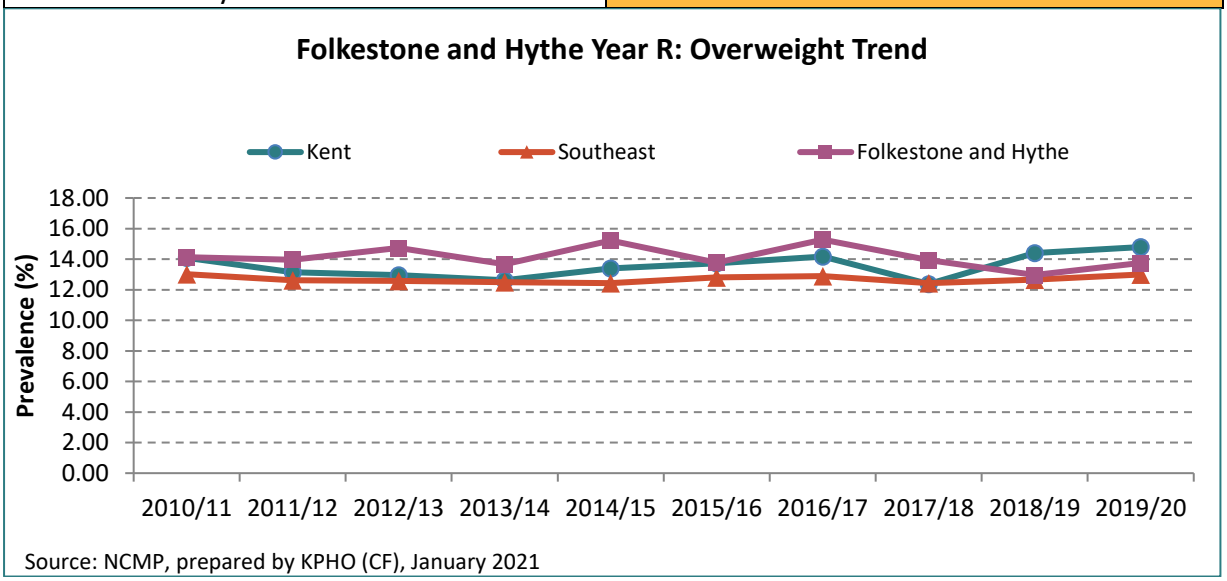
Figure 82. Reception year: Folkestone & Hythe prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 83. Folkestone & Hythe Year R: Overweight trend

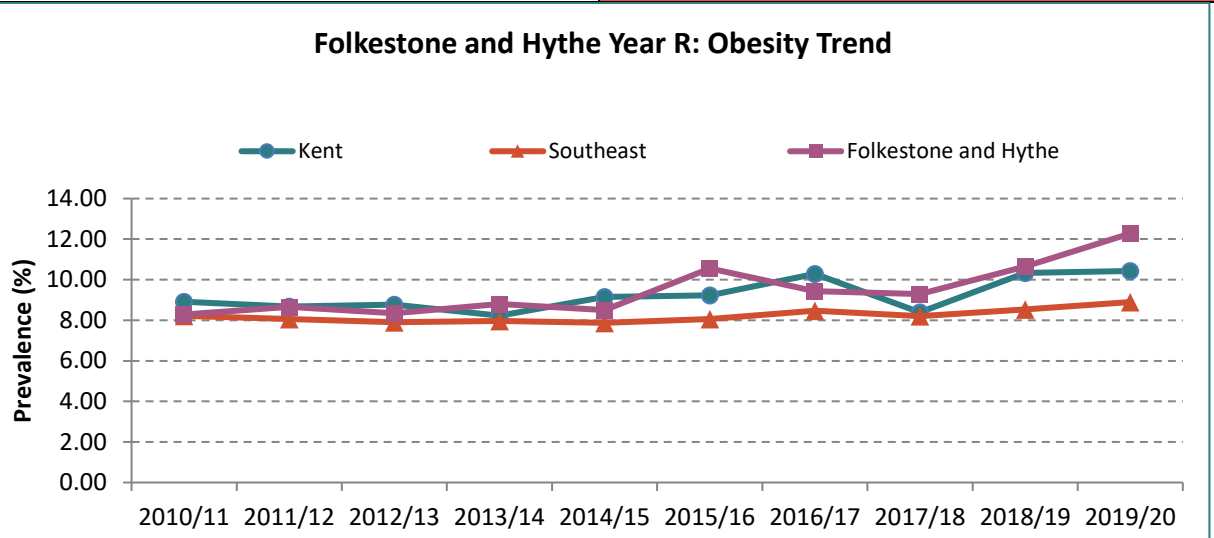
Folkestone & Hythe	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 84. Folkestone & Hythe Year R: Obesity trend

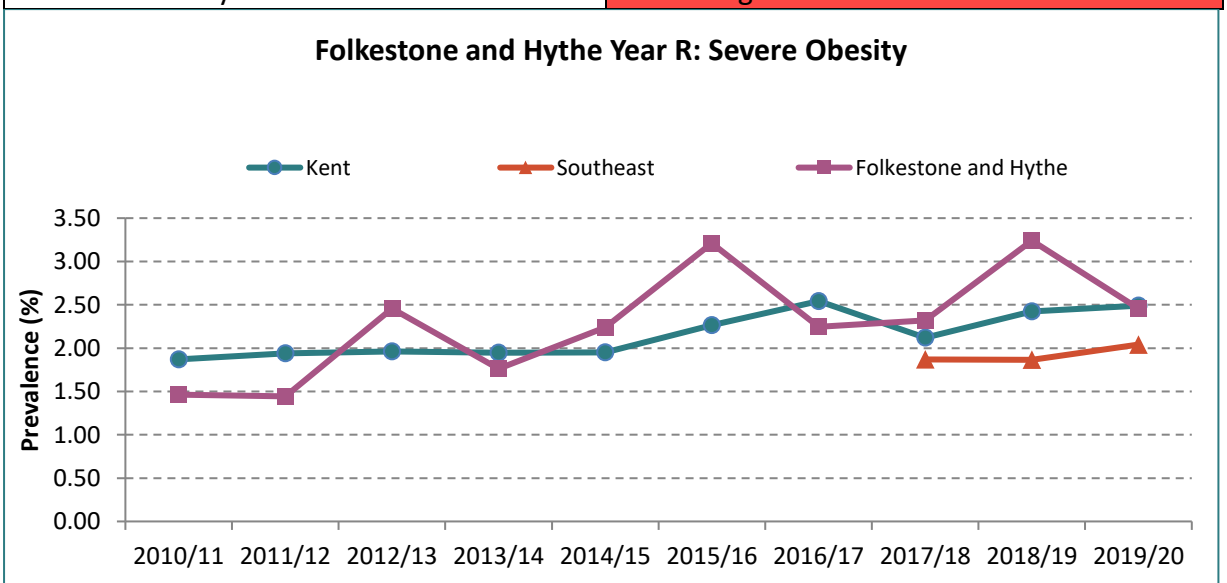
Folkestone & Hythe	Increasing



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 85. Folkestone & Hythe Year R: Severe obesity trend

Folkestone & Hythe	Increasing

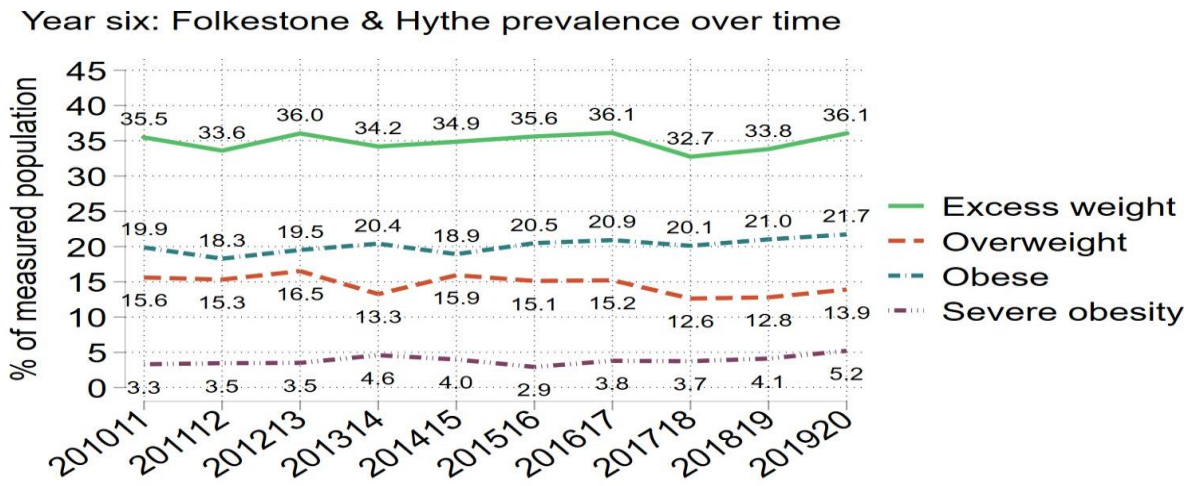


Source: NCMP, prepared by KPHO (CF), January 2021

6.10.2 Year 6

In Year 6 in Folkestone and Hythe the trend for excess weight is stable, with the trends for obesity and severe obesity increasing (Figures 86; 88-89). This means that in 2019/20 there were 250 children (21.7%) who were obese and 60 (5.2%) children who were severely obese. Interestingly the trend for overweight is decreasing (Figure 87) which may suggest that children are becoming more likely to become obese/severe obese than remain in the overweight category. Therefore, overweight decreasing here may not be a positive sign, and needs to be interpreted with caution – please see later for further analysis.

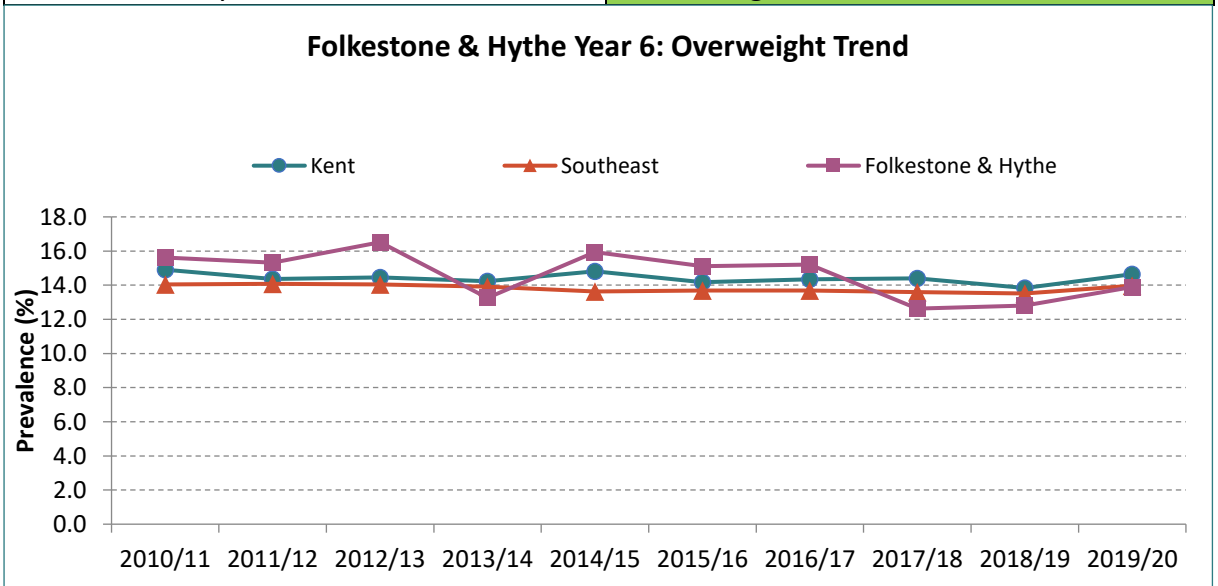
Figure 86. Year 6: Folkestone & Hythe prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 87. Folkestone & Hythe Year 6: Overweight trend

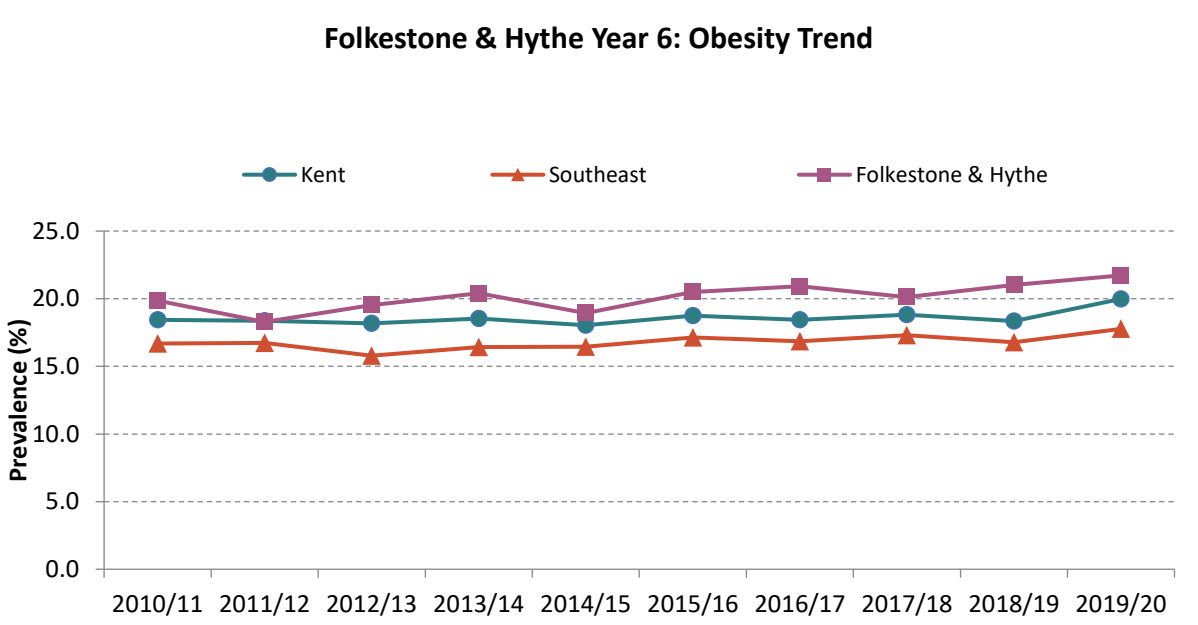
Folkestone & Hythe	Decreasing



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 88. Folkestone & Hythe Year 6: Obesity trend

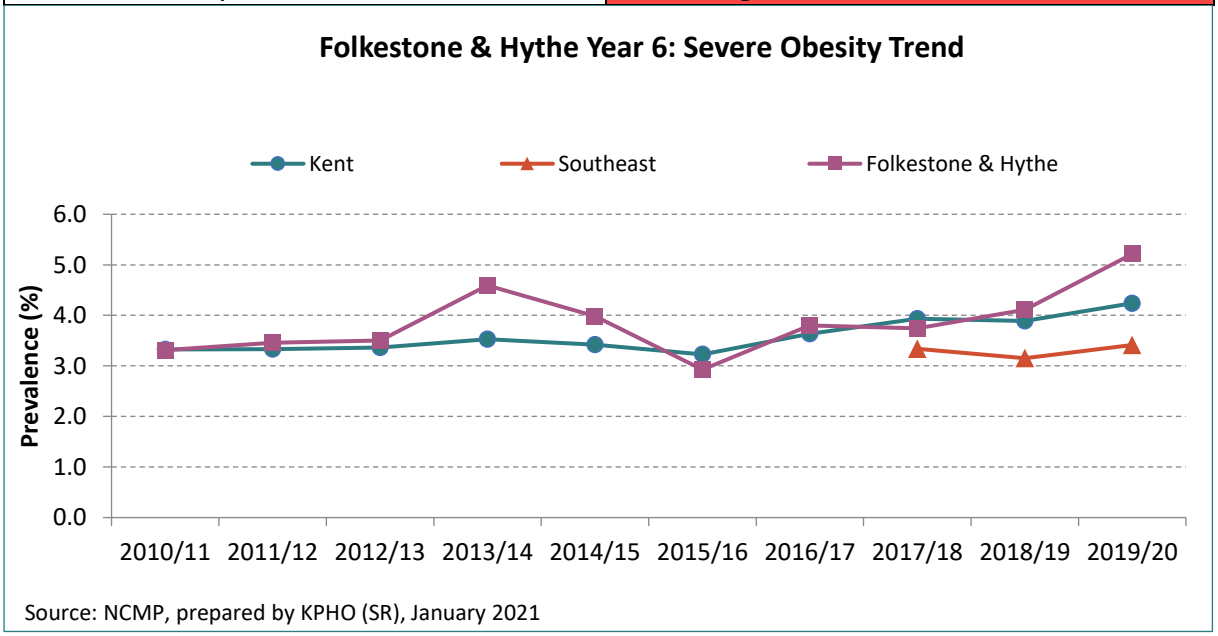
Folkestone & Hythe	Increasing



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 89. Folkestone & Hythe Year 6: Severe obesity trend

Folkestone & Hythe	Increasing



Source: NCMP, prepared by KPHO (SR), January 2021

Looking further into the differences in the charts above, we analysed obesity as a proportion of total excess weight (Figures 90-91). Both obesity and severe obesity show an increasing trend. This is concerning, as even though, the 'overweight' cateogory is showing a decreasing trend, this suggests that a greater proportion Year 6 children in Folkestone & Hythe are becoming obese and severely obese and no longer being 'held' in the overweight category.

Figure 90. Obesity as a proportion of excess weight: Year 6 Folkestone & Hythe trend

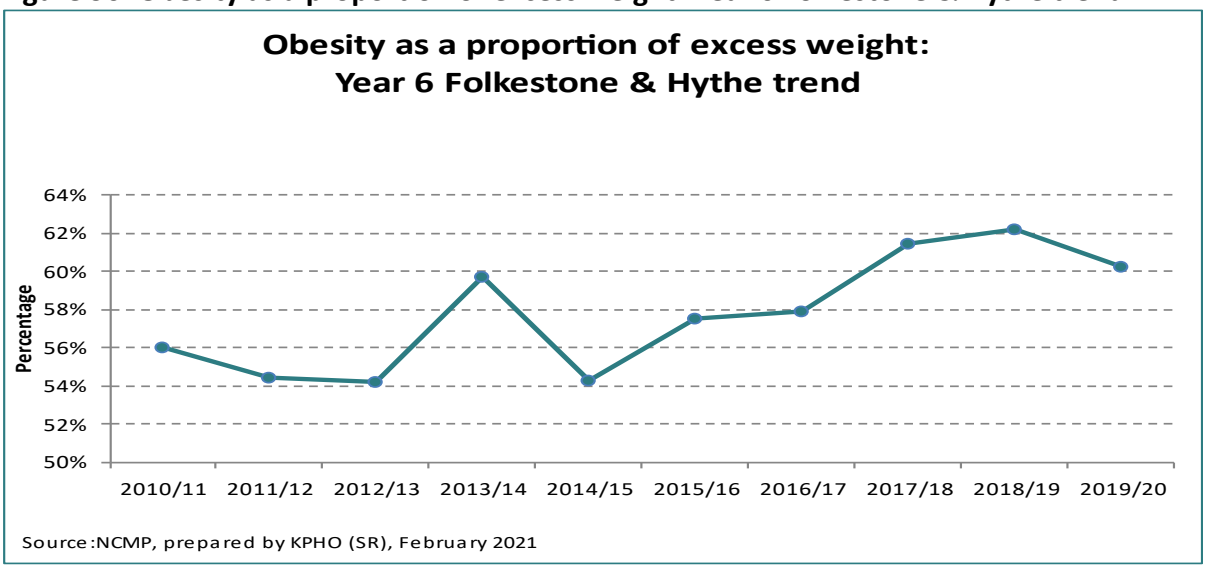
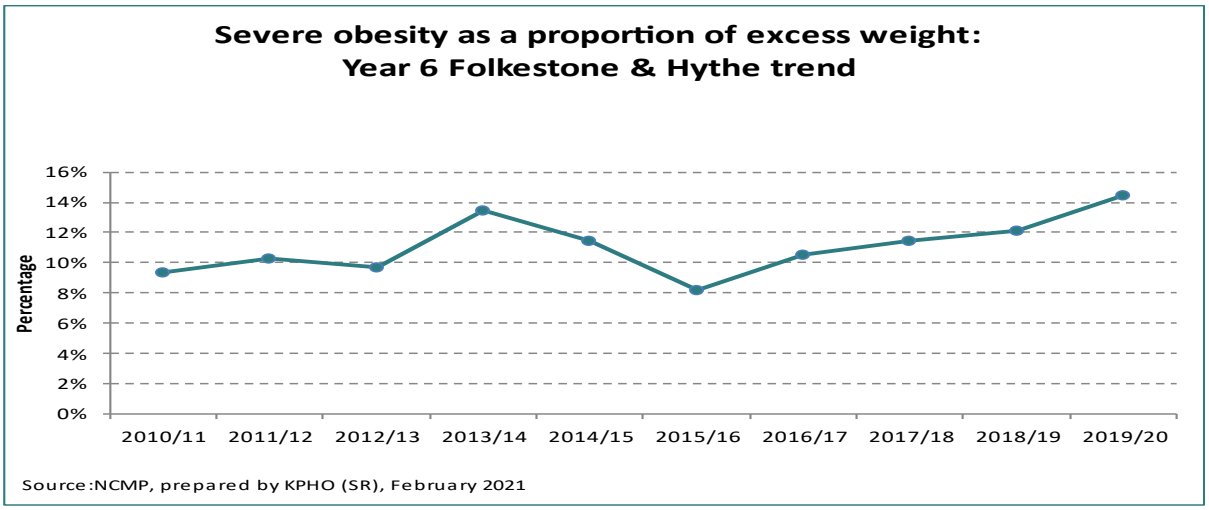


Figure 91. Severe obesity as a proportion of excess weight: Year 6 Folkestone & Hythe trend



6.11 Swale

6.11.1 Year R

Swale in Year R has an increasing trend in excess weight. This means that 430 children (27.5%) in 2019/20 had excess weight.

Figure 92. Reception year: Swale prevalence over time

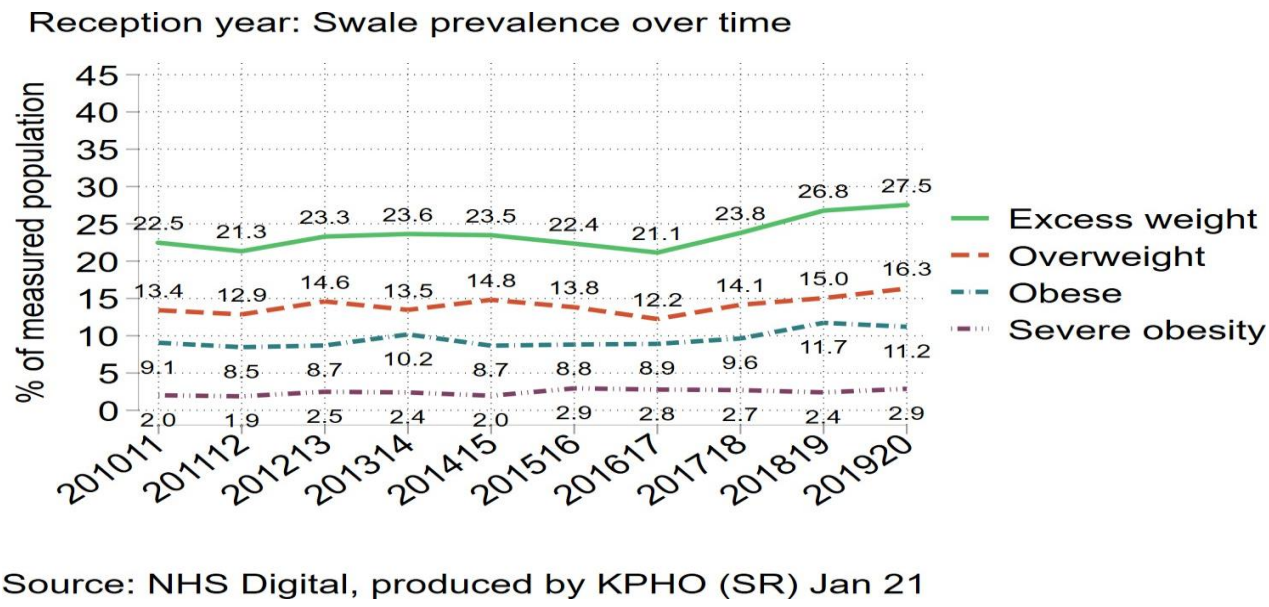


Figure 93. Swale Year R: Overweight trends

Swale	Stable

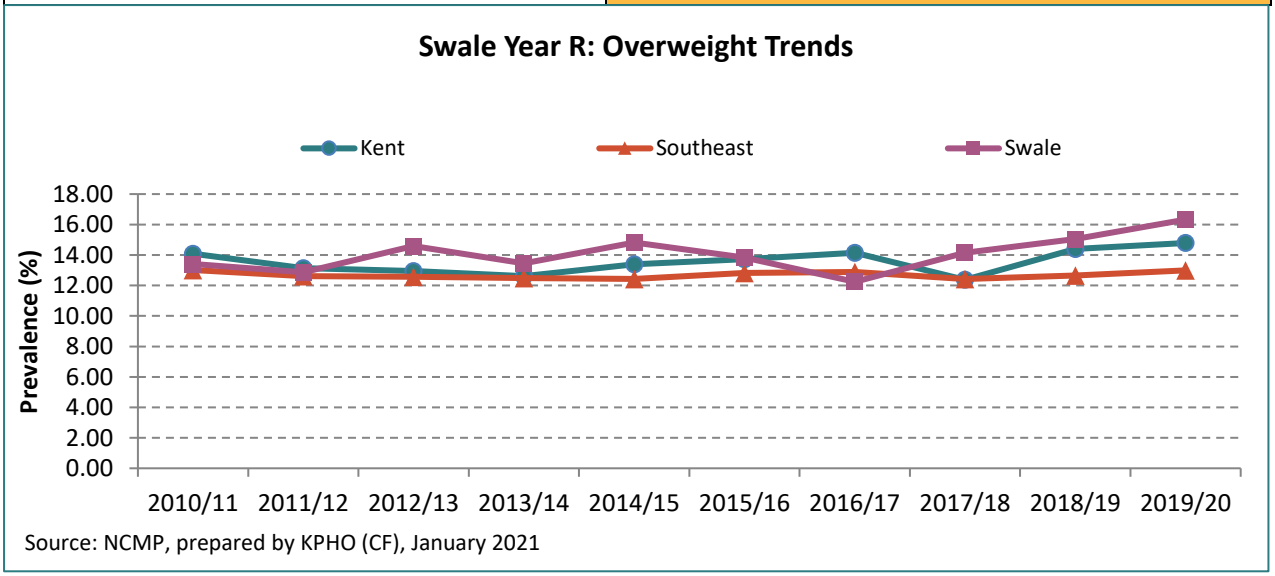


Figure 94. Swale Year R: Obesity trends

Swale	Stable

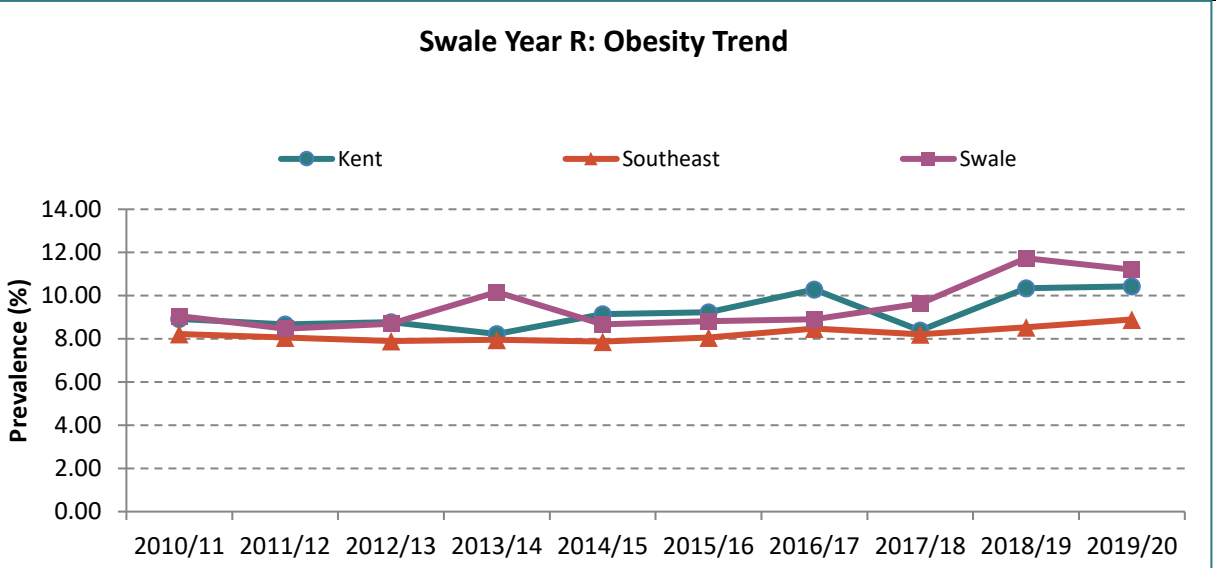
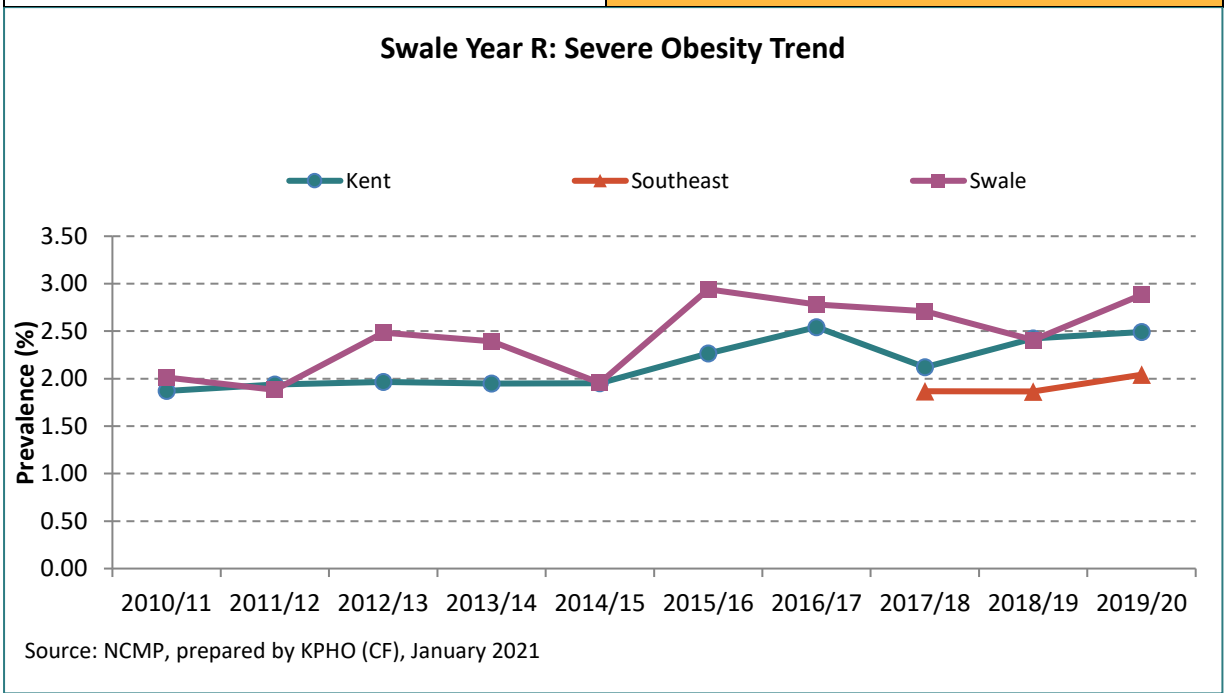


Figure 95. Swale Year R: Severe obesity trends

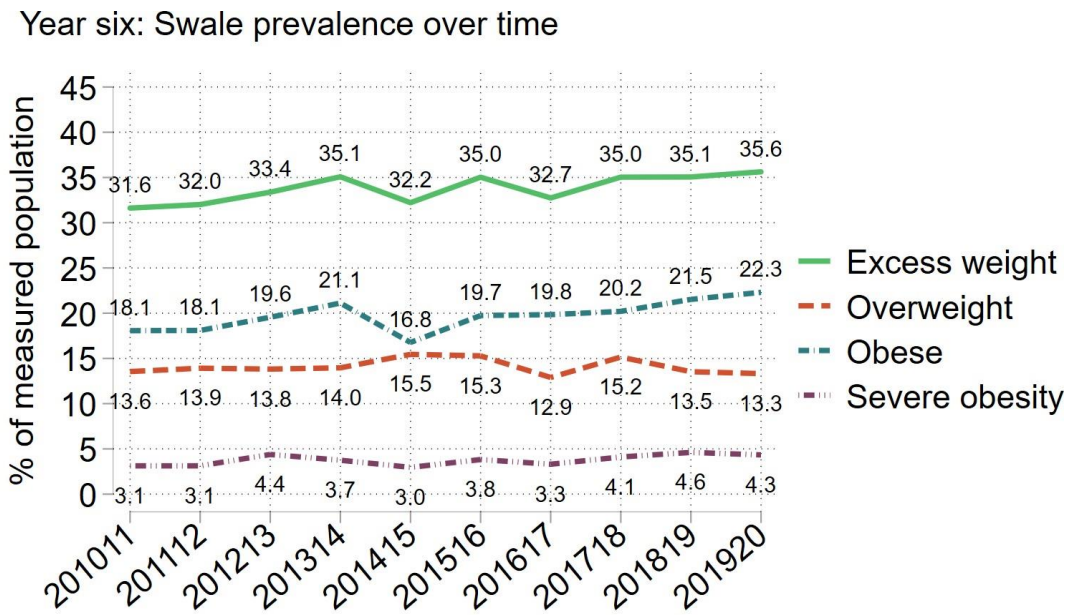
Swale	Stable



6.11.2 Year 6

In Year 6 in Swale, there is an increasing trend in excess weight and obesity, and stable trends in overweight and severe obesity (Figures 96-99). This means in 2019/20 there are 360 (22.3%) children who are obese.

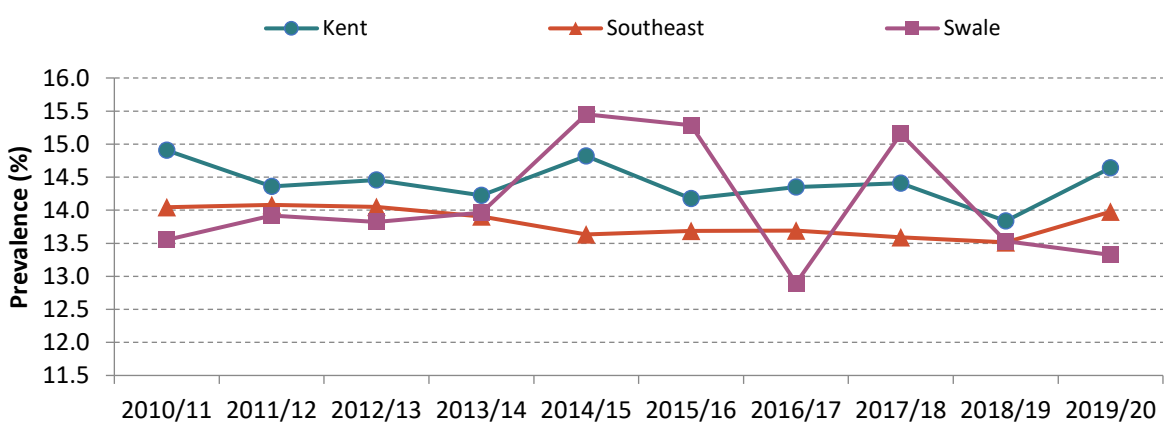
Figure 96. Year 6: Swale prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 97. Swale Year 6: Overweight trend

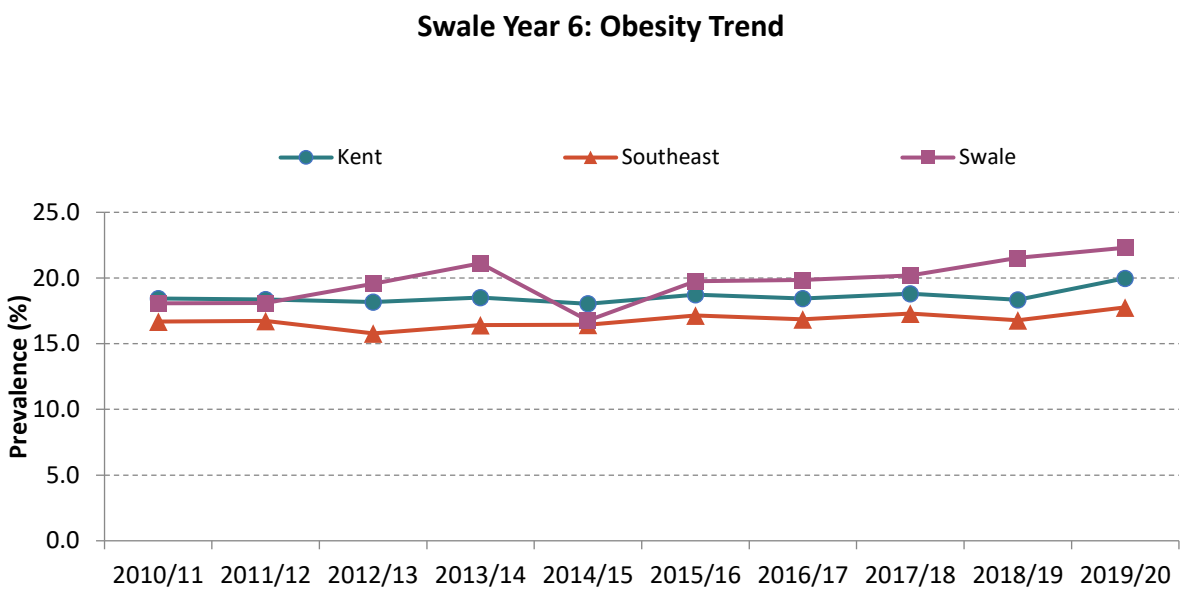
Swale	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 98. Swale Year 6: Obesity trend

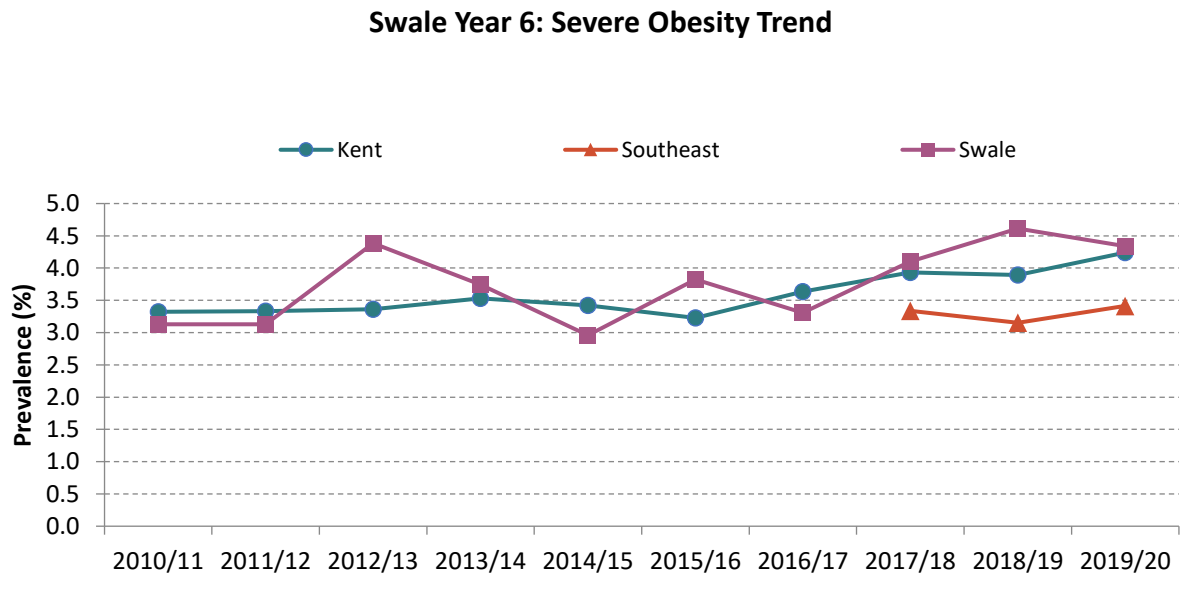
Swale	Increasing



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 99. Swale Year 6: Severe obesity trend

Swale	Stable



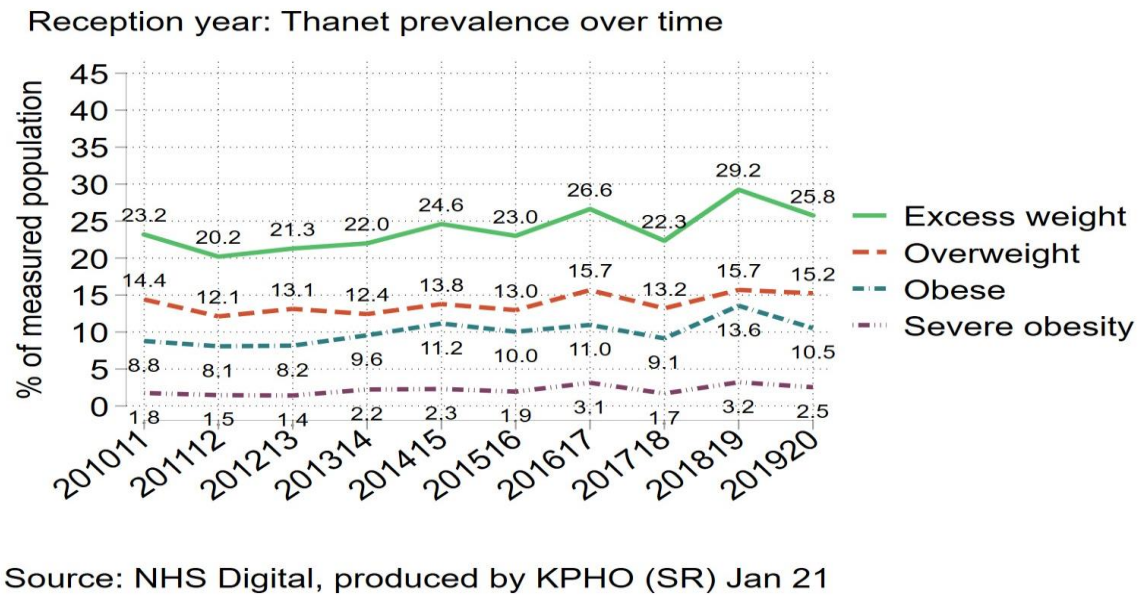
Source: NCMP, prepared by KPHO (SR), January 2021

6.12 Thanet

6.12.1 Year R

In Year R children in Thanet, excess weight, obesity and severe obesity all have an increasing trend (Figures 100; 102-103). This means that in 2019/20, 355 (25.8%) children are carrying excess weight, 145 (10.5%) are obese and 35 (2.5%) are severely obese. Thanet at Year R carry one of the worst profiles (as well as Folkestone and Hythe) as they have three categories of weight gain with increasing trends.

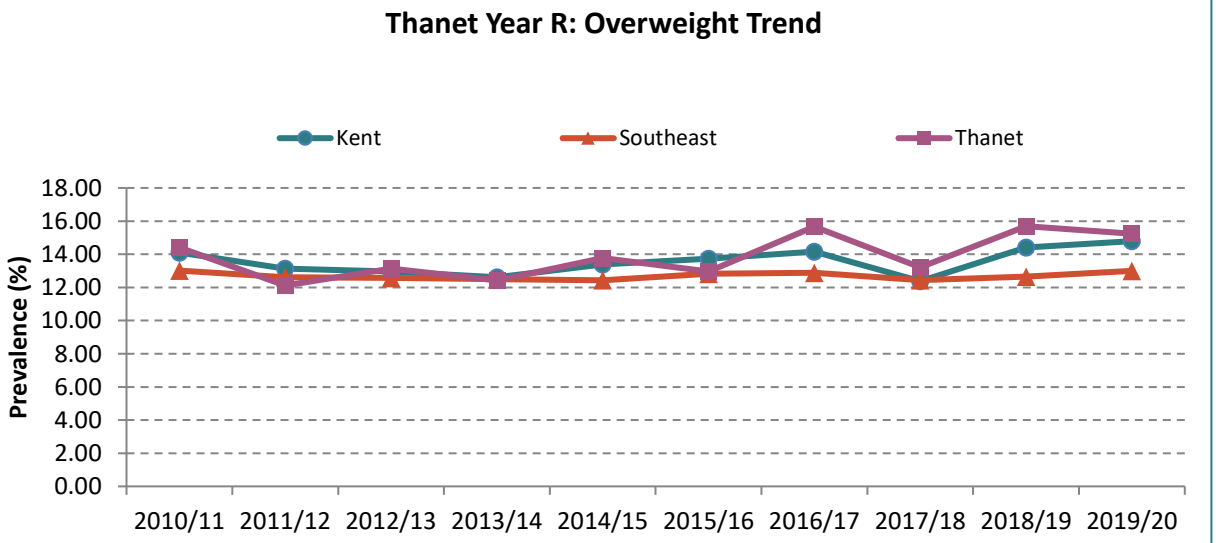
Figure 100. Reception year: Thanet prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 101. Thanet Year R: Overweight trend

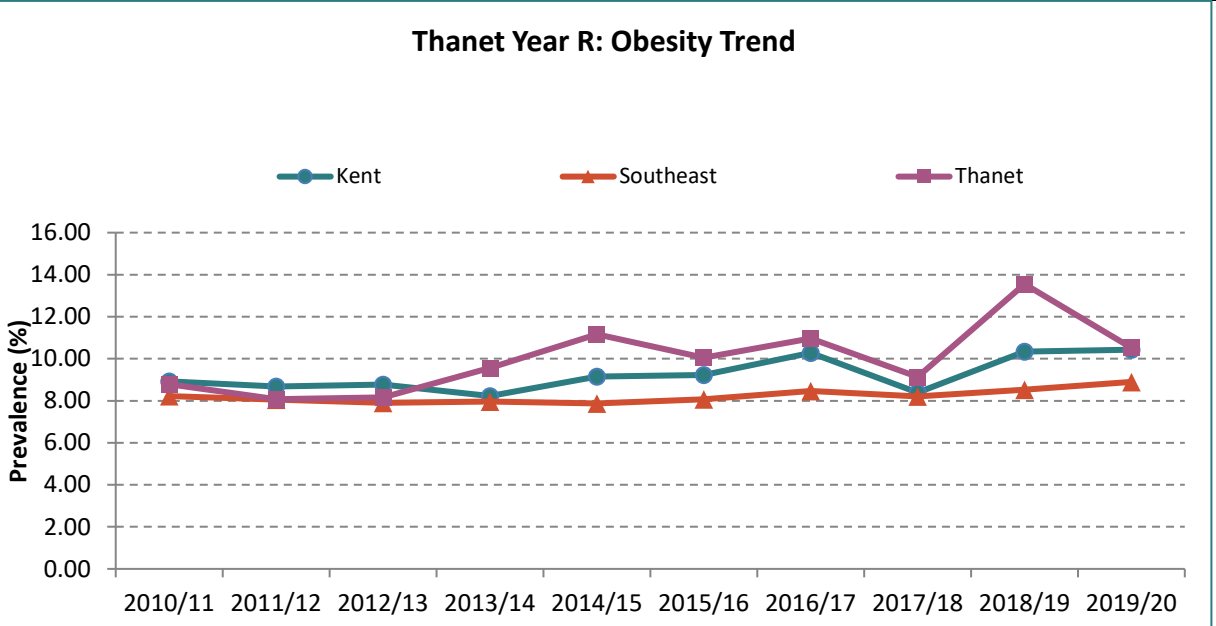
Thanet	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 102. Thanet Year R: Obesity trend

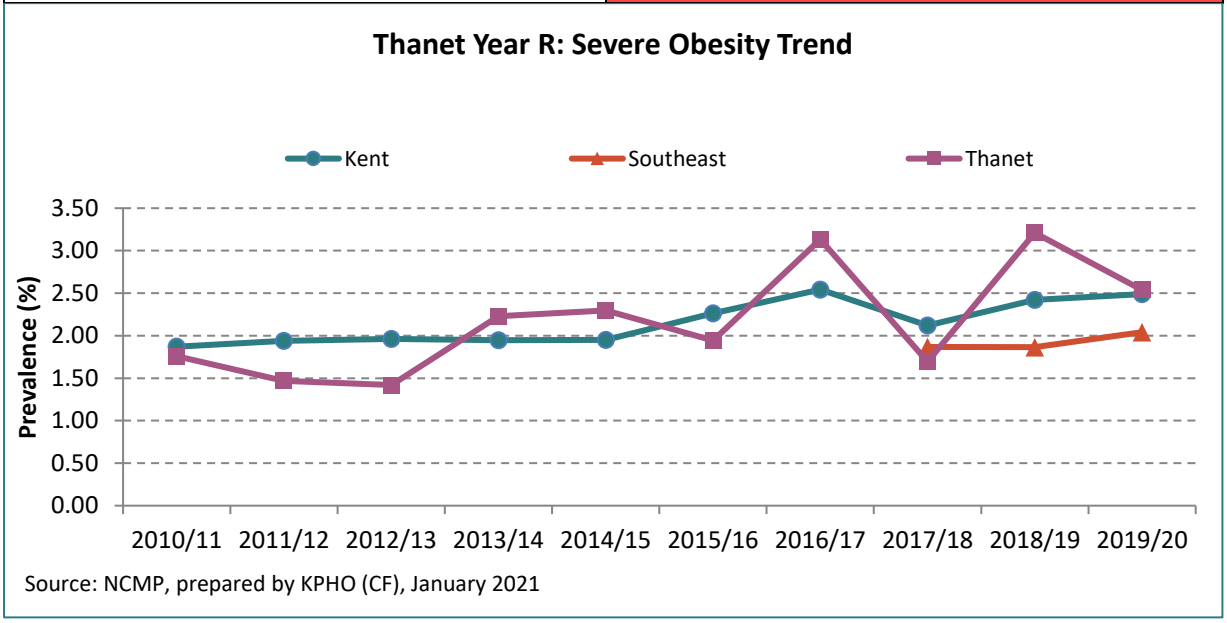
Thanet	Increasing



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 103. Thanet Year R: Severe obesity trend

Thanet	Increasing

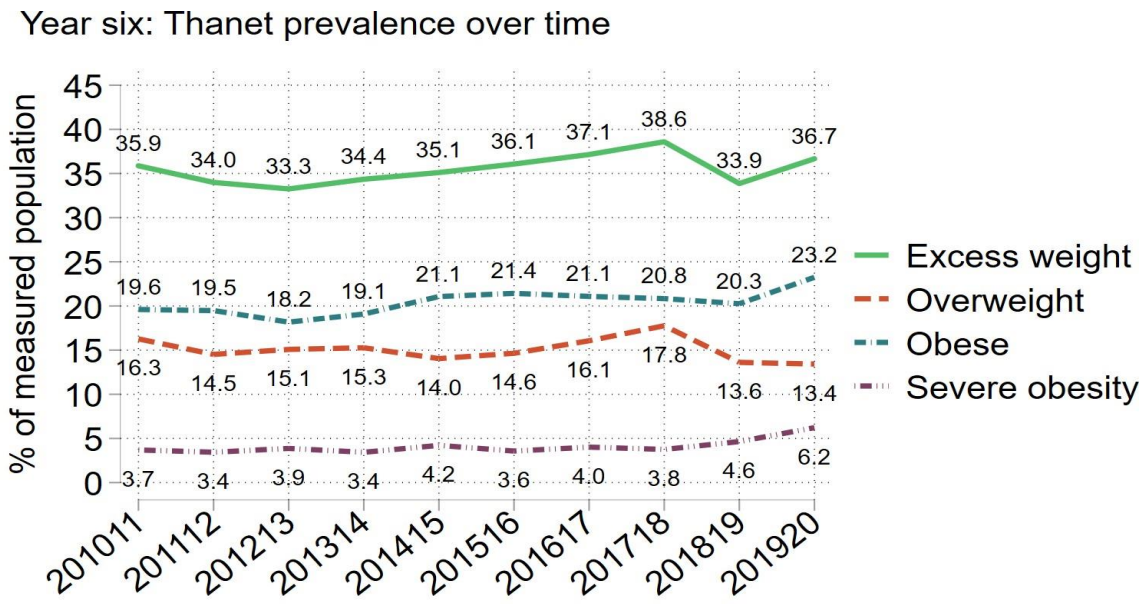


Source: NCMP, prepared by KPHO (CF), January 2021

6.12.2 Year 6

The trends in Thanet for Year 6 for all weight categories are stable (Figures 104-107).

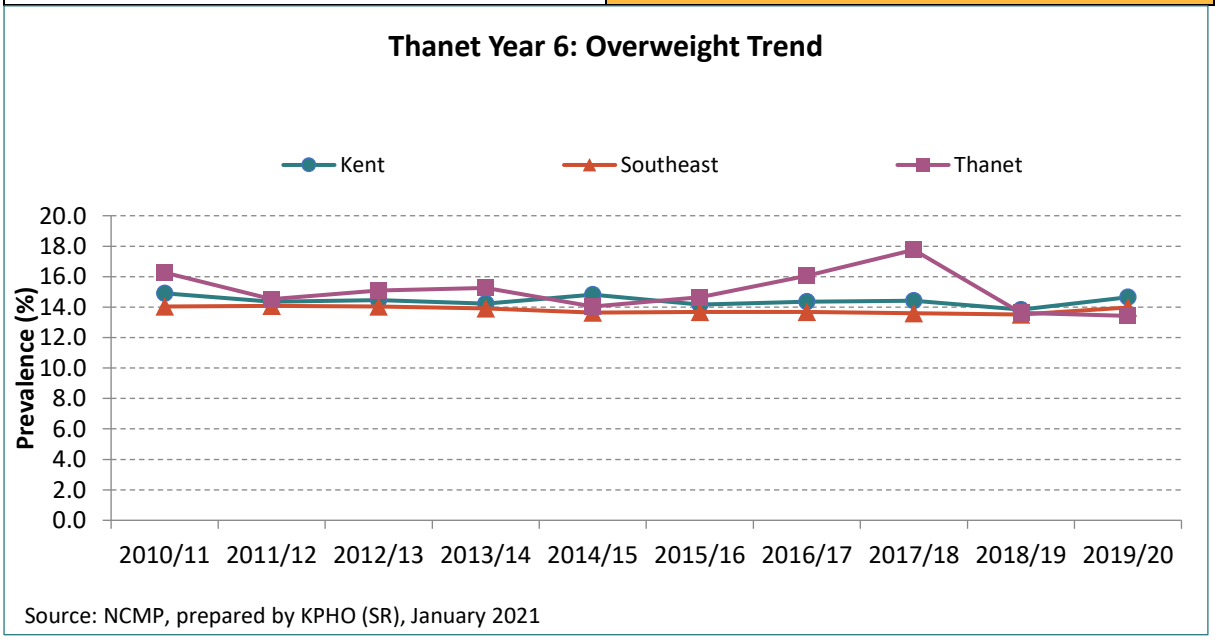
Figure 104. Year 6: Thanet prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 105. Thanet Year 6: Overweight trend

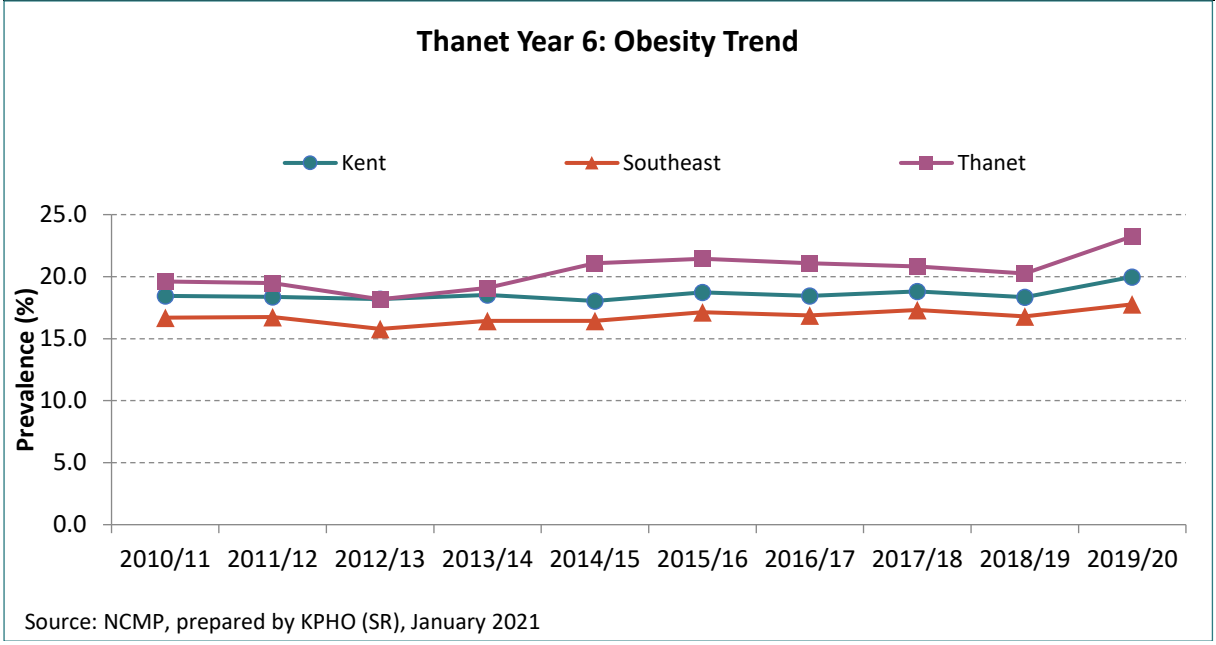
Thanet	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 106. Thanet Year 6: Obesity trend

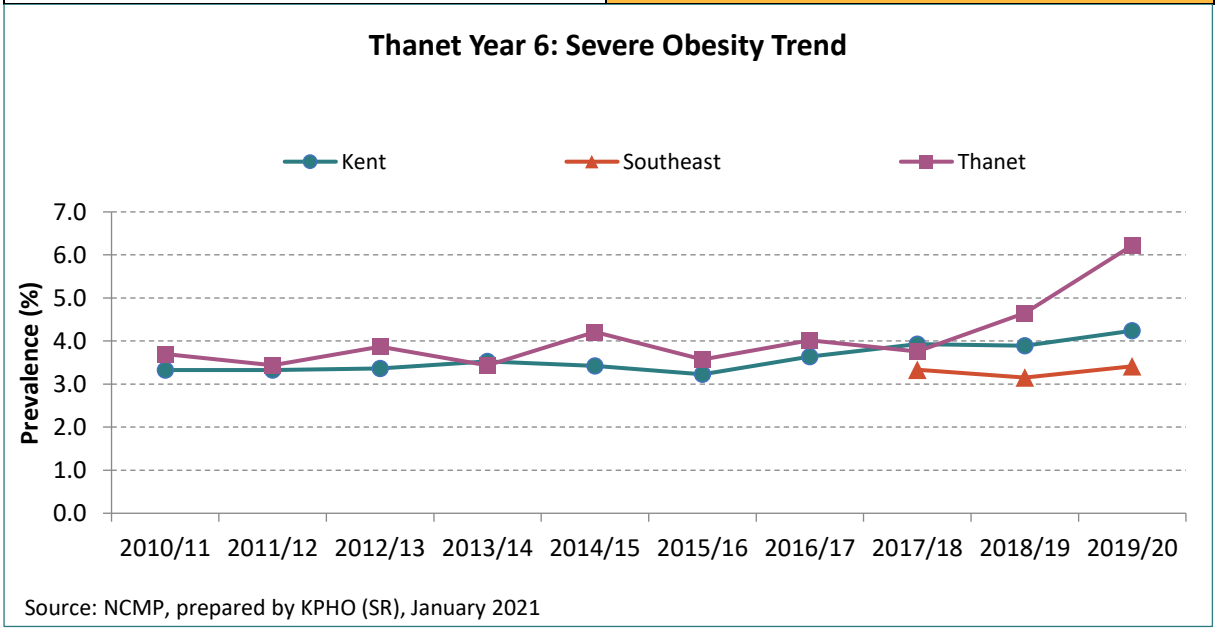
Thanet	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 107. Thanet Year 6: Severe obesity trend

Thanet	Stable



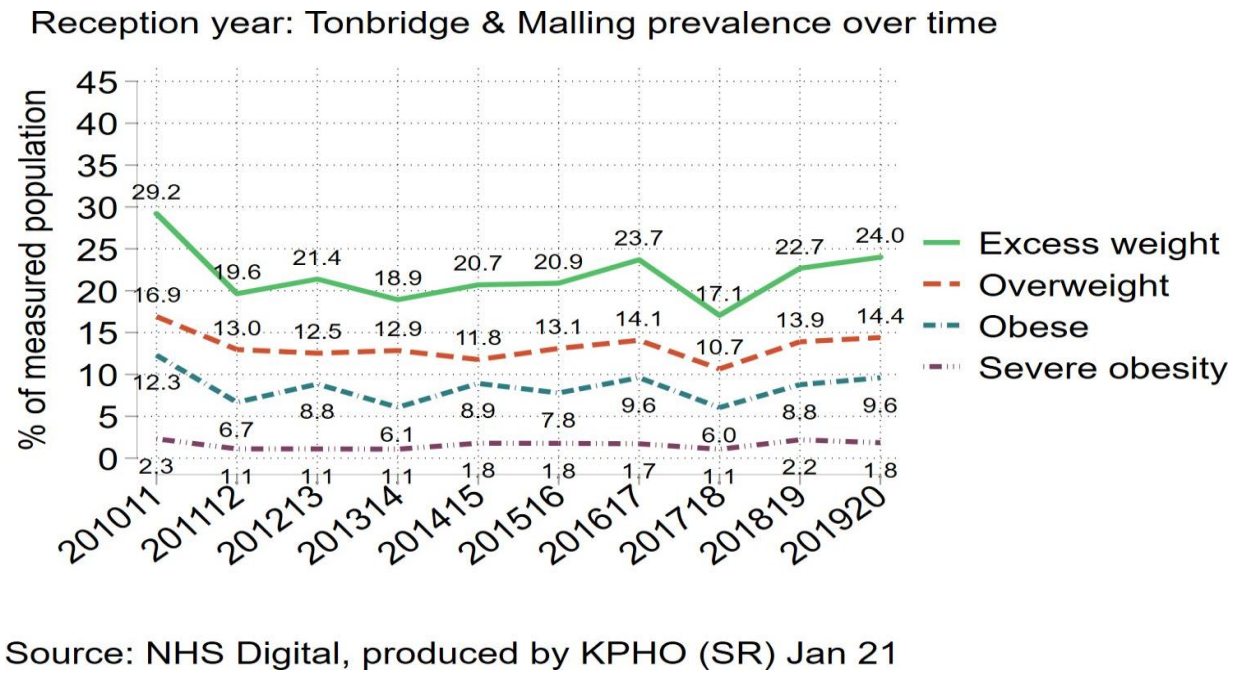
Source: NCMP, prepared by KPHO (SR), January 2021

6.13 Tonbridge and Malling

6.13.1 Year R

The trends in Tonbridge and Malling for Year R for all weight categories are stable (Figures 108-111).

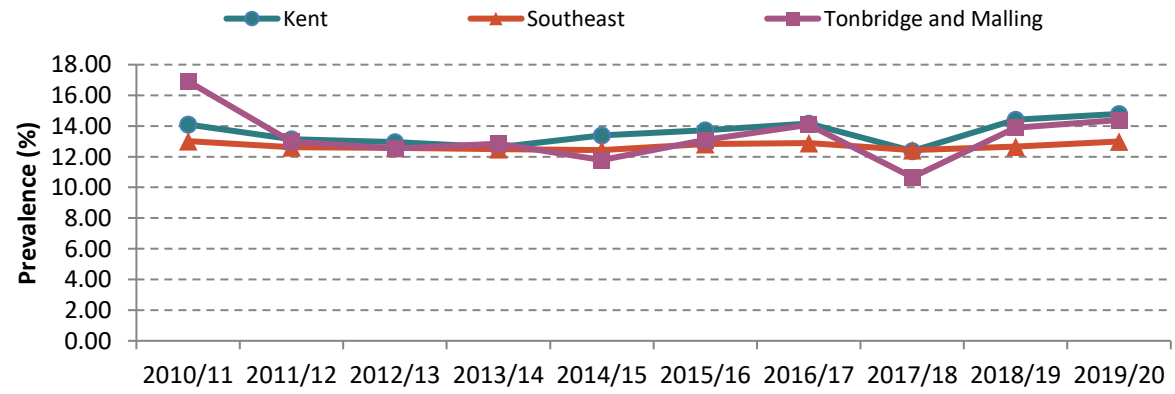
Figure 108. Reception year: Tonbridge & Malling prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 109. Tonbridge and Malling Year R: Overweight trend

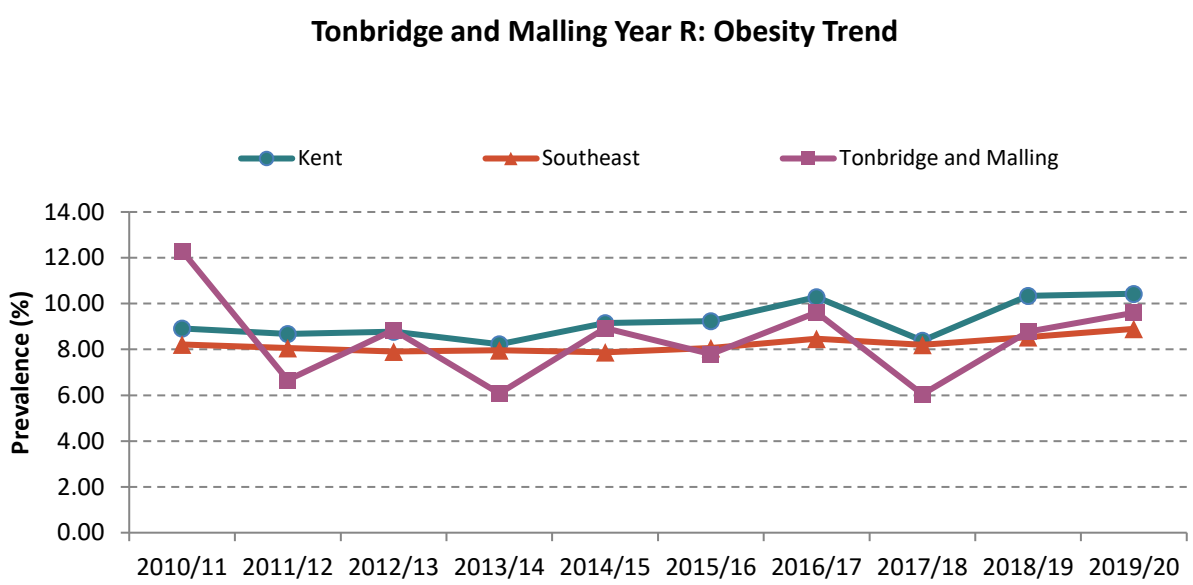
Tonbridge & Malling	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 110. Tonbridge and Malling Year R: Obesity trend

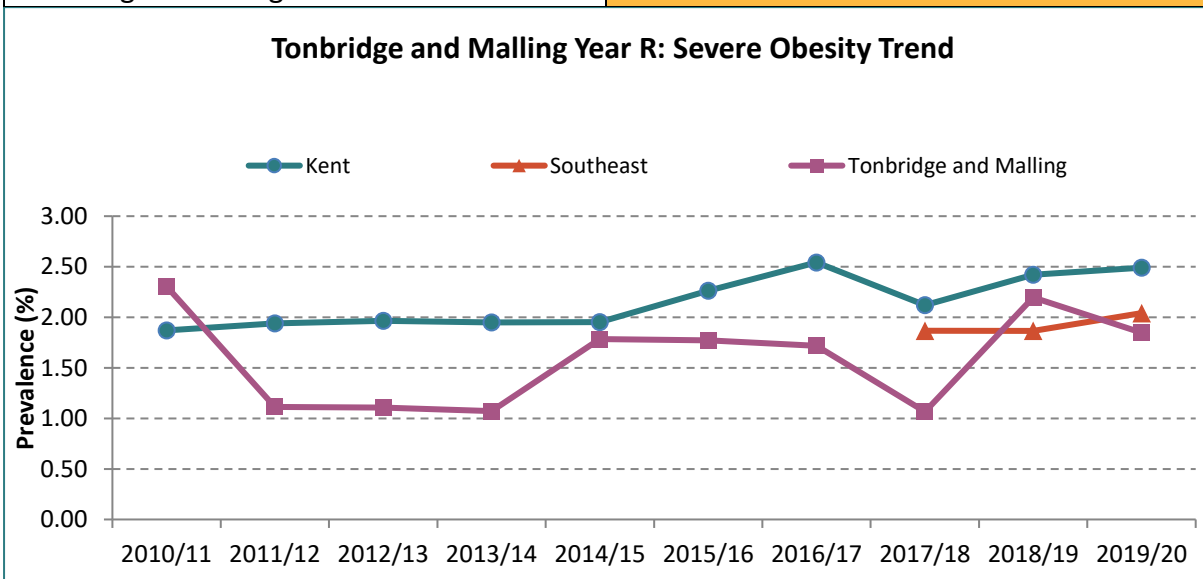
Tonbridge & Malling	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 111. Tonbridge and Malling Year R: Severe obesity trend

Tonbridge & Malling	Stable

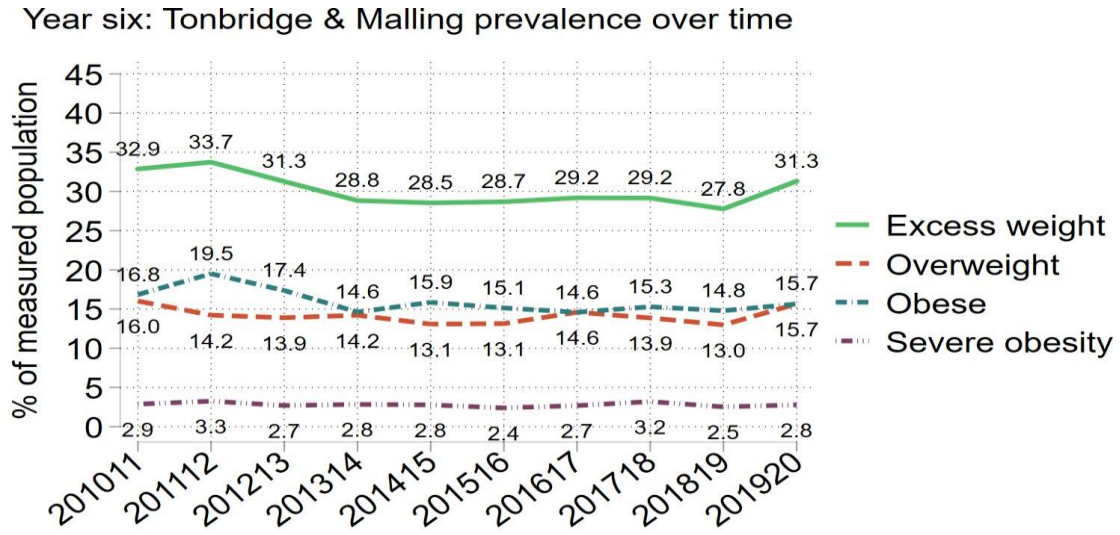


Source: NCMP, prepared by KPHO (CF), January 2021

6.13.2 Year 6

The trends in Tonbridge and Malling for Year 6 for all weight categories are stable (Figures 112-115).

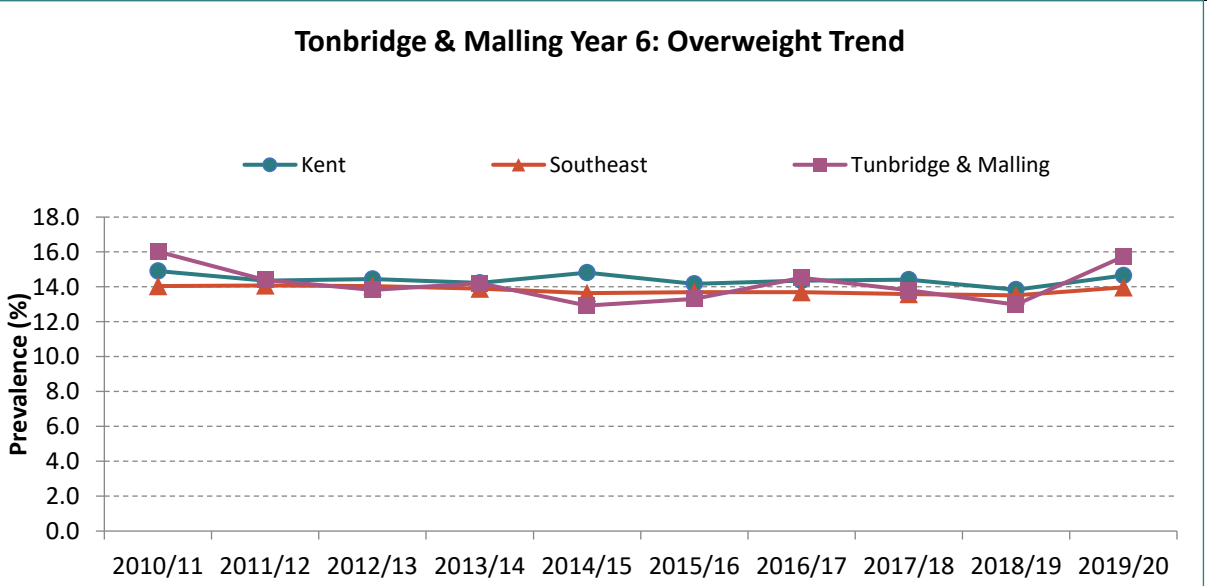
Figure 112. Year 6: Tonbridge and Malling prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 113. Tonbridge & Malling Year 6: Overweight trend

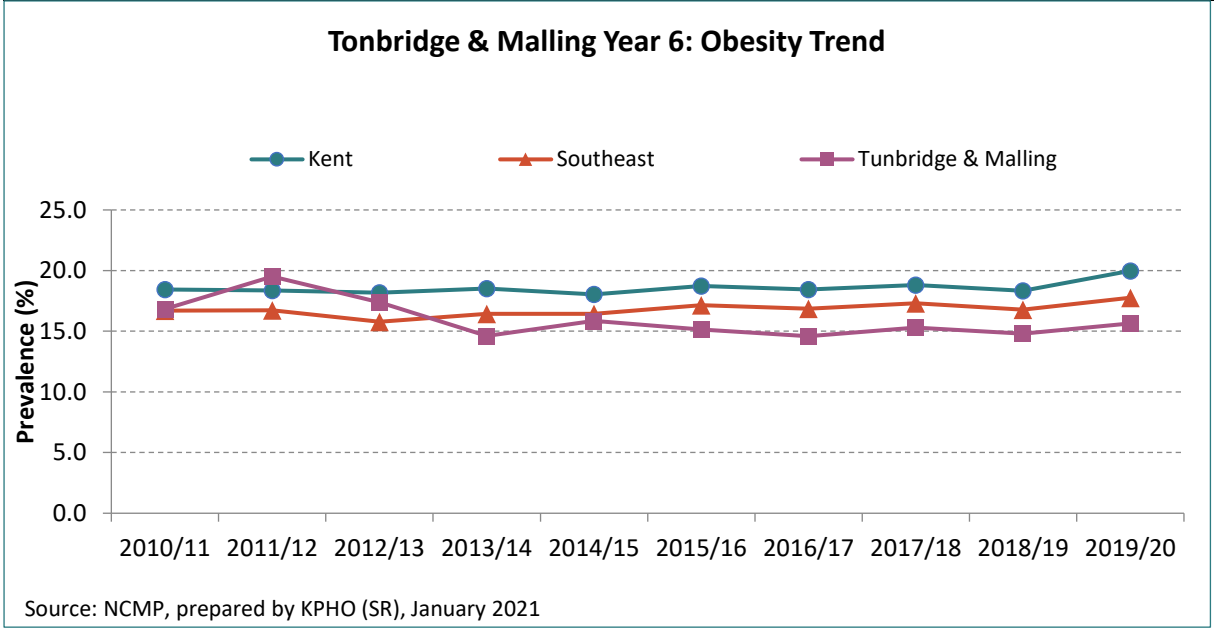
Tonbridge & Malling	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 114. Tonbridge & Malling Year 6: Obesity trend

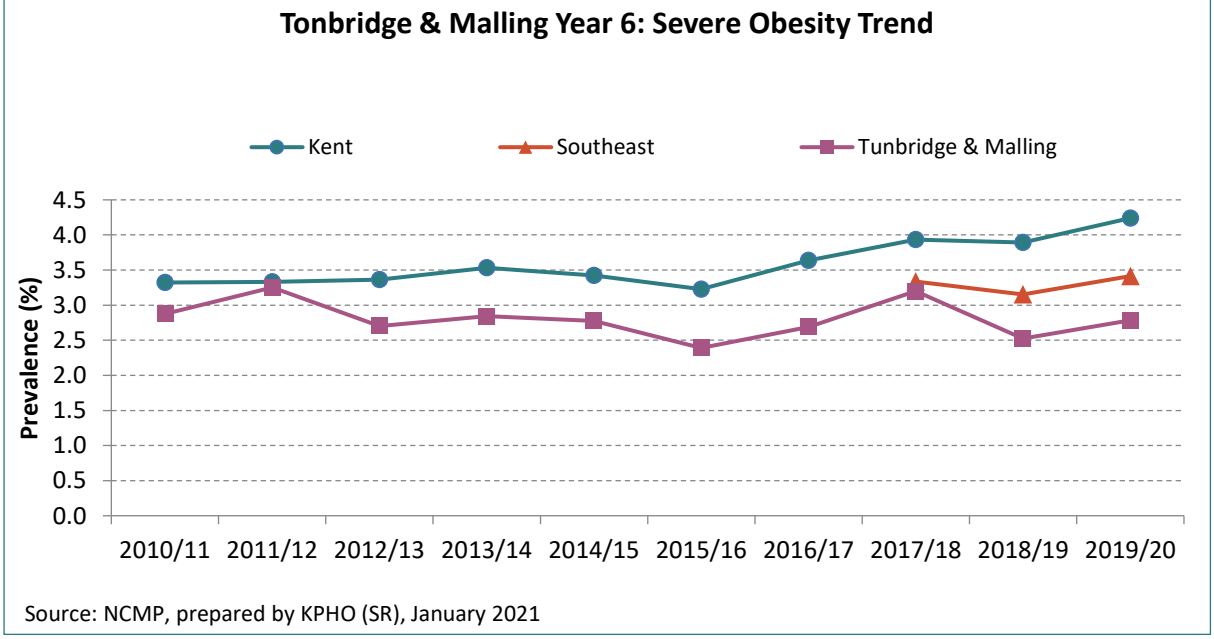
Tonbridge & Malling	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 115. Tonbridge & Malling Year 6: Severe obesity trend

Tonbridge & Malling	Stable



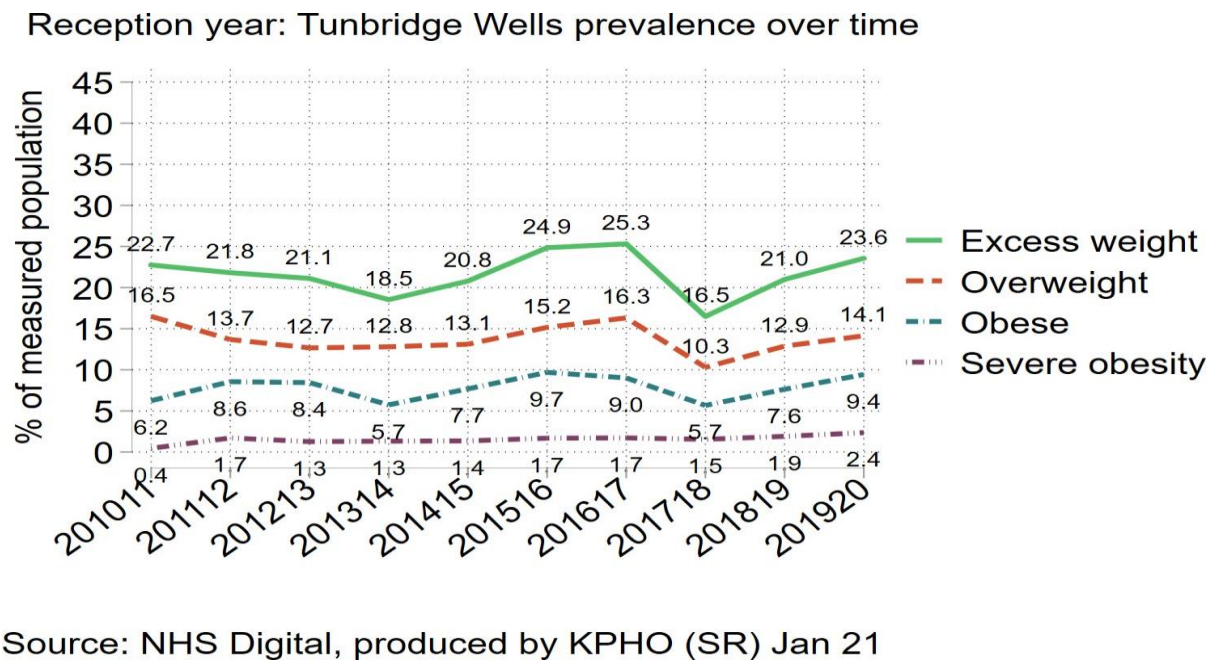
Source: NCMP, prepared by KPHO (SR), January 2021

6.14 Tunbridge Wells

6.14.1 Year R

In Tunbridge Wells, there is an increasing trend in severe obesity (Figure 119). This means that in 2019/20 there were 25 children (2.4%) who were severely obese. Excess weight, overweight and obesity categories also show a stable trend (Figures 116-118).

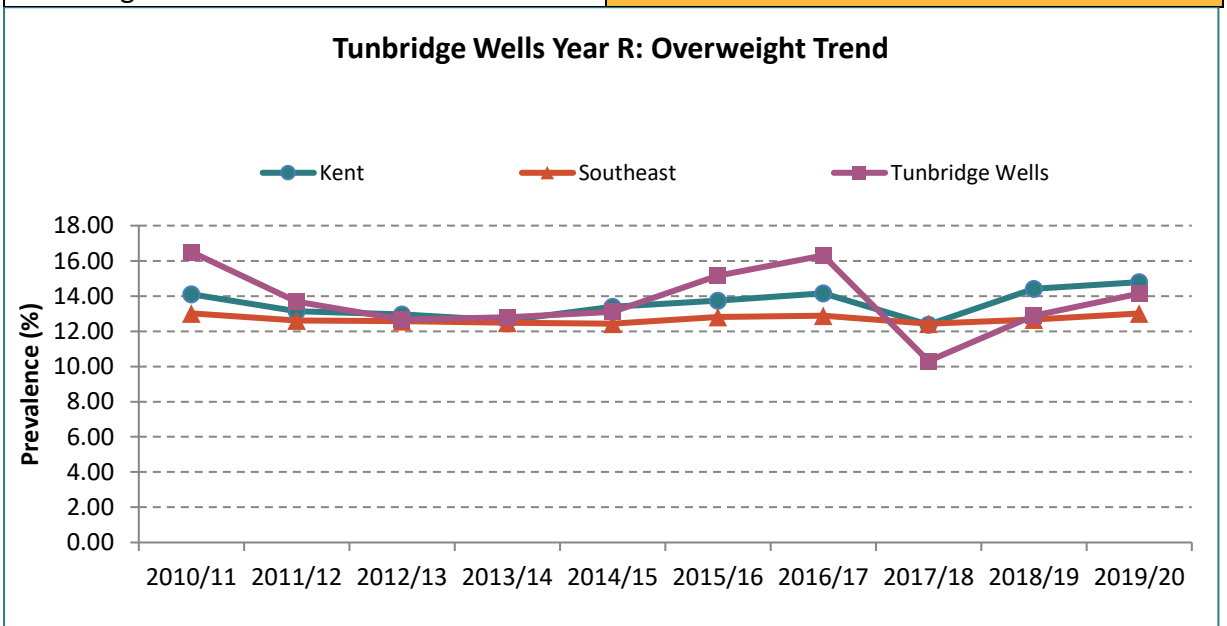
Figure 116. Reception year: Tunbridge Wells prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 117. Tunbridge Wells Year R: Overweight trend

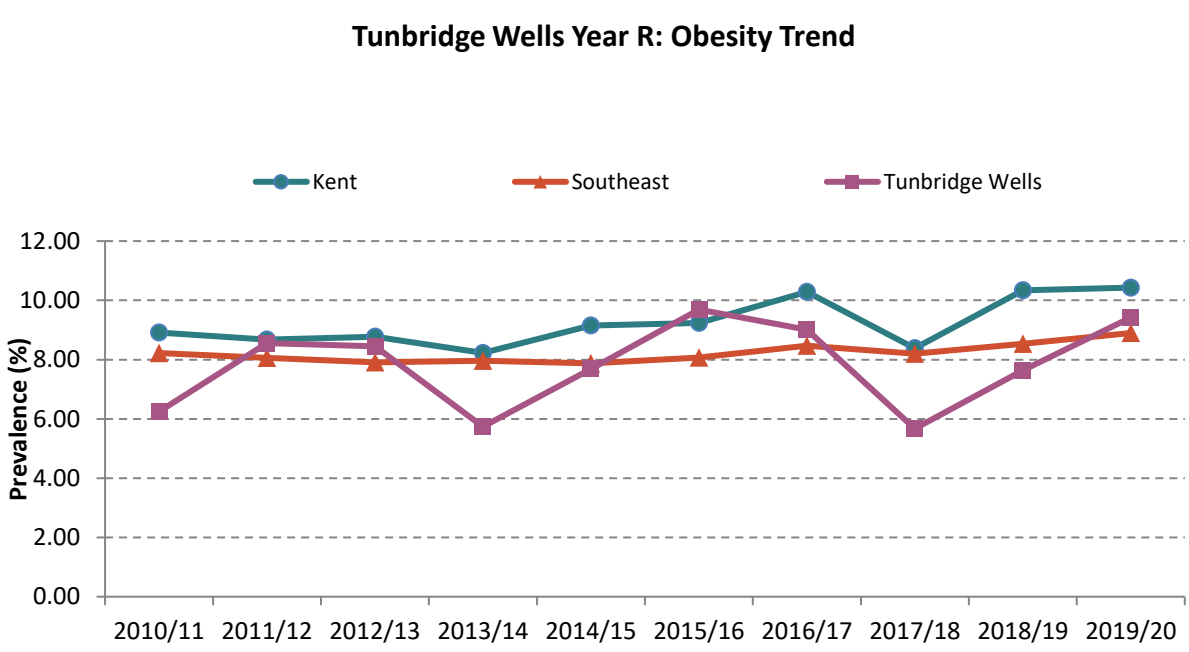
Tunbridge Wells	Stable



Source: NCMP prepared by KPHO (CF), January 2021

Figure 118. Tunbridge Wells Year R: Obesity trend

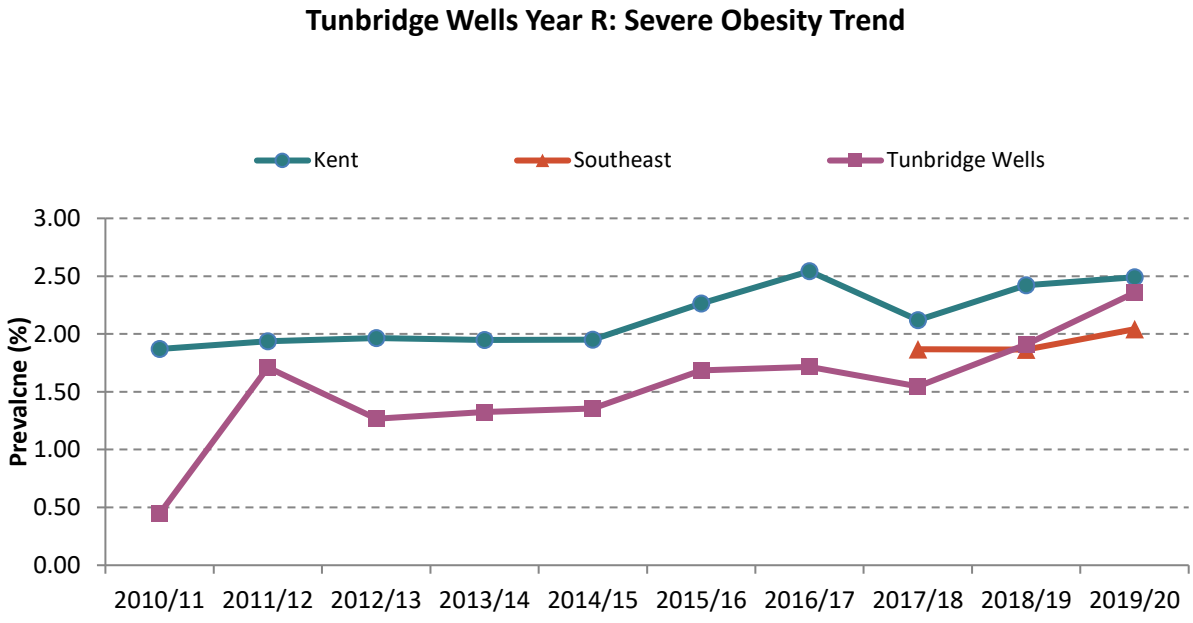
Tunbridge Wells	Stable



Source: NCMP, prepared by KPHO (CF), January 2021

Figure 119. Tunbridge Wells Year R: Severe obesity trend

Tunbridge Wells	Increasing

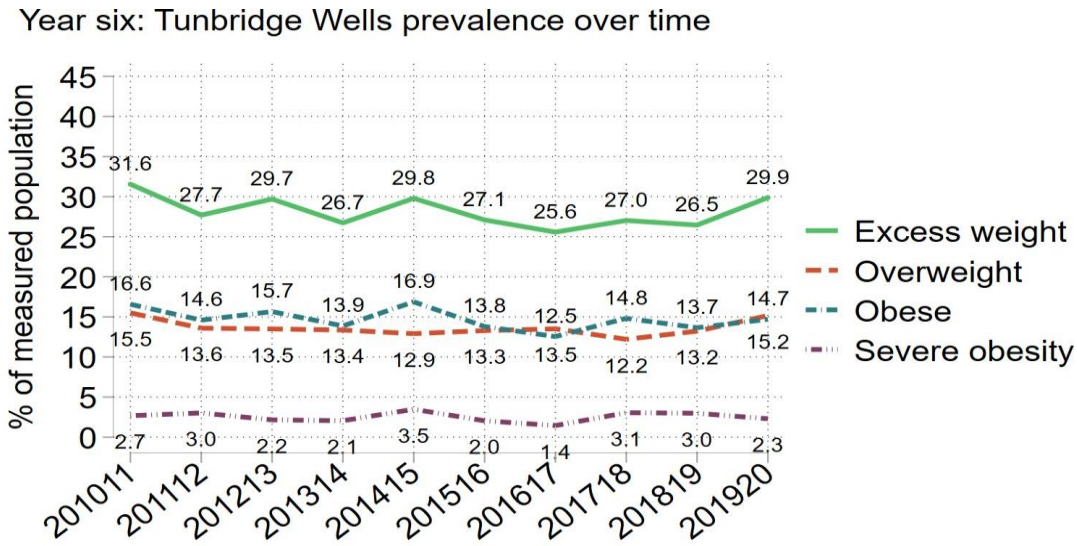


Source: NCMP, prepared by KPHO (CF), January 2021

6.14.2 Year 6

The trends in Tunbridge Wells for Year 6 for all weight categories are stable (Figures 120-123).

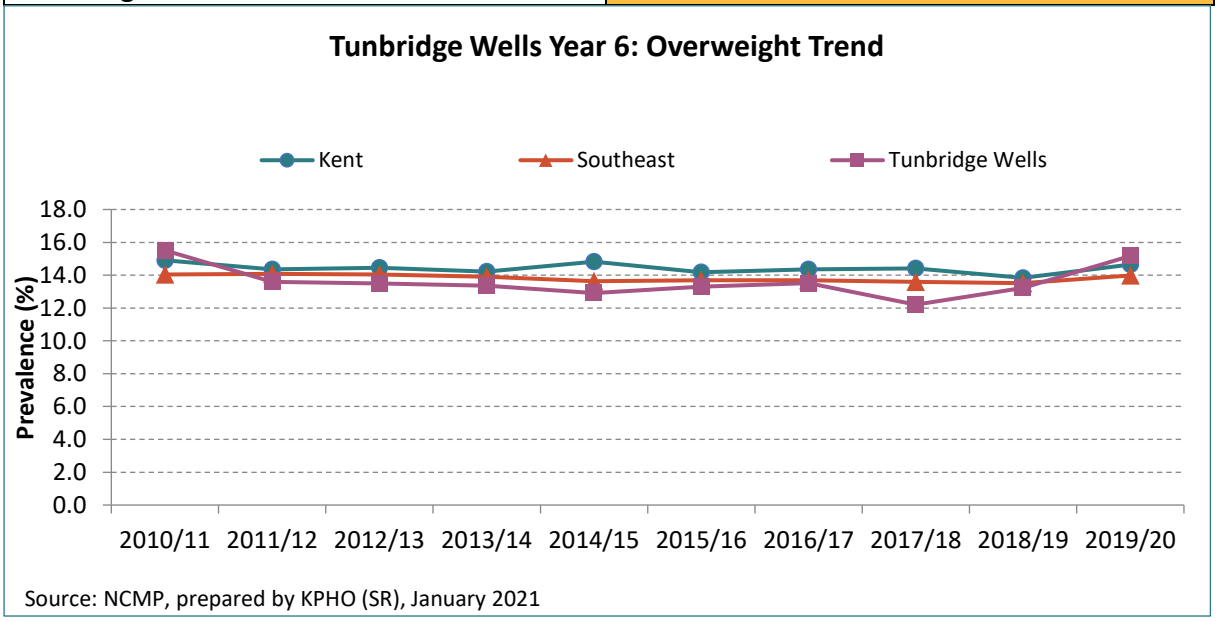
Figure 120. Year 6: Tunbridge Wells prevalence over time



Source: NHS Digital, produced by KPHO (SR) Jan 21

Figure 121. Tunbridge Wells Year 6: Overweight trend

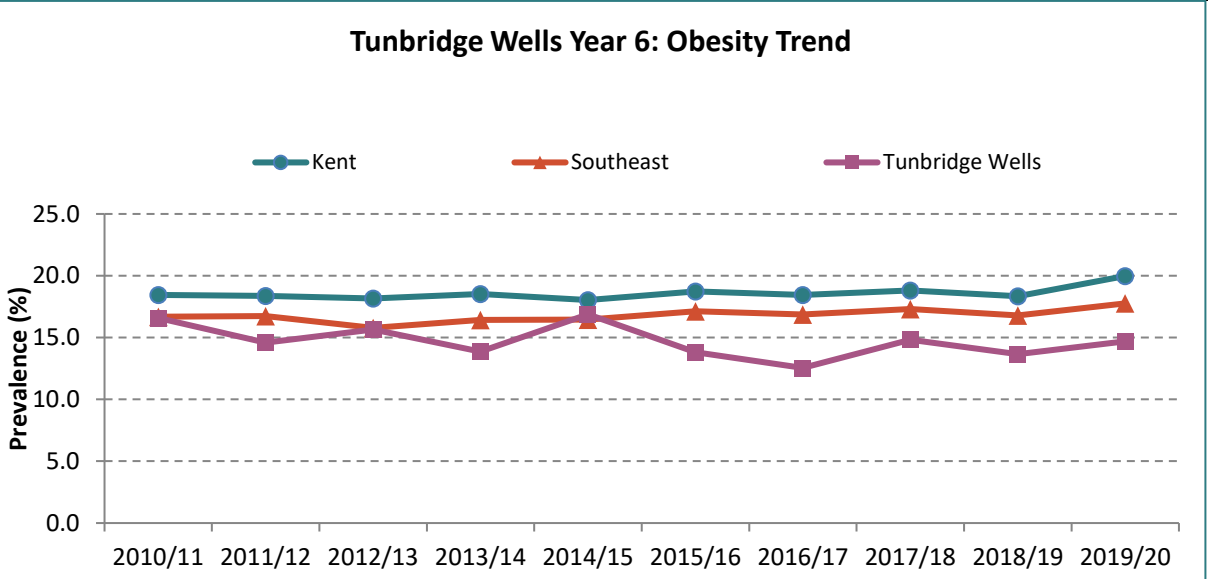
Tunbridge Wells	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 122. Tunbridge Wells Year 6: Obesity trend

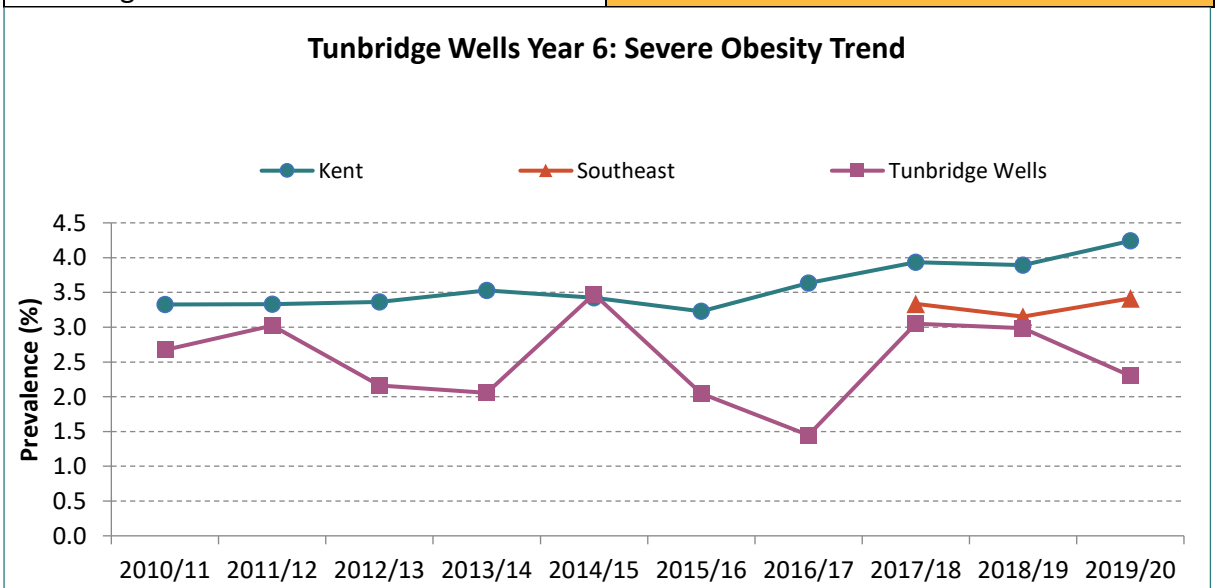
Tunbridge Wells	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

Figure 123. Tunbridge Wells Year 6: Severe obesity trend

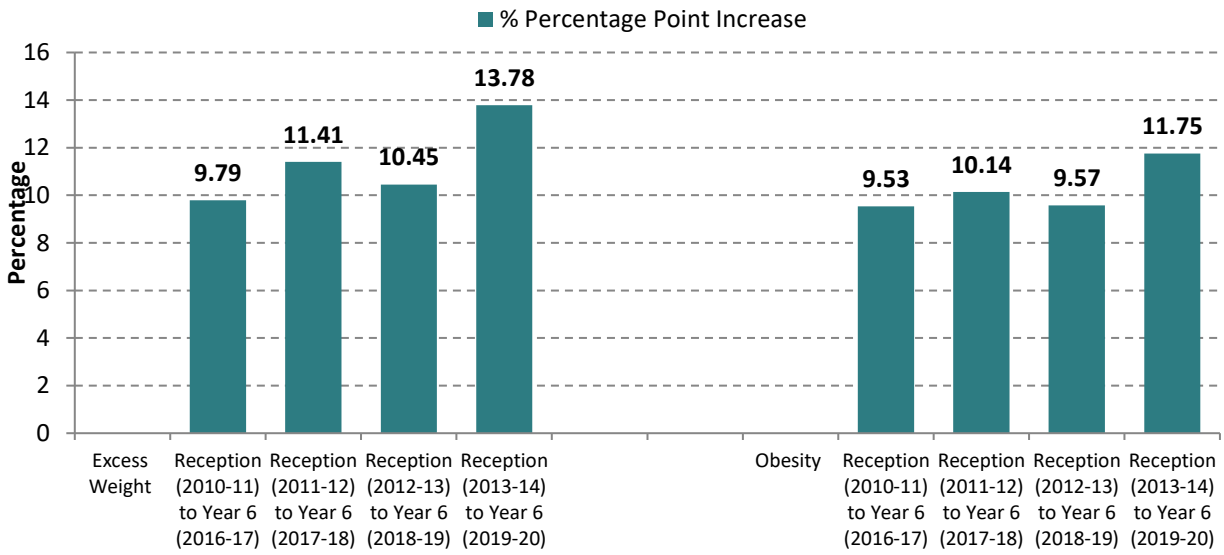
Tunbridge Wells	Stable



Source: NCMP, prepared by KPHO (SR), January 2021

7 Longitudinal school cohorts 2010/11 - 2016/17 to 2013/14 – 2019/20 for excess weight and obesity – what do they tell us?

Figure 124. Cohorts from Year R to Year 6 longitudinally from 2010/11 – 2016/17, to 2013/14 – 2019/20 for excess weight and obesity



Source: NCMP, prepared by KPHO (CF), January 2021

This analysis (Figure 124) tracks the increase in Year R to Year 6 longitudinal cohorts (I.E: assuming that most of the children were the same in Year R to Year 6 over the 6 years) and shows that each cohort since 2010/11 (Year R) to 2019/20 (Year 6) have had increasing excess weight prevalence over their time at school from an initial prevalence of 9.79% to the latest cohort (Year 6 in 2019/20 and started Year R in 2013/14) with the highest prevalence of excess weight at 13.78%.

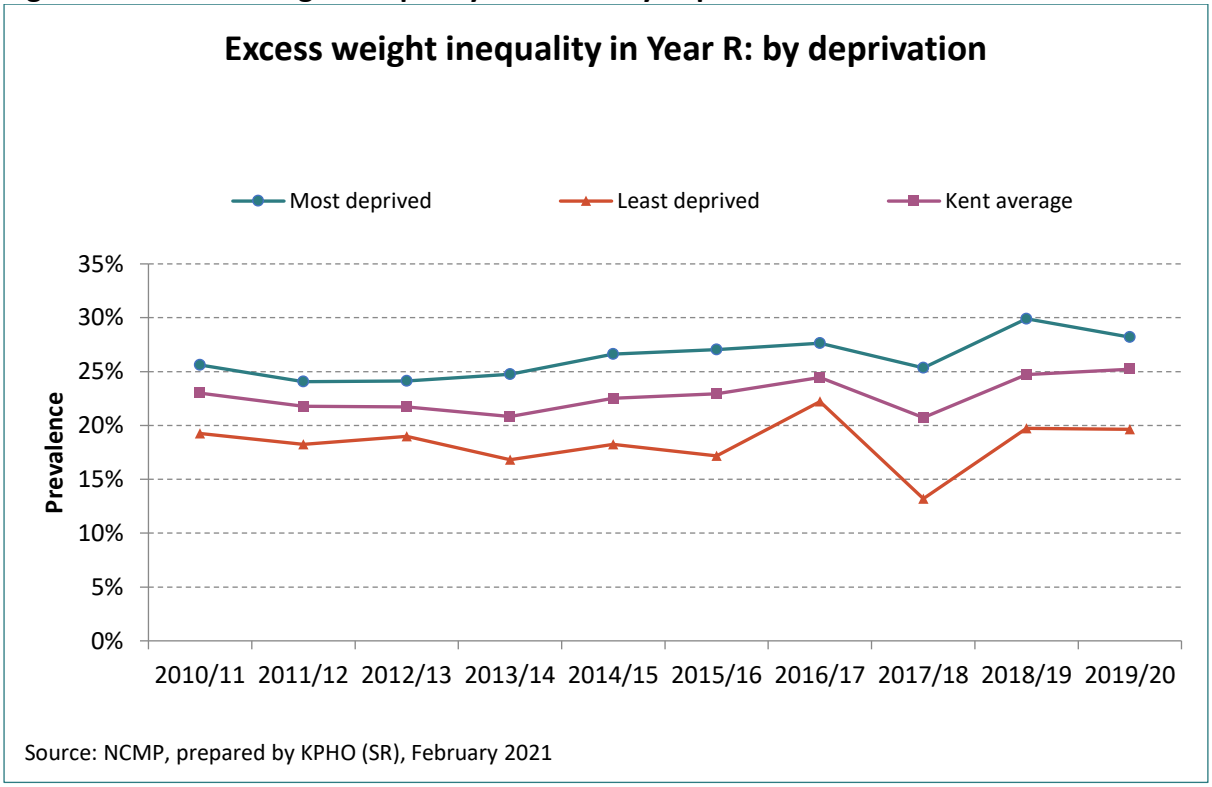
In addition, it also shows a concerning trend over time of increase in obesity with the latest cohort (Year 6 in 2019/20 and started Year R in 2013/14) with 11.75% obesity compared to our first cohort (who were Year R in 2010/11 and Year 6 in 2016/17) with an obesity prevalence of 9.53%.

8 Findings for Kent: deprivation inequalities

8.1 The Effect of Deprivation on Excess Weight

The problem of excess weight in Year R can be segmented by clusters of deprivation cohorts, with the most deprived decile (most deprived 10th of the population) having a greater prevalence than the least deprived decile. The trend is that, since 2010/11 the gap is widening, suggesting a more pronounced difference between these two groups (Figure 125). Indeed, the least deprived decile has virtually the same prevalence now as in 2010/11, yet the most deprived is now higher than it was in 2010/11. The gap between the most and least deprived is now a prevalence difference of 8.6%, whereas in 2010/11 it was 6.3%.

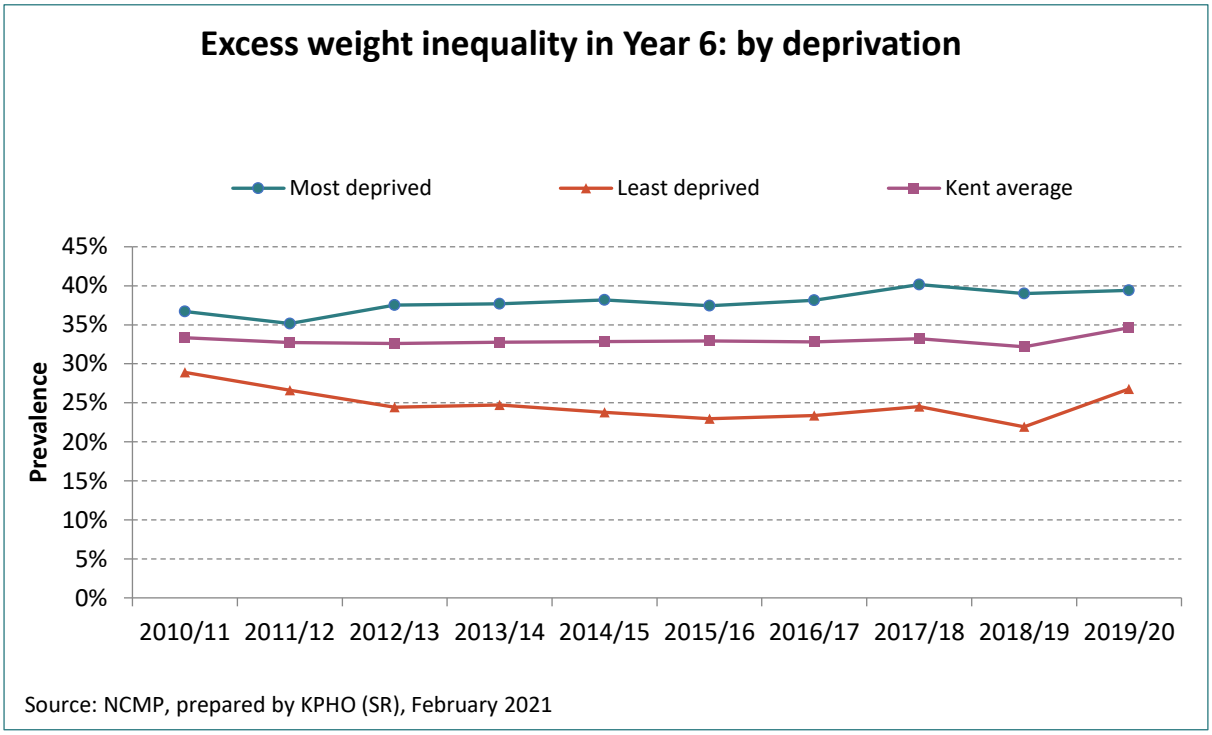
Figure 125. Excess weight inequality in Year R: by deprivation



Source: NCMP, prepared by KPHO (SR), February 2021

In Year 6 the gap has widened to a 13.1% prevalence percentage difference in 2019/20 (Figure 126). This is compared to 7.8% in 2010/11. The gap between the most and least deprived is greater in Year 6 than in Year R, sugesting that the effect of deprivation may have an effect on the risk of obesity during primary school.

Figure 126. Excess weight inequality in Year 6: by deprivation



Source: NCMP, prepared by KPHO (SR), February 2021

8.2 The Effect of Deprivation on Obesity.

It can be seen from Figures 127-128 that the gap between the most and least deprived deciles is greater in Year 6 (6.1%) than in Year R (1.7%). In Year 6, the gap has been widened mostly by an increase in the prevalence of obesity in the most deprived (21.2% to 26.1%). In the least deprived, there was an initial decrease in prevalence in 2011/12 but since then has remained broadly stable.

Figure 127. Obesity inequality in Year R: by deprivation

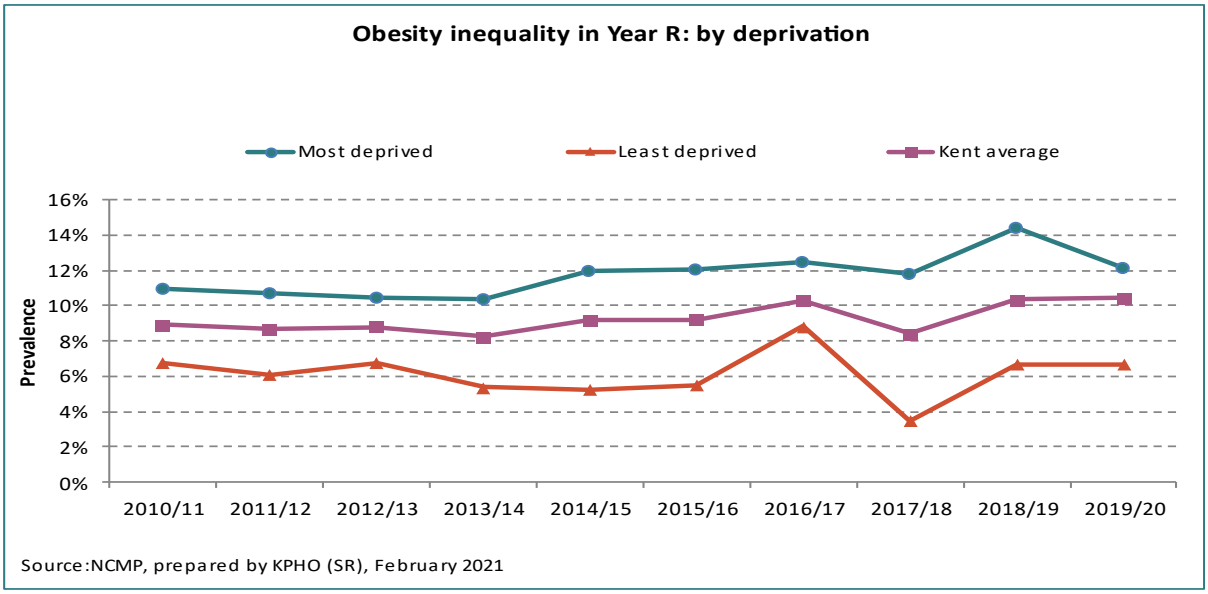
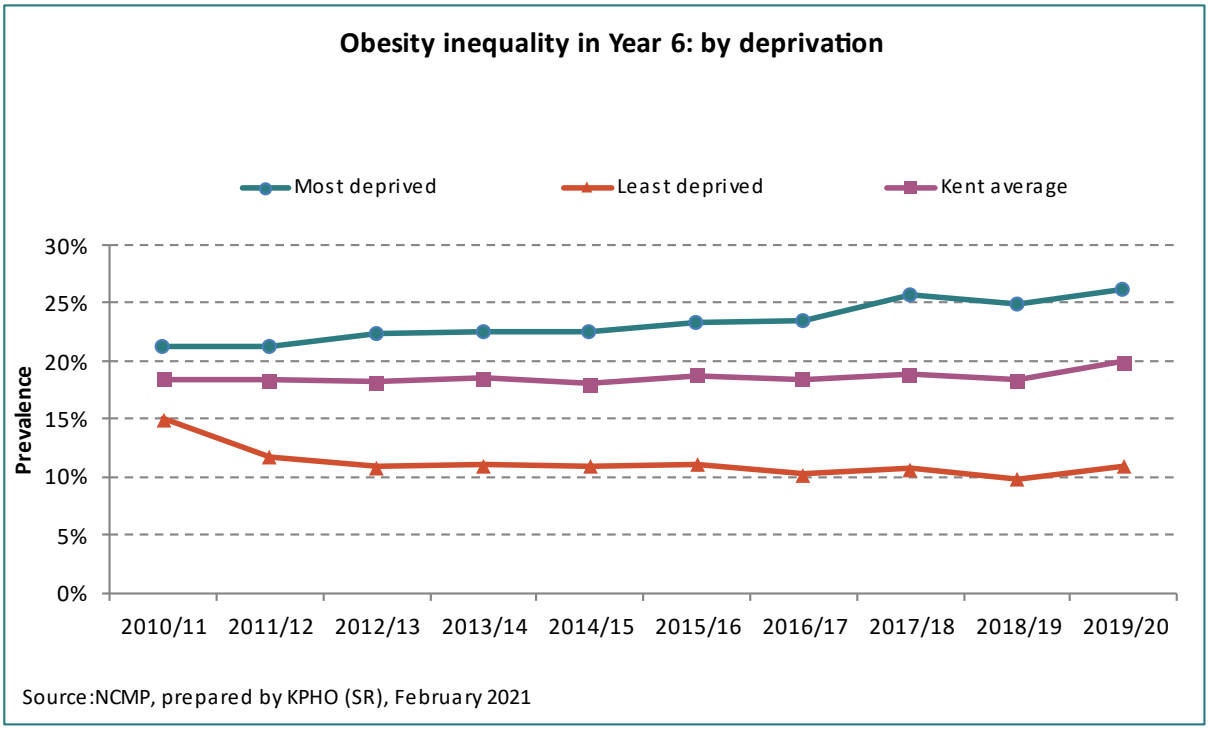


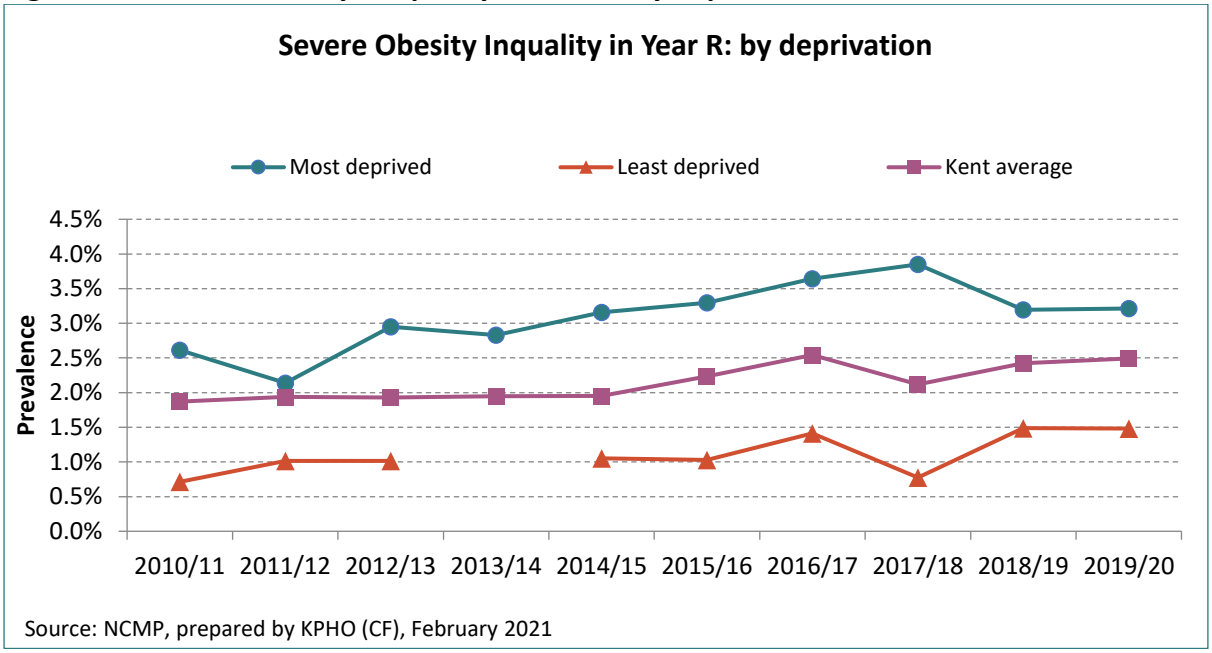
Figure 128. Obesity inequality in Year 6: by deprivation



8.3 The Effect of Deprivation on Severe Obesity

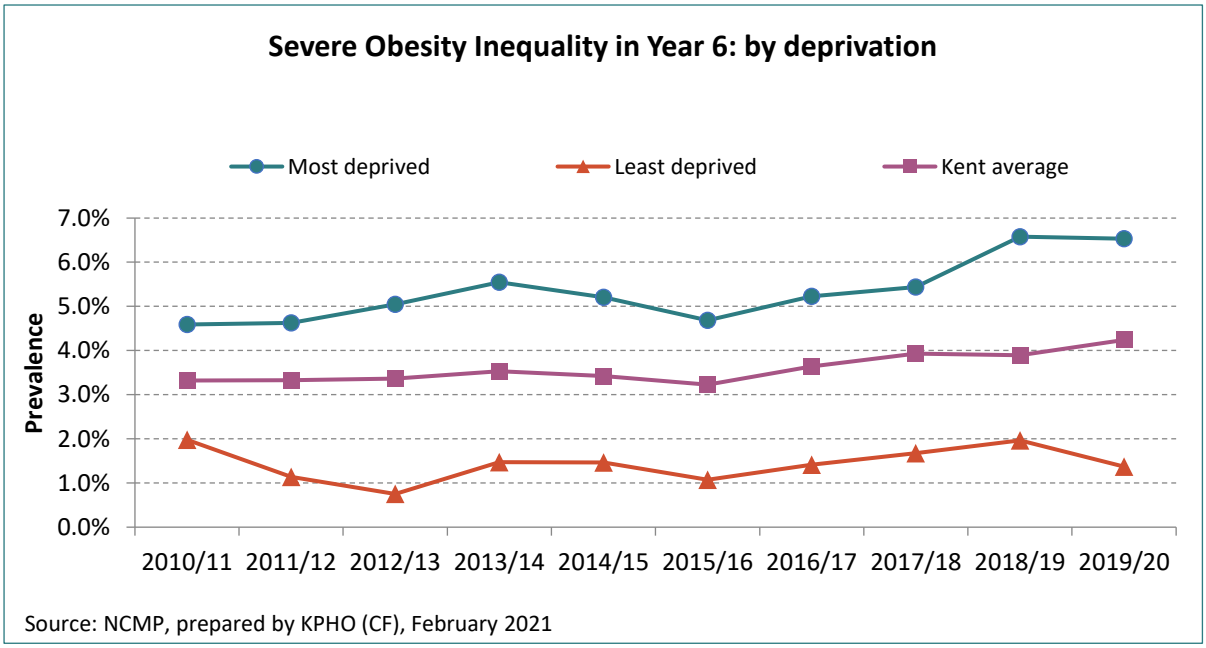
The inequality gap in severe obesity between the most deprived and least deprived decile is greatest in Year 6 (Figures 129-130). In Year R in 2019/20 there is a 1.7% inequality prevalence gap and in Year 6 in 2019/20 it is 5.1%. This means that the deprivation inequality of severe obesity worsens during primary school years. The gap in Year 6 is widening mostly due to the increasing prevalence of severe obesity in the most deprived decile (an increase of 1.9% over the time series). There appears to be a particular increase in the last 3 data points in Year 6.

Figure 129. Severe obesity inequality in Year R: by deprivation



Source: NCMP, prepared by KPHO (CF), February 2021

Figure 130. Severe obesity inequality in Year 6: by deprivation



Source: NCMP, prepared by KPHO (CF), February 2021

8.4 Investigating what proportion of most and least deprived children in Kent with excess weight are obese and severely obese.

To further investigate how the proportions of obesity as part of total excess weight might be changing, we plotted obesity as a proportion of total excess weight. The next two charts show this for the most and least deprived deciles for Kent in Year R and Year 6 (Figures 131-132).

The proportions in Year R are remarkably stable in the most and least deprived deciles with the proportion being virtually the same in 2010/11 and 2019/20. However, in Year 6 a divergence in the two deciles can be seen. The least deprived are becoming proportionally less obese and the most deprived are becoming proportionally more obese.

Figure 131. Obesity as a proportion of excess weight showing most and least deprived decile: Year R, Kent, 2010/11-2019/20

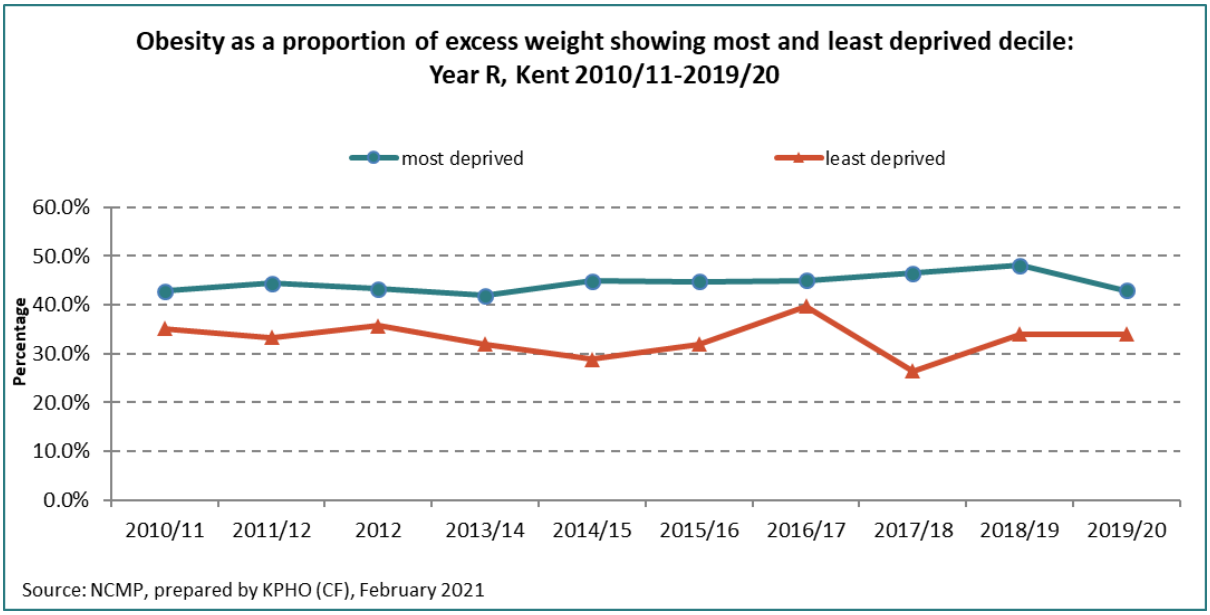
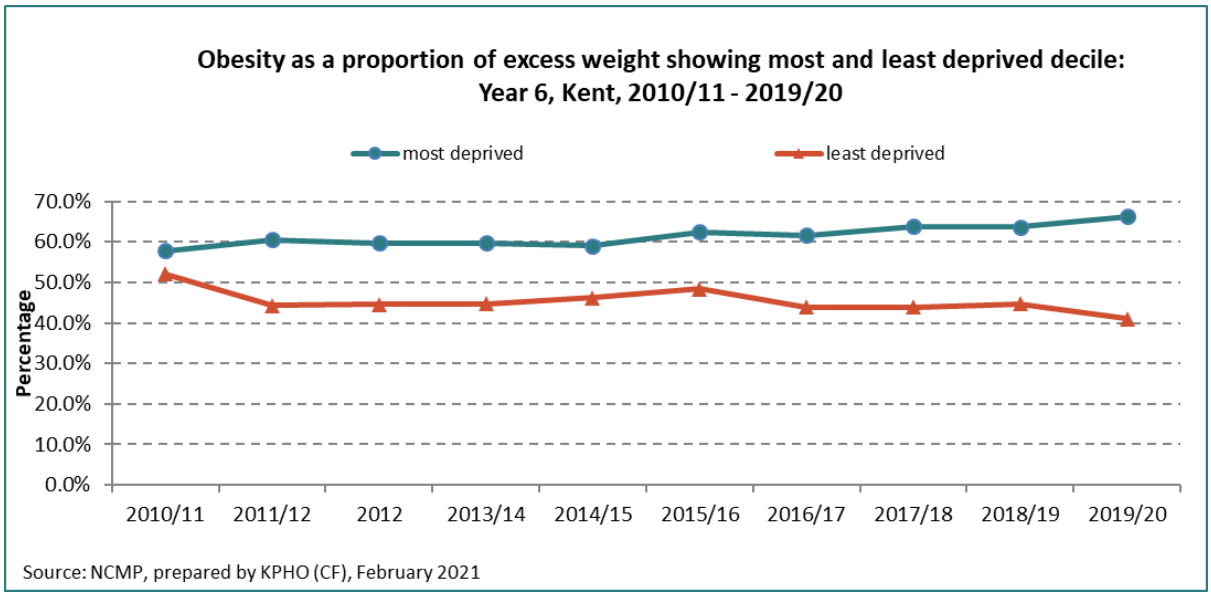


Figure 132. Obesity as a proportion of excess weight showing most and least deprived decile: Year 6, Kent, 2010/11 – 2019/20



We repeated the proportionality testing to analyse the picture for severe obesity as a proportion of excess weight (Figures 133-134). There are gaps between most and least deprived deciles in both Year R and Year 6. However, the gap appears to have closed in Year R with the proportion reducing in the most deprived from a high of 15.2% in 2017/18 to 11.4% in 2019/20. The gap is 3.9%. In Year 6 the most deprived proportion of severe obesity out of total excess weight has increased from 17.9% to 23.2% but the least deprived decile has reduced from 10.3% to 7%. The gap in Year 6 is 16.29%.

Figure 133. Severe obesity as a proportion of excess weight: Year R Kent trend

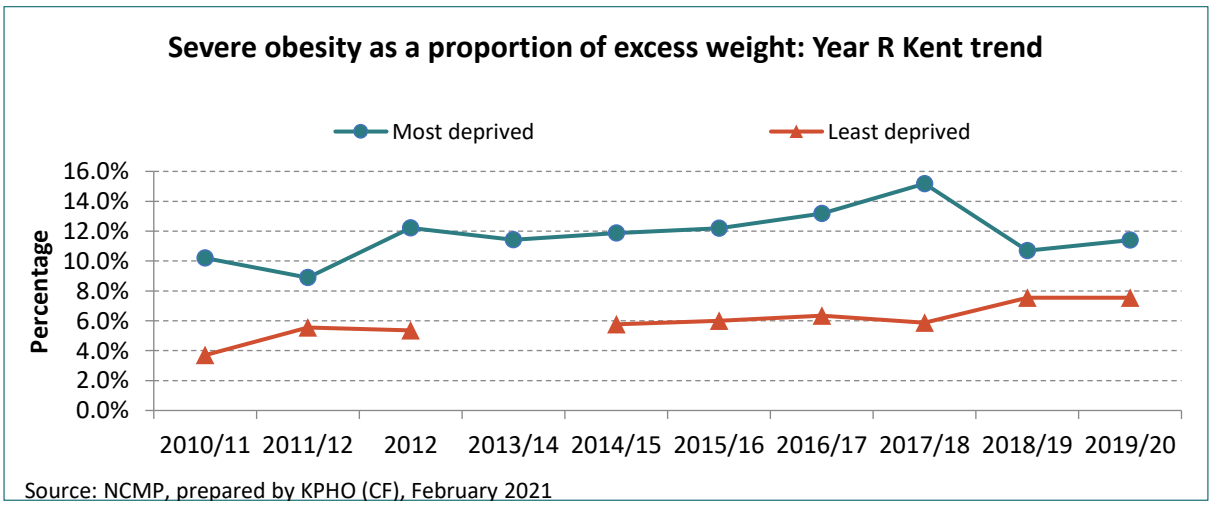


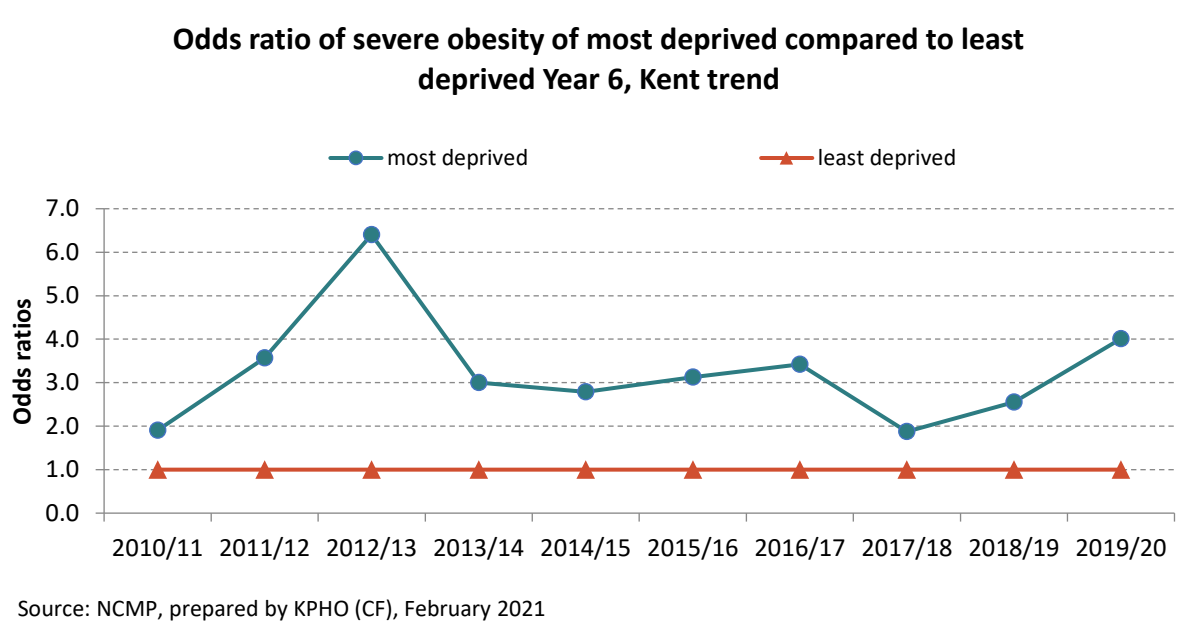
Figure 134. Severe obesity as a proportion of excess weight, Year 6, Kent trend

Source: NCMP, prepared by KPHO (CF), February 2021

8.5 The odds ratio for severe obesity of Kent's most deprived decile compared to the least deprived in Year 6

The odd ratios for severe obesity of most deprived decile compared to the least deprived decile in Year 6 for Kent is represented below as a chart and a table (Figures 135, Table 13). The odds of being severely obese in 2019/20 if you're in the most deprived decile compared to the least is 4.0. This has increased from 1.9 in 2010/11.

Figure 135. Odds ratio of severe obesity of most deprived compared to least deprived Year 6, Kent trend



Source: NCMP, prepared by KPHO (CF), February 2021

Table 13. Odds ratios of severe obesity in Year 6 of the most deprived compared to least deprived

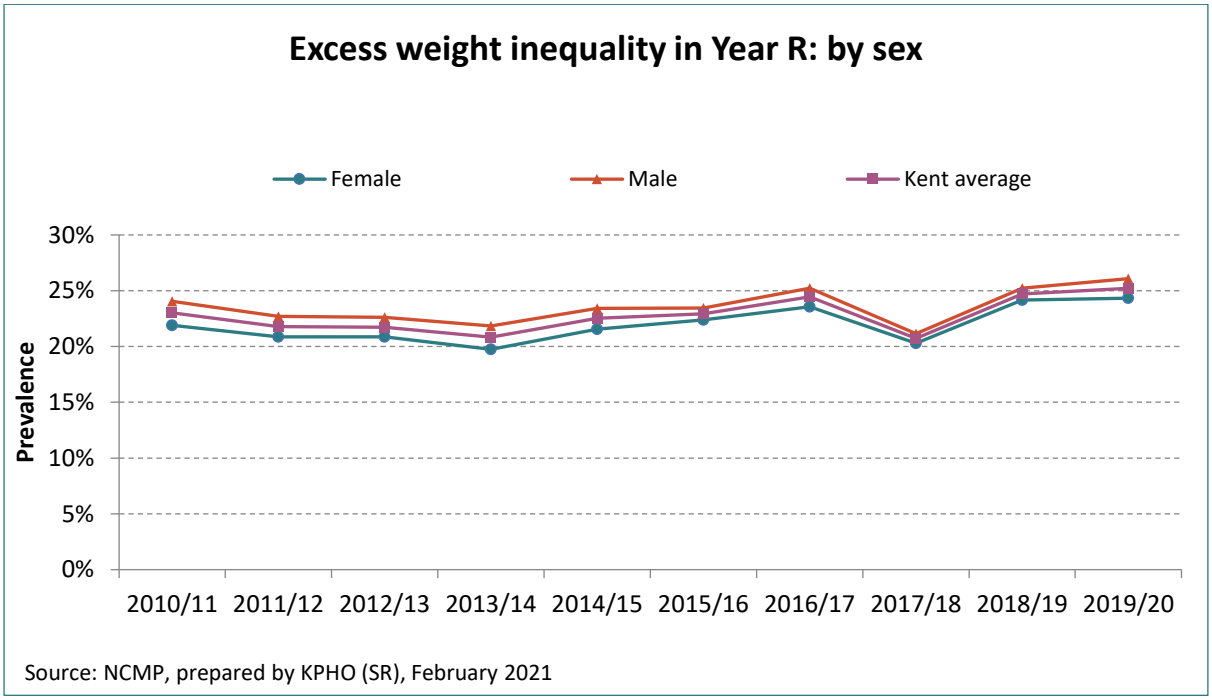
Odds ratios of severe obesity in Year 6 of the most deprived compared to least deprived										
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
most deprived	1.9	3.6	6.4	3.0	2.8	3.1	3.4	1.9	2.6	4.0
least deprived	1	1	1	1	1	1	1	1	1	1

9 Findings for Kent: sex inequalities

9.1 The Effect of Sex on Excess Weight.

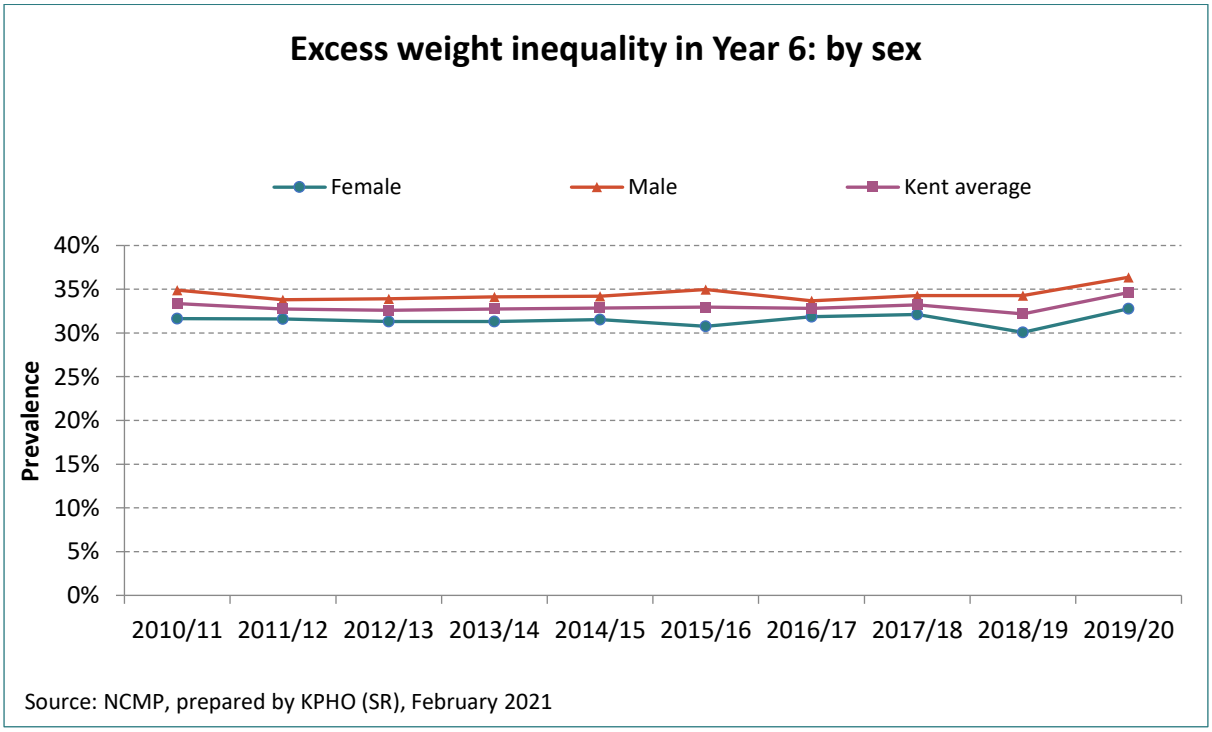
In both Year R and Year 6, males have a higher prevalence of being of higher excess weight than females. The gap between them is higher in Year 6 (3.6%) than Year R (1.8%).

Figure 136. Excess weight inequality in Year R: by sex



Source: NCMP, prepared by KPHO (SR), February 2021

Figure 137. Excess weight inequality in Year 6: by sex

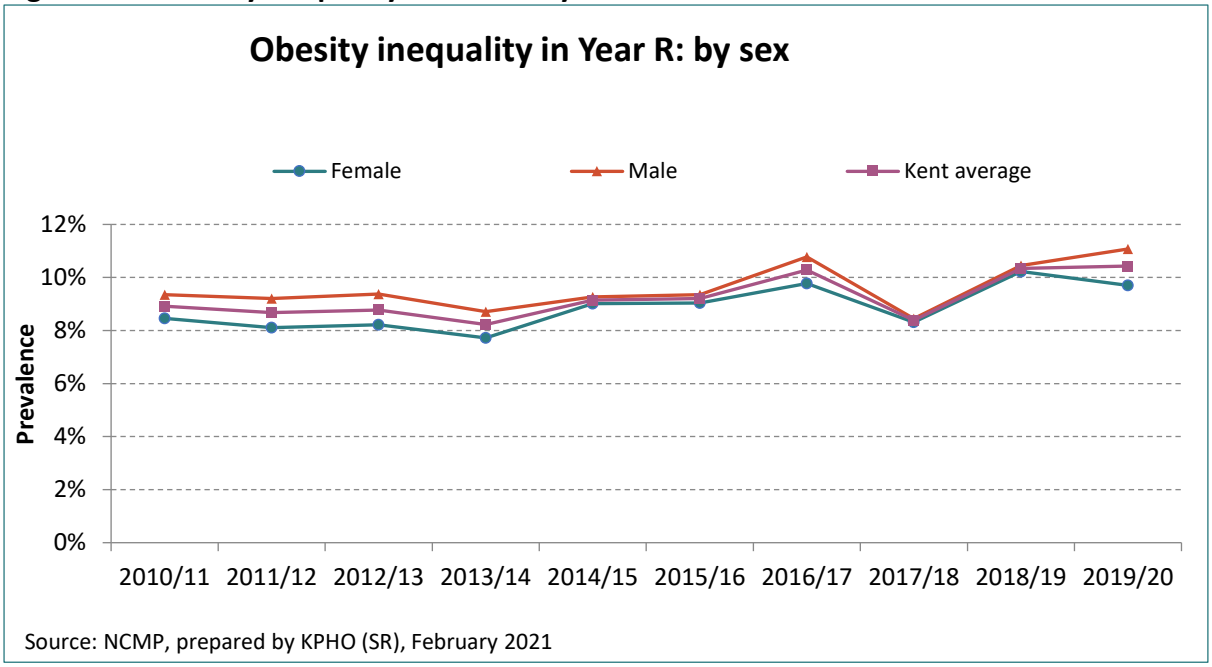


Source: NCMP, prepared by KPHO (SR), February 2021

9.2 The Effect of Sex on Obesity

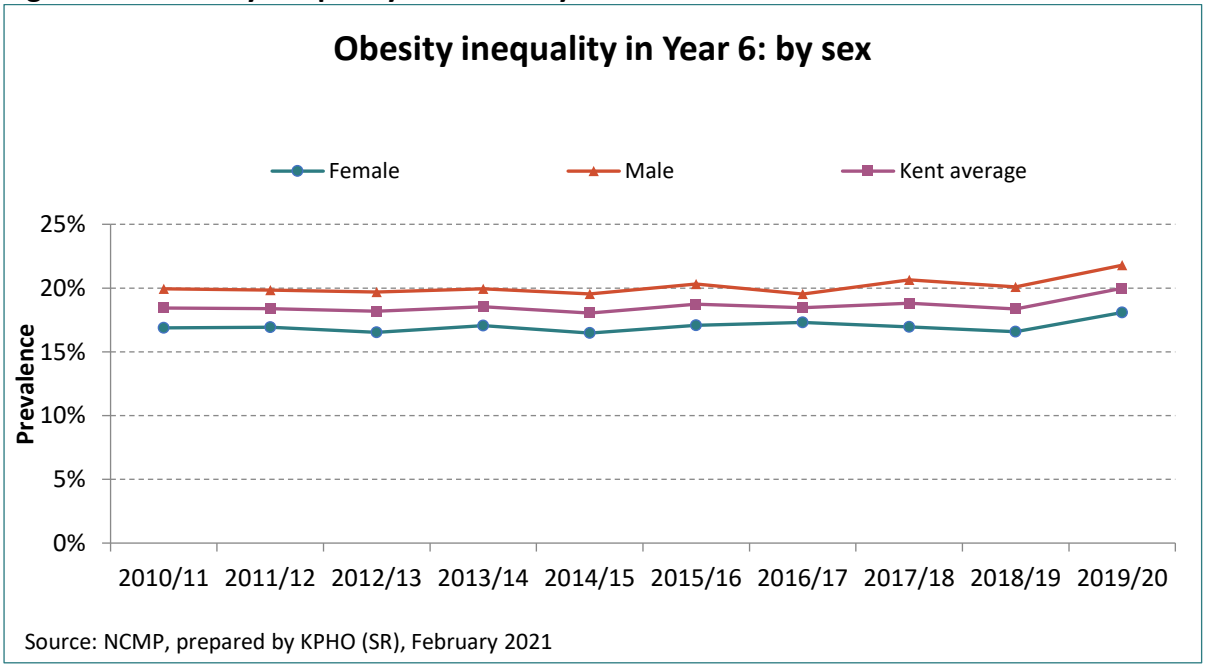
Males have a higher prevalence than females for obesity in both Year R and Year 6 (Figures 138-139). In Year R, for the two previous years the data points have been the same, yet in the most recent year there is a small gap of 0.7%. This will need to be monitored to check it's not increasing. In Year 6 the gap is more consistent with a gap of 3.7% in the most recent year.

Figure 138. Obesity inequality in Year R: by sex



Source: NCMP, prepared by KPHO (SR), February 2021

Figure 139. Obesity inequality in Year 6: by sex

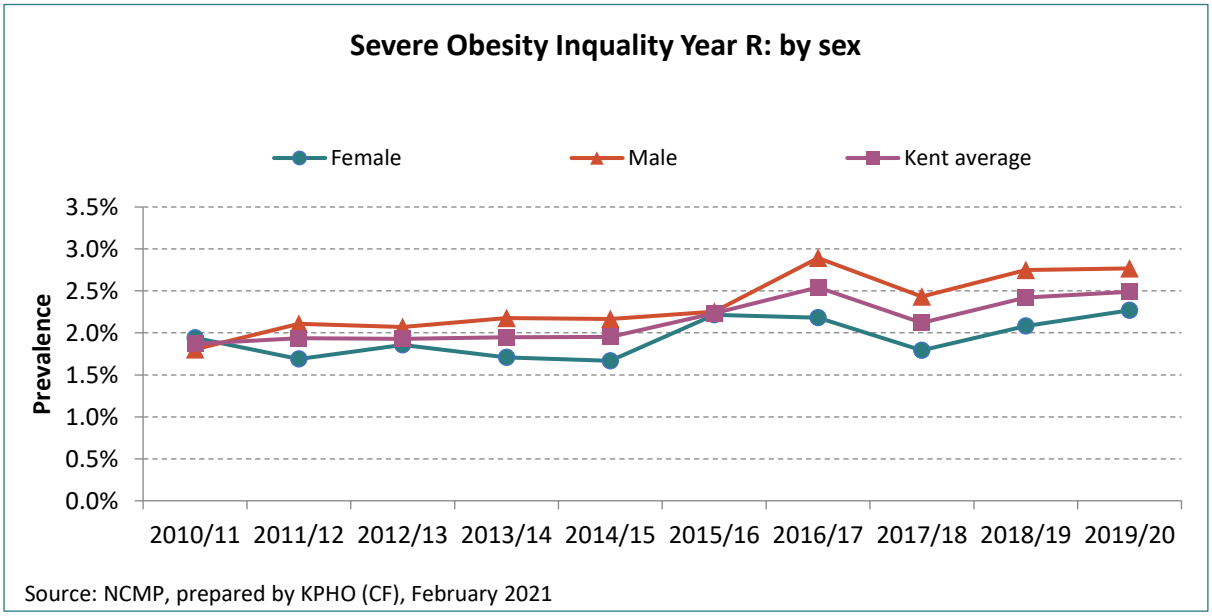


Source: NCMP, prepared by KPHO (SR), February 2021

9.3 The Effect of Sex on Severe Obesity

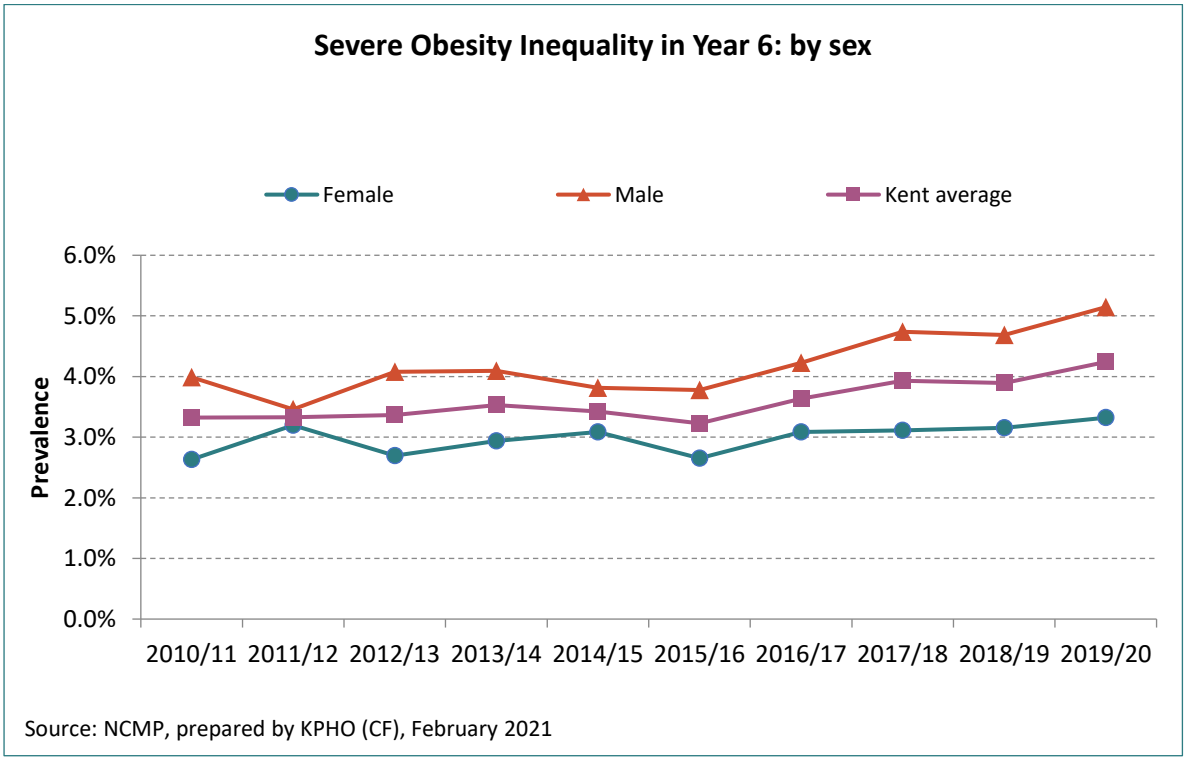
Males have a higher prevalence of severe obesity in both Year R and Year 6 (Figures 140-141). In Year R the gap appears to be decreasing slightly in the latest year to 0.5%. In Year 6 the gap is the highest out of all the previous data points and is now 1.8%.

Figure 140. Severe obesity inequality Year R: by sex



Source: NCMP, prepared by KPHO (CF), February 2021

Figure 141. Severe obesity inequality in Year 6: by sex

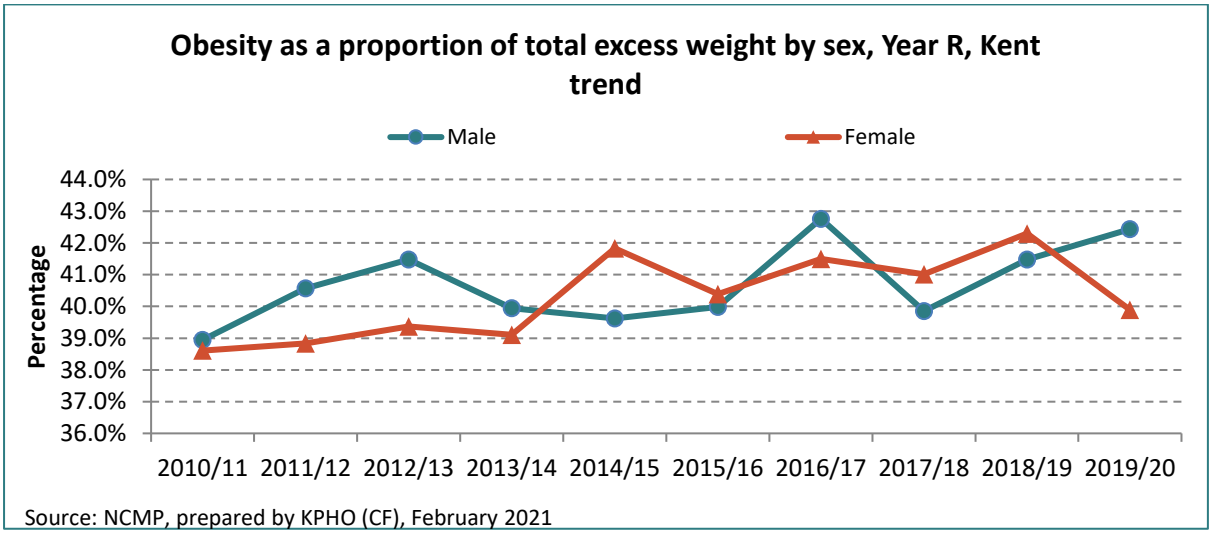


Source: NCMP, prepared by KPHO (CF), February 2021

9.4 Investigating what proportion of male and female children in Kent with excess weight are obese and severely obese.

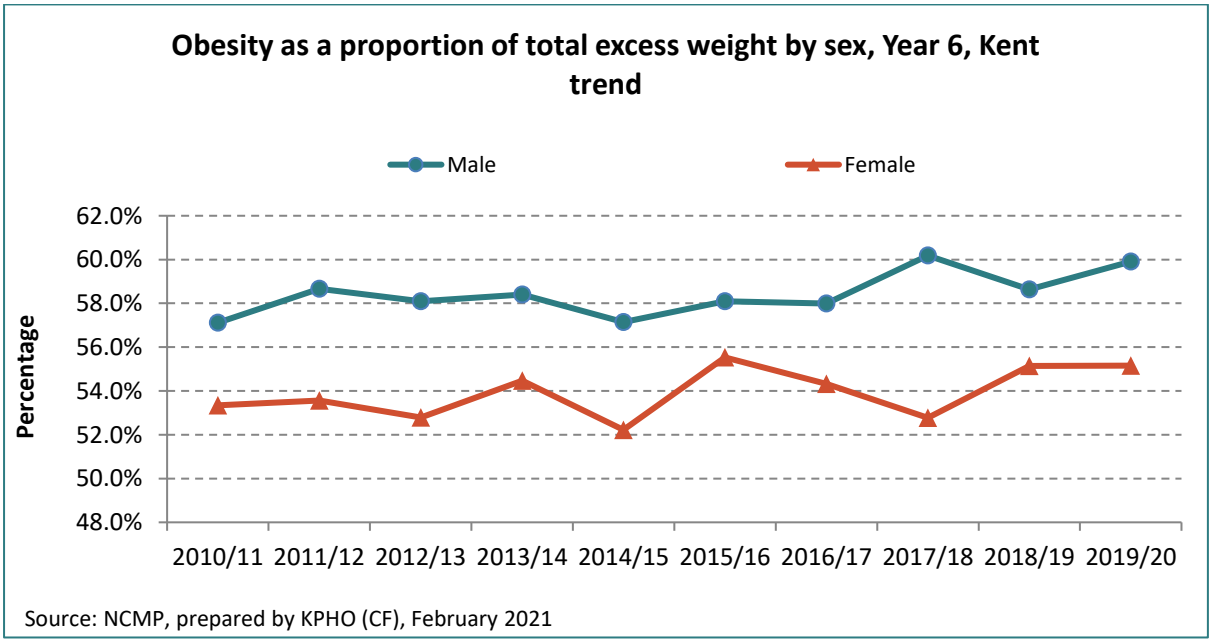
Year R has led a variable path over the time trend with the sex with the highest proportion of obesity out of total excess weight, fluctuating (Figure 142). In the most recent year, however, males have a higher proportion of obesity. In Year 6, the trend is much clearer with males always having a higher proportion of obesity out of the total excess weight group (Figure 143). This means males in Year 6 who have excess weight are more likely to be obese than their female classmates. The proportion of Year 6 males who have excess weight who are also obese is very high at 59.9%. The females are consistently lower but still a high proportion at 55.2%.

Figure 142. Obesity as a proportion of total excess weight by sex, Year R, Kent trend



Source: NCMP, prepared by KPHO (CF), February 2021

Figure 143. Obesity as a proportion of total excess weight by sex, Year 6, Kent trend



Source: NCMP, prepared by KPHO (CF), February 2021

In children who have excess weight, the proportion of males who are also severely obese is higher than females – in both Year R and Year 6 (Figures 144-145). In Year R males already in the excess weight group have a 10.4% prevalence of severe obesity. In Year 6 the severely obese proportion of excess weight males rises to 14.1%.

Figure 144. Severe obesity as a proportion of total excess weight by sex in Year R, Kent trend

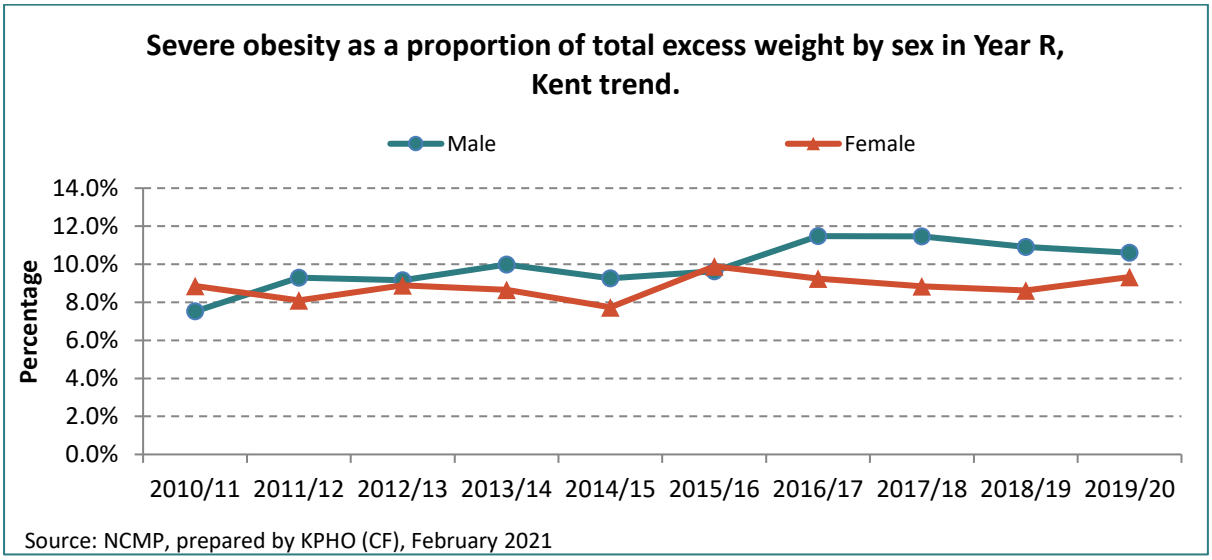
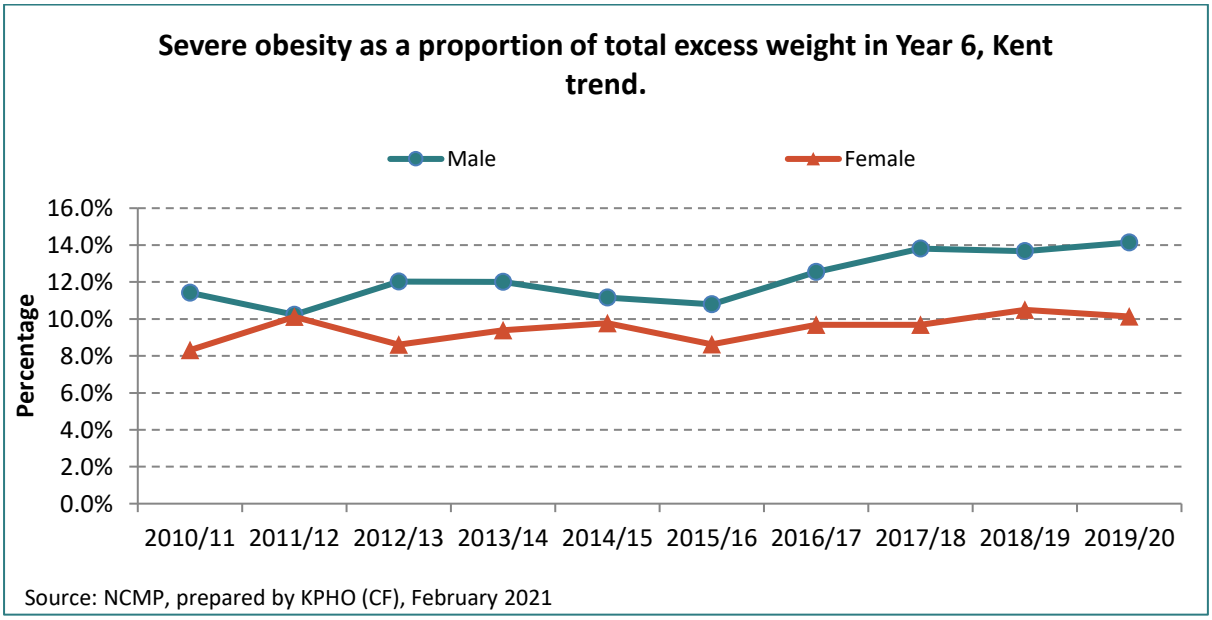


Figure 145. Severe obesity as a proportion of total excess weight by sex in Year 6, Kent trend

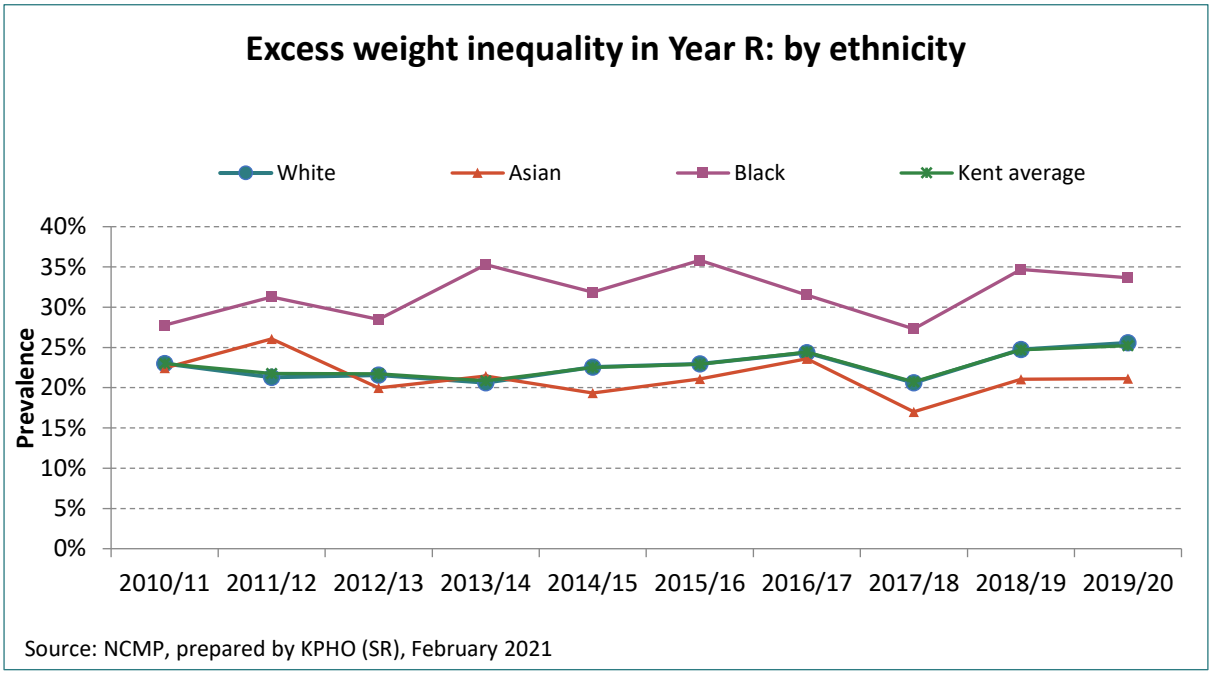


10 Findings for Kent: ethnicity inequalities

10.1 The Effect of Ethnicity on Excess Weight.

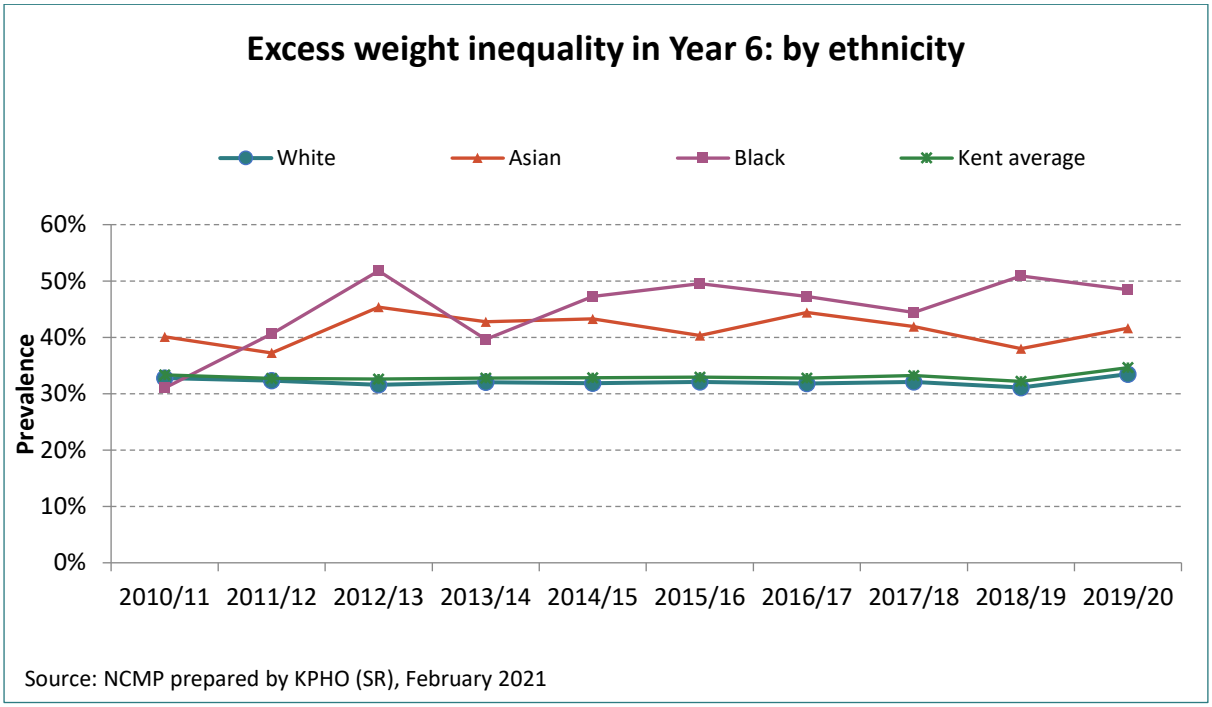
Black children in Year R have a higher prevalence of excess weight, with the lowest being Asian children (Figure 146). In Year 6, whilst the Black children still have the highest prevalence, the Asian children now have the second highest prevalence (Figure 147). Caution should be taken when using BMIs to compare ethnic groups in children (Chapter 11. Methodology and caveats: point 11.)

Figure 146. Excess weight inequality in Year R: by ethnicity



Source: NCMP, prepared by KPHO (SR), February 2021

Figure 147. Excess weight inequality in Year 6: by ethnicity



Figures 148-149 show a more in-depth view of excess weight in Year R and Year 6 by ethnicity. We have suppressed the ethnicities who have the smallest numbers due to confidentiality.

Figure 148. Excess weight inequality in Year R: by ethnicity

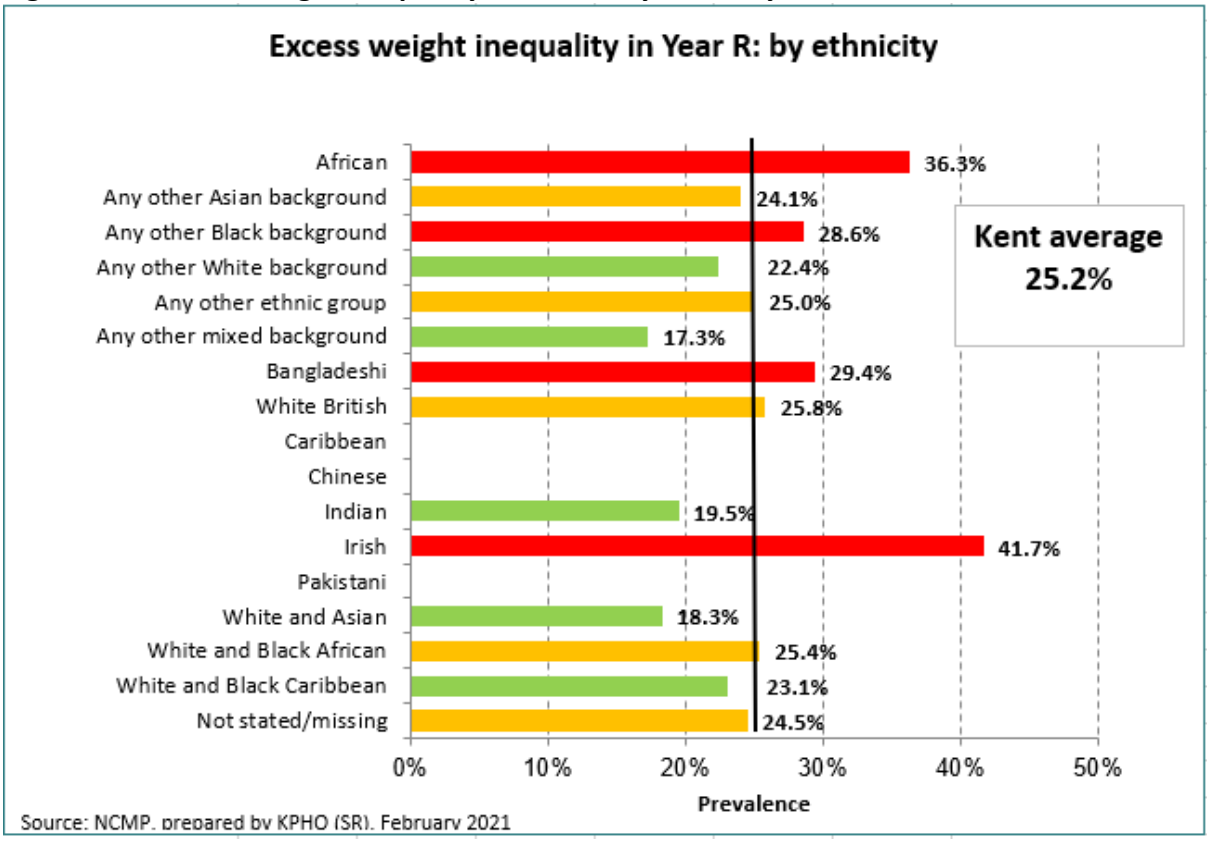
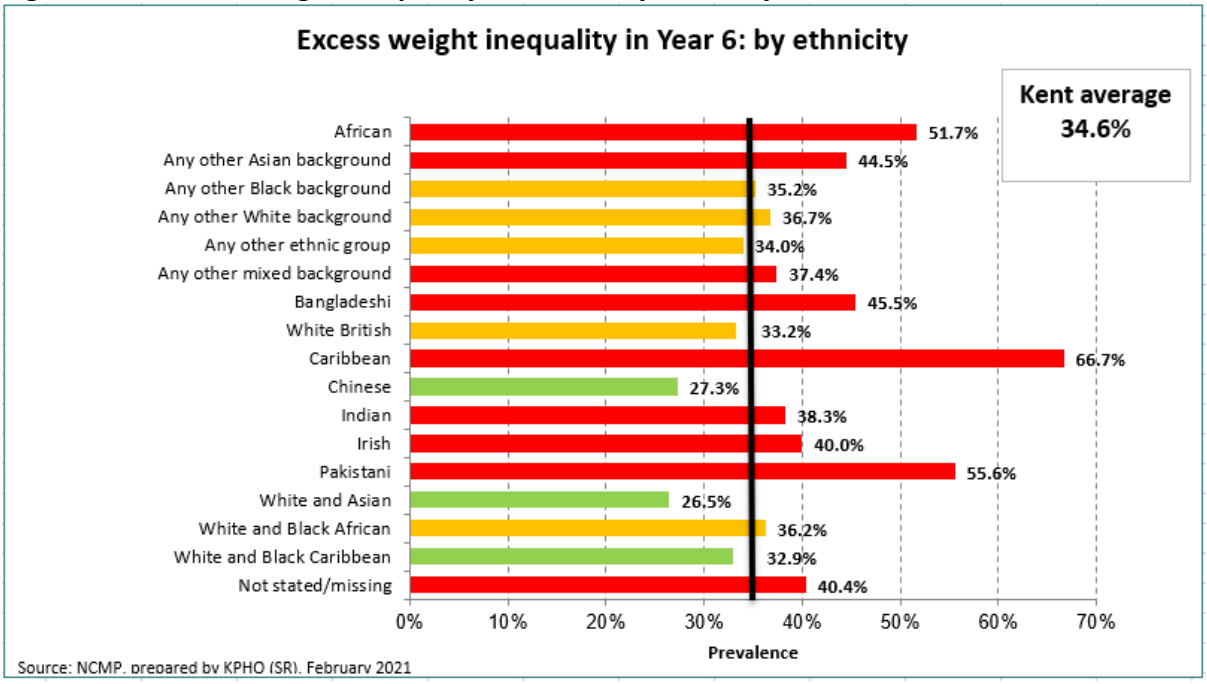


Figure 149. Excess weight inequality in Year 6: by ethnicity



10.2 The Effect of Ethnicity on Obesity

Black children in Year R and Year 6 have a higher prevalence of obesity (Figures 150-151). In Year R the prevalence is 15.2% for Black children compared to Asian children at 11.5% and White children at 10.3%. This rises to 31.5% for Black children in Year 6, 26.5% for Asian children and 19.1% for White children. This shows that there is a 12.4% gap between Black children and White children. Caution should be taken when using BMIs to compare ethnic groups in children (Chapter 11. Methodology and caveats: point 11.)

Figure 150. Obesity inequality in Year R: by ethnicity

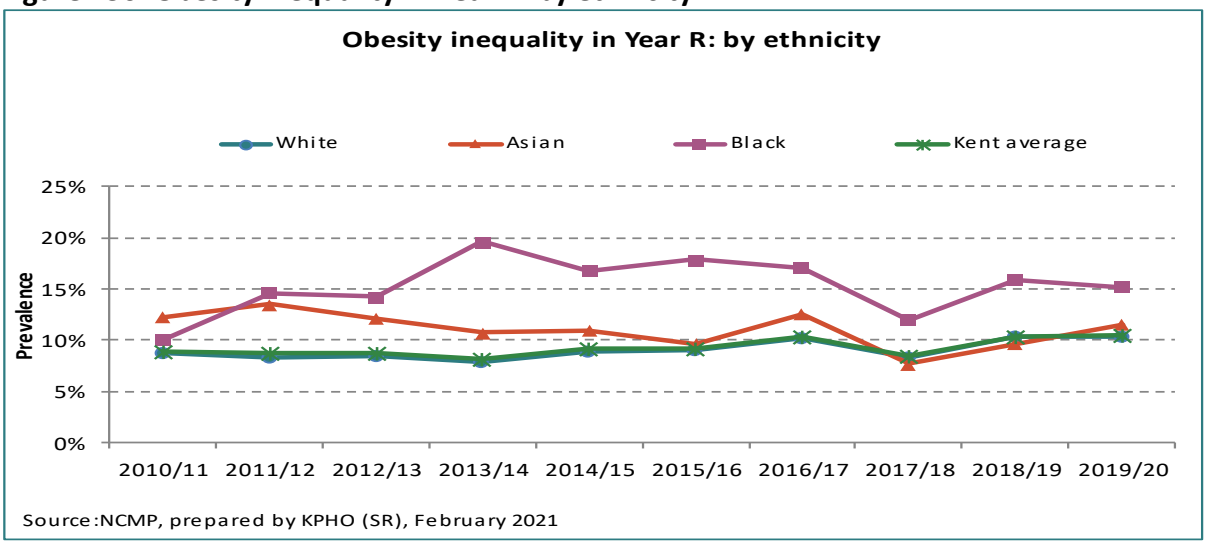
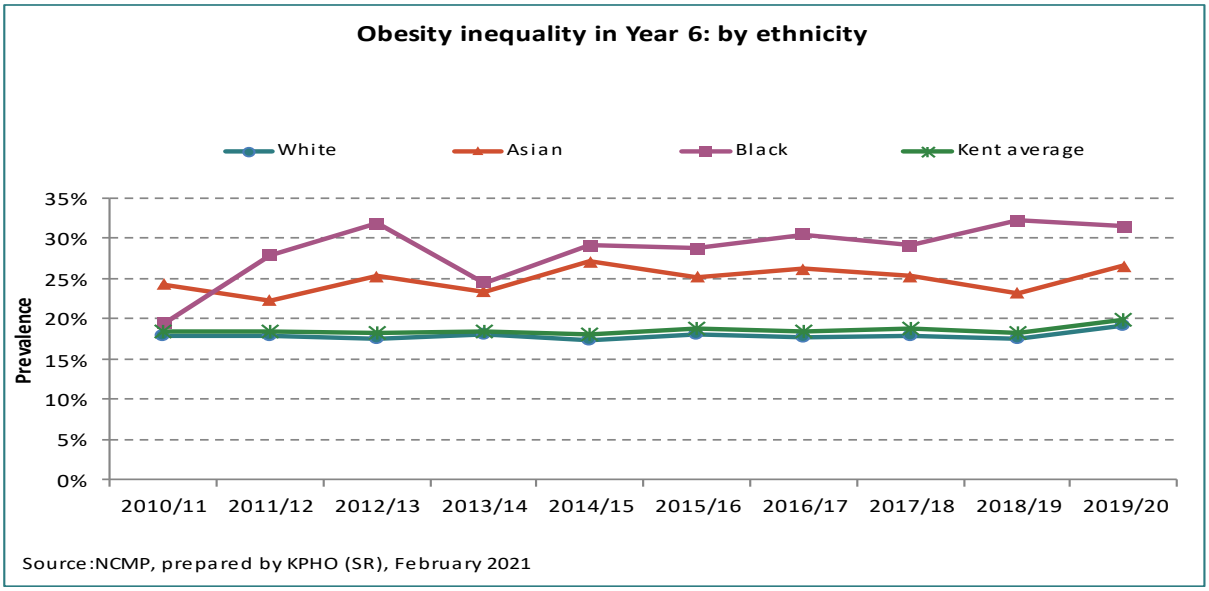


Figure 151. Obesity inequality in Year 6: by ethnicity



10.3 The Effect of Ethnicity on Severe Obesity

In severe obesity, Black children in Year R and Year 6 continue to have the highest prevalence with a concerning high of 10.1% in Year 6 this year (Figures 152-153). That compares to 5.7% for Asian children and 3.9% for White children. This gives a prevalence gap of 6.2%. (See Chapter 11. Methodology and caveats, point 11, for cautions on BMI and ethnicity in children).

Figure 152. Severe obesity inequality Year R: by ethnicity

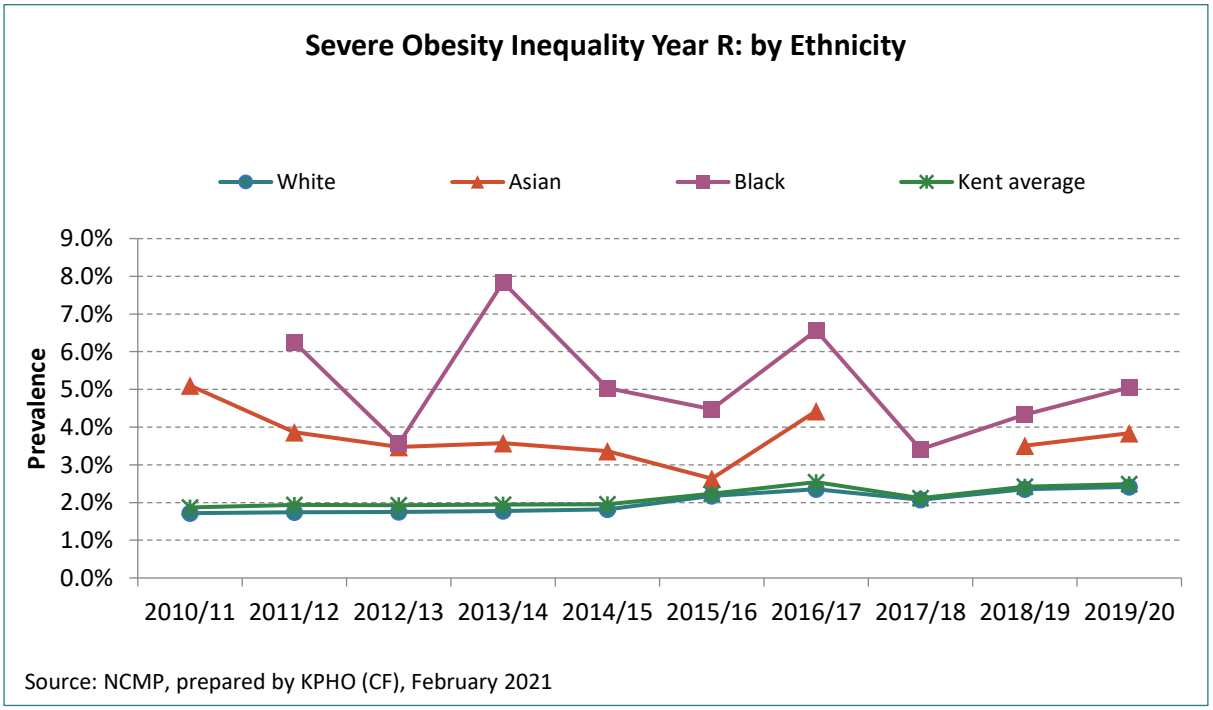
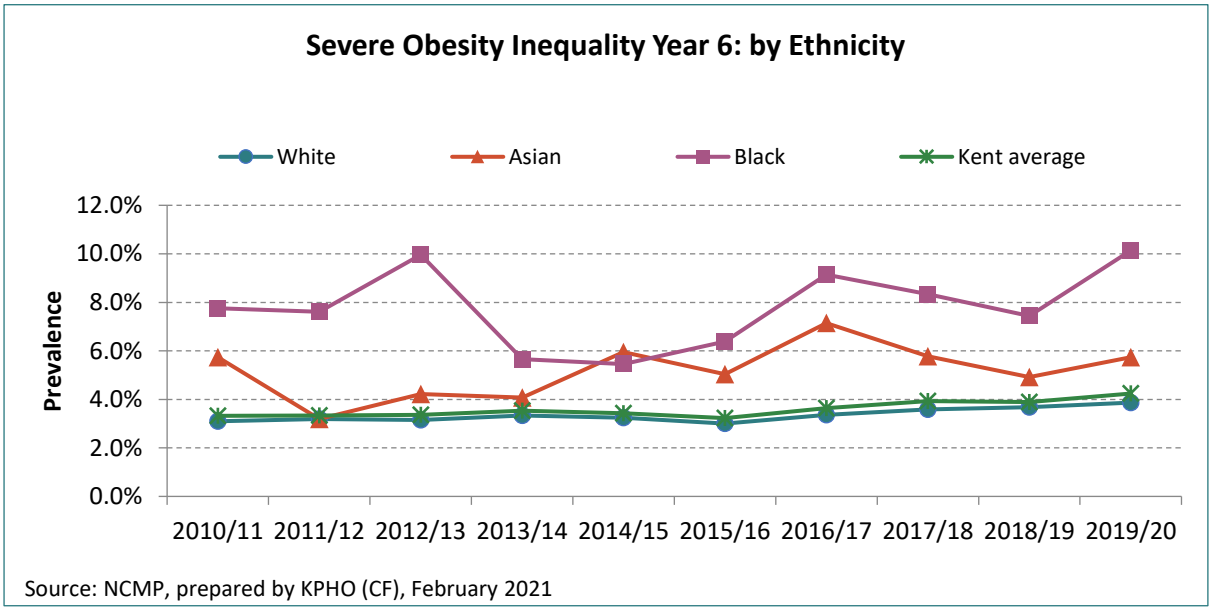


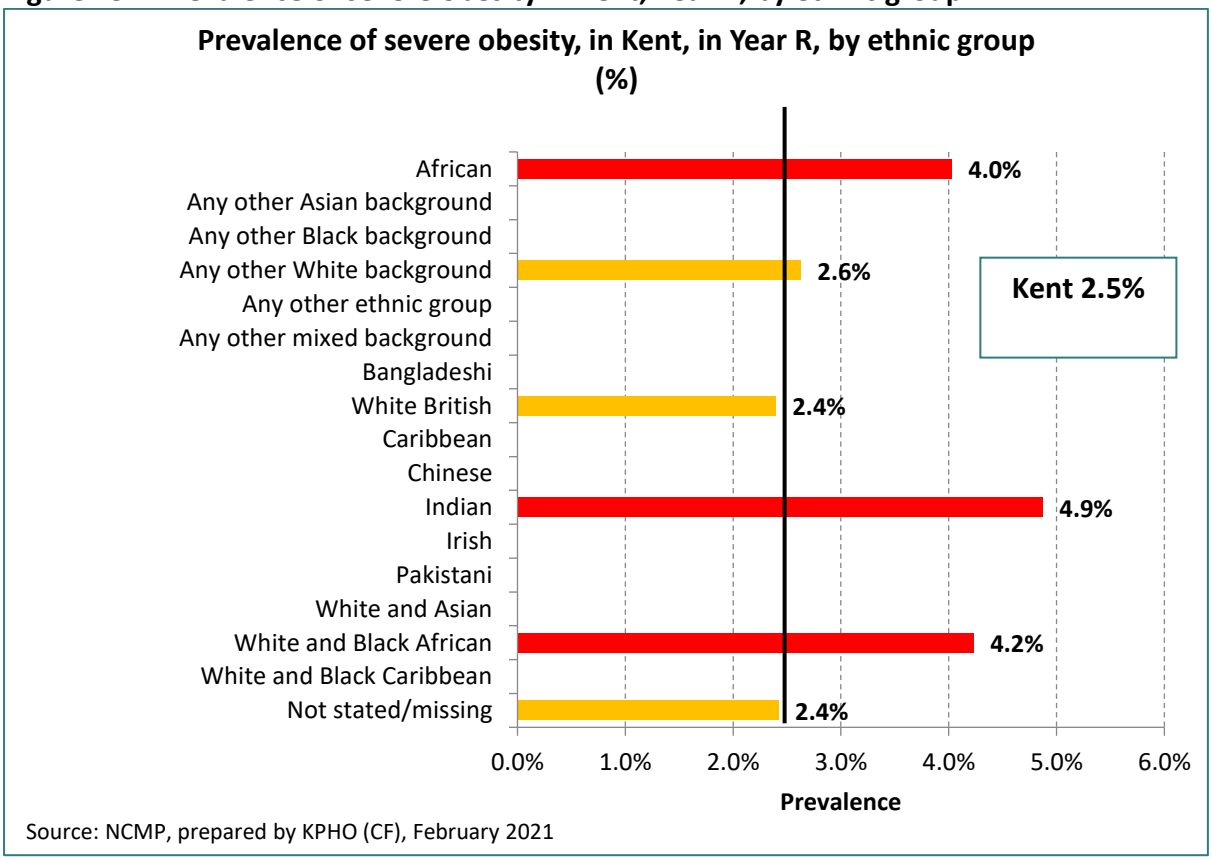
Figure 153. Severe obesity inequality Year 6: by ethnicity



Source: NCMP, prepared by KPHO (CF), February 2021

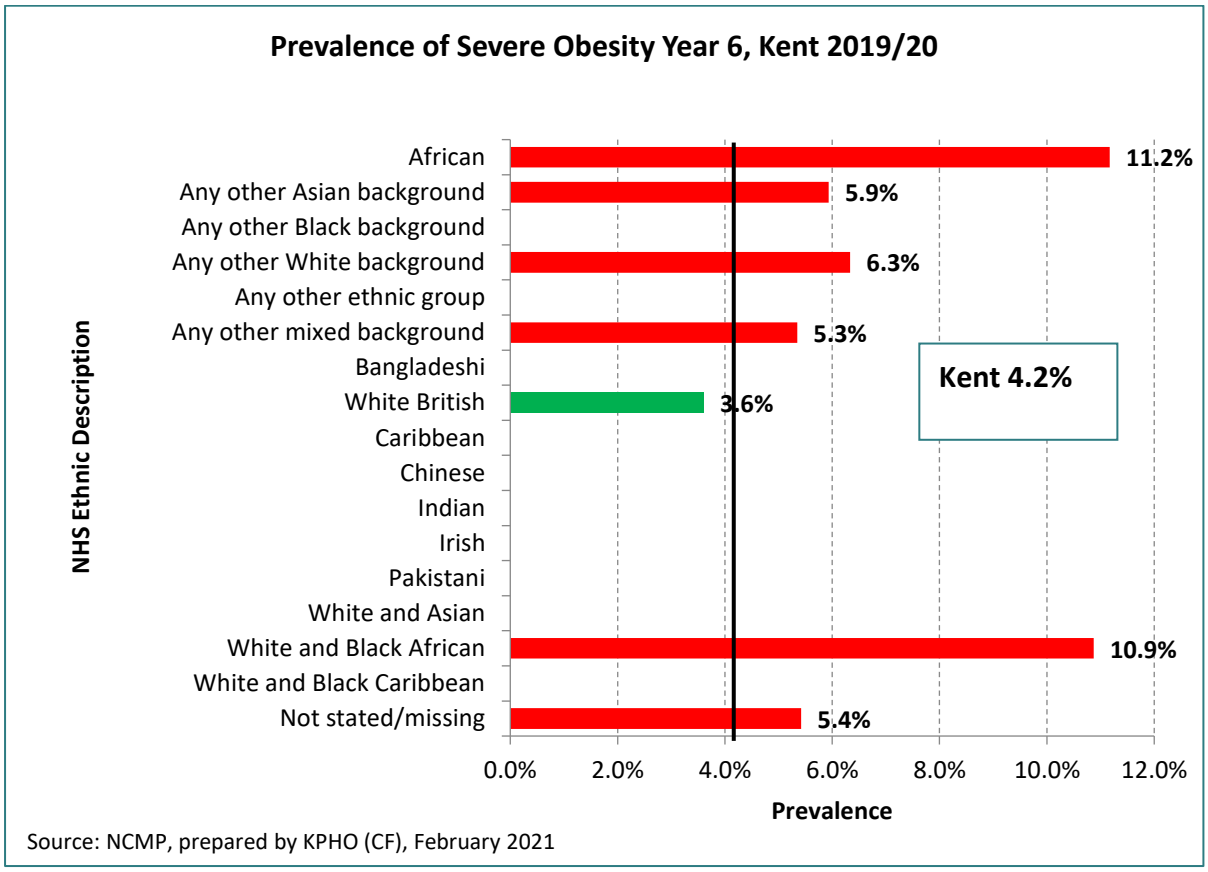
Figures 154-155 show a more in-depth view of severe obesity in Year R and Year 6 by ethnicity. We have suppressed the ethnicities who have the smallest numbers due to confidentiality.

Figure 154. Prevalence of severe obesity in Kent, Year R, by ethnic group



Source: NCMP, prepared by KPHO (CF), February 2021

Figure 155. Prevalence of severe obesity Year 6, Kent 2019/20

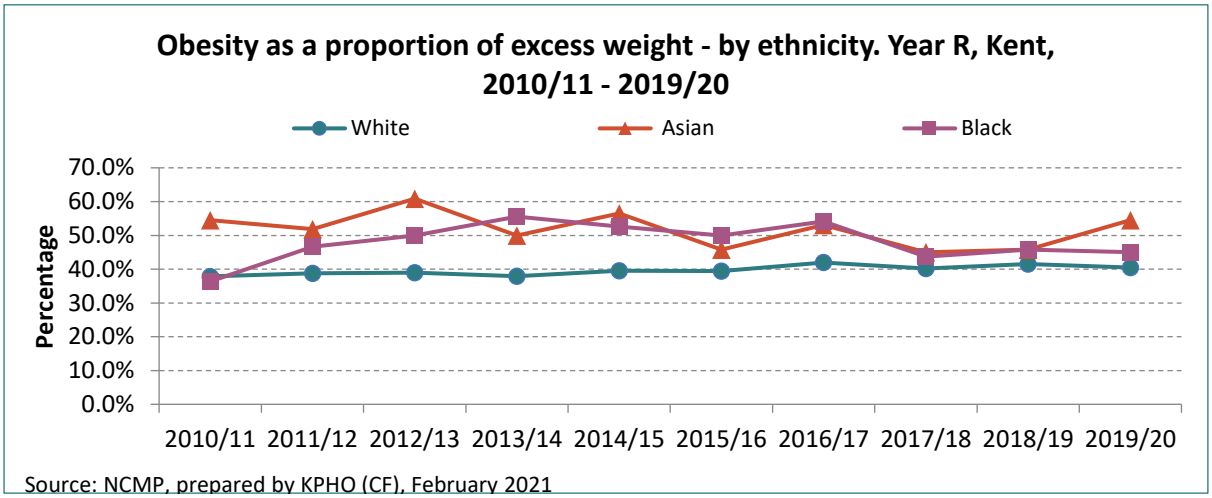


Source: NCMP, prepared by KPHO (CF), February 2021

10.4 Investigating what proportions White, Asian and Black children in Kent with excess weight are obese and severely obese

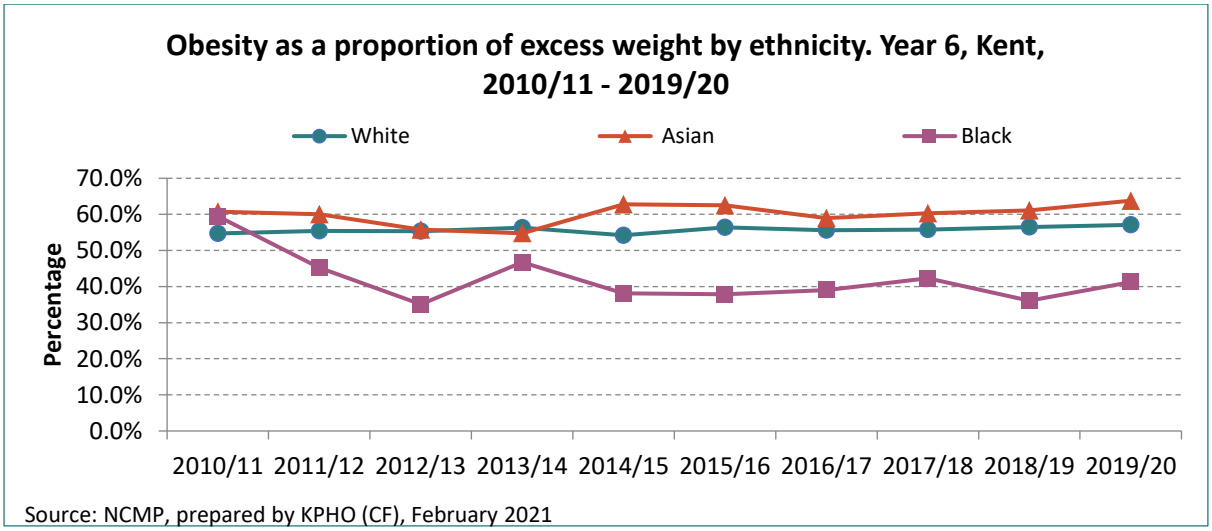
Once in the excess weight category, in Year R, children of Asian ethnicity have the highest proportion of obesity, followed by Black and then White children (Figure 155). By Year 6, however Black children have a lower proportion of being in the obese category with Asian the highest followed by the White children (Figure 156). This is surprising given the Black children have had the highest prevalence across the weight categories. (See Chapter 11 Methodology and caveat, point 11, for cautions on BMI and ethnicity in children).

Figure 155. Obesity as a proportion of excess weight by ethnicity. Year R, Kent, 2010/11 – 2019/20



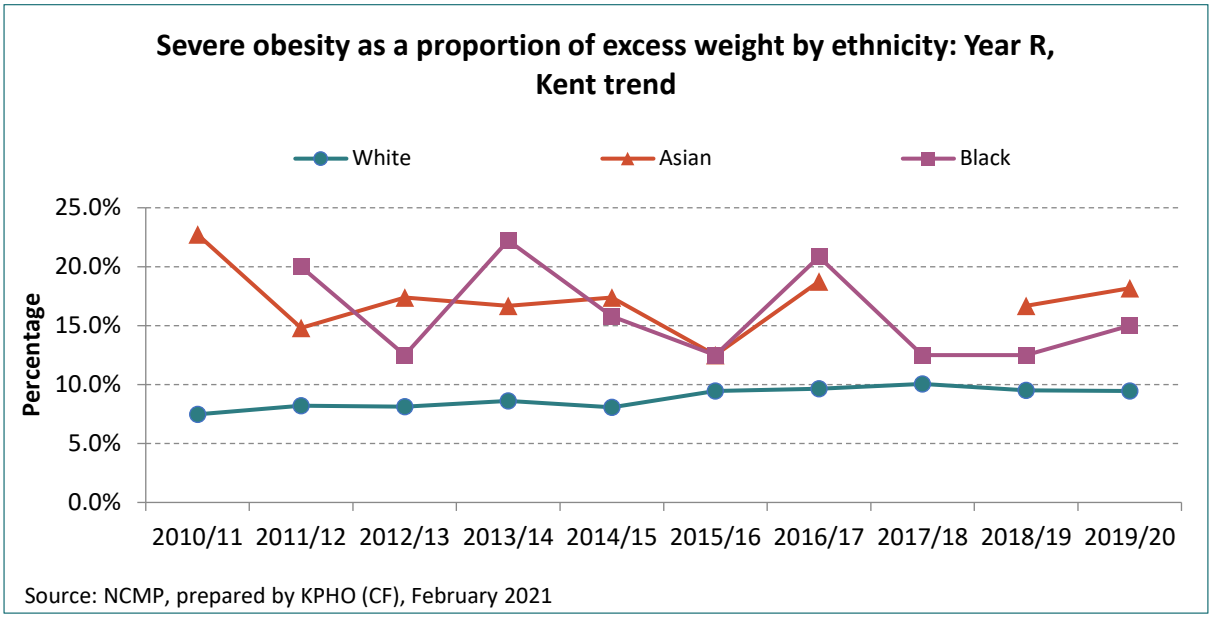
Source: NCMP, prepared by KPHO (CF), February 2021

Figure 156. Obesity as a proportion of excess weight by ethnicity. Year 6, Kent, 2010/11 – 2019/20



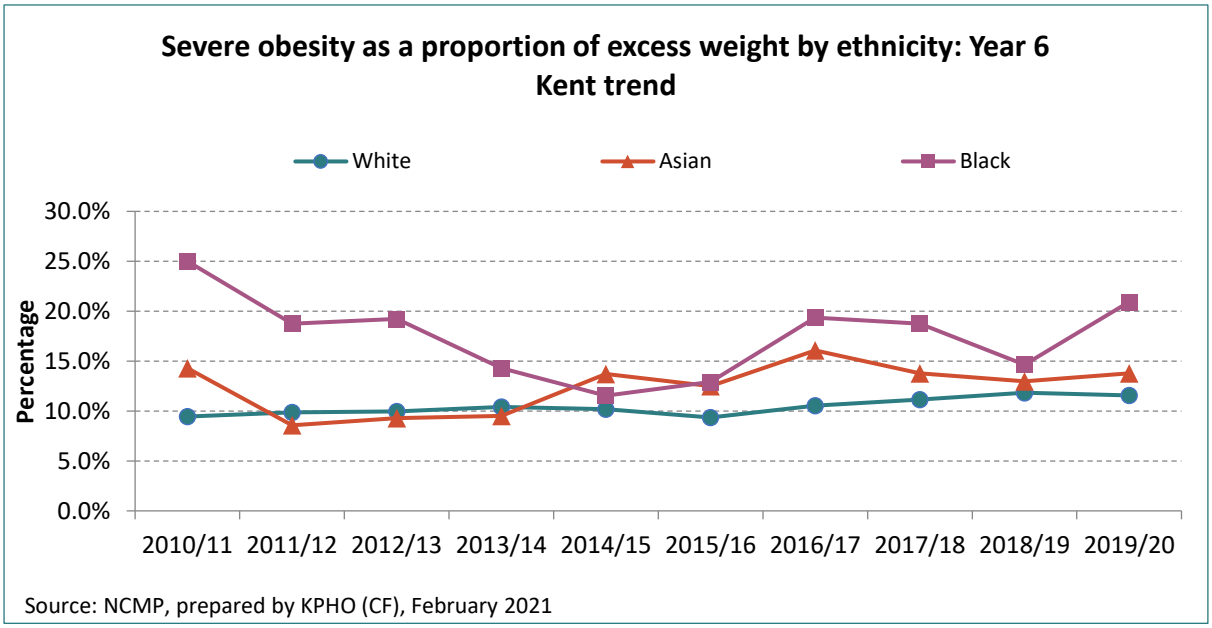
Source: NCMP, prepared by KPHO (CF), February 2021

Figure 157. Severe obesity as a proportion of excess weight by ethnicity: Year R, Kent trend



Source: NCMP, prepared by KPHO (CF), February 2021

Figure 158. Severe obesity as a proportion of excess weight by ethnicity: Year 6, Kent trend

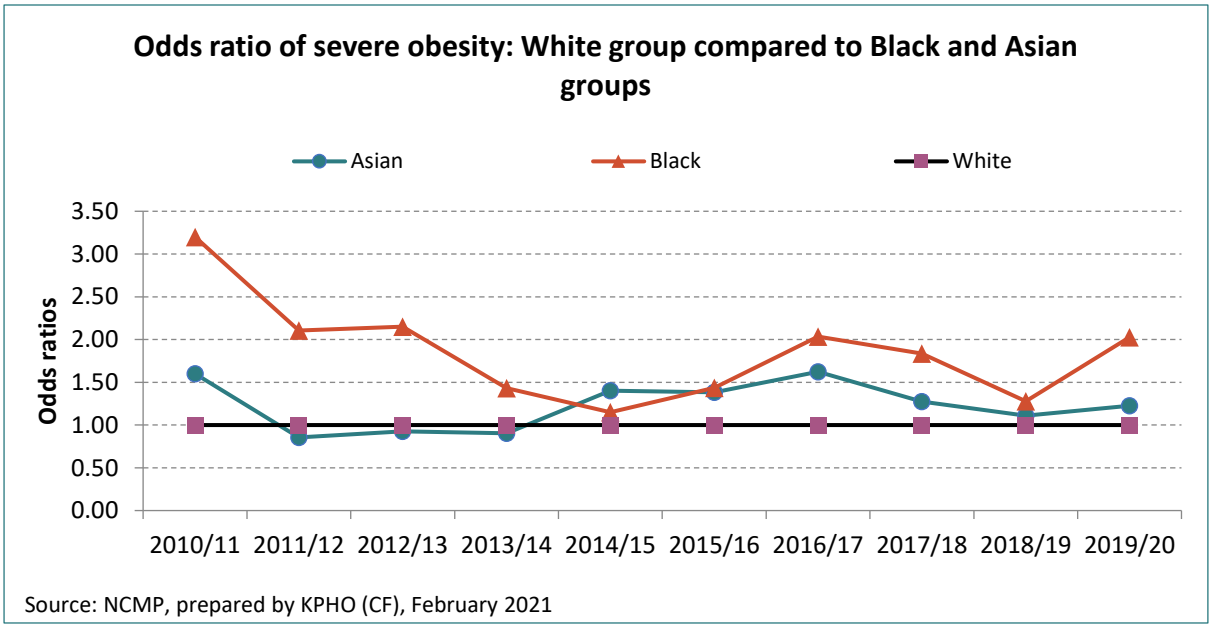


Source: NCMP, prepared by KPHO (CF), February 2021

10.5 The odds ratio for severe obesity of Kent's Asian, Black and White children in Year 6

The odds ratios show a marked difference between ethnicities in childhood obesity. Black children have an odds ratio of 2.03 in 2019/20 and Asian of 1.23, compared to White children (Figure 159, Table 14). However, as detailed in caveats, please consider that Black children may be overestimated as being 'obese' using BMI.

Figure 159. Odds ratio of severe obesity: White group compared to Black and Asian groups



Source: NCMP, prepared by KPHO (CF), February 2021

Table 14. Odds ratio of Year 6 (Kent) white group of severe obesity relative to all others in the excess weight category

Odds ratio of Year 6 (Kent) white group of severe obesity relative to all others in the excess weight category.										
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Asian	1.60	0.86	0.93	0.90	1.40	1.38	1.62	1.27	1.11	1.23
Black	3.20	2.11	2.15	1.43	1.15	1.44	2.03	1.84	1.28	2.03
White	1	1	1	1	1	1	1	1	1	1

11 Methodology and caveats

1. Numerators have been rounded in prevalence calculations.

2. Wilson confidence intervals (Altman method) have been used to derive significance for comparison of districts to Kent data.

3. Kendall's Tau test has been used to detect significant trends within each area.

4. Software packages used: Stata and Excel

5. Weight categories are derived from BMI z-scores. Percentiles of the weight categories:

Excess weight 85th centile	z-score >=1.036
Overweight 85th – 95th centile	z-score 1.036 to 1.645
Underweight 2nd centile	z-score < -2.054
Obese 95th centile	z-score >= 1.645
Severe obesity 99.6th centile	z-score >= 2.65

6. Comparing prevalence year on year should be undertaken with caution due to natural variation. 5-year rolling averages have been presented for Kent level trends.

7. Only pupils who were resident in Kent are included in the analysis.

8. In district data, pupils are in the district of where they reside (i.e. not where they attend school).

9. Prevalence for the underweight category by district has been suppressed due to low numbers.

10. The NHS Ethnic description categorisation was used to produce 3 groups as follows:

White:	Any other White background
	Irish
	British
Asian:	Indian
	Pakistani
	Bangladeshi
	Chinese
	Any other Asian background
Black:	Caribbean
	African
	Any other Black background

In the fuller ethnic breakdown charts the ethnic descriptions were taken from the NCMP variable 'NHS ethnic description'.

11. Caution when using BMIs in children to compare ethnic groups. There has been some work undertaken by PHE suggesting that BMI might not the best measurement for some ethnicities. Studies have shown that if height is controlled, children from Black backgrounds are more likely to be measured as 'obese'. This is due, to some extent, to the physical characteristics related to ethnicity, in particular height, and not related to having increased body fat.[6] At the current time, there is no modifying formula that has been agreed to measure the differences in ethnic group, therefore the NCMP measurements as presented are correct but may, in the future be subject to changes for some ethnic groups, once more research is carried out by PHE and similar.

[6] (https://www.gov.uk/government/publications/differences-in-child-obesity-by-ethnic-group/differences-in-child-obesity-by-ethnic-group#fn:3)

Appendix A

Table A. Excess weight for the districts in Kent – trends in Year R and Year 6

	Year R Trend	Year 6 Trend
Ashford	Stable	Stable
Canterbury	Stable	Stable
Dartford	Stable	Stable
Dover	Increasing	Stable
Gravesham	Stable	Increasing
Maidstone	Stable	Stable
Sevenoaks	Stable	Stable
Folkestone & Hythe	Increasing	Stable
Swale	Increasing	Increasing
Thanet	Increasing	Stable
Tonbridge & Malling	Stable	Stable
Tunbridge Wells	Stable	Stable

Table B. Overweight for the districts in Kent – trends in Year R and Year 6

	Year R Trend	Year 6 Trend
Ashford	Stable	Decreasing
Canterbury	Stable	Stable
Dartford	Stable	Stable
Dover	Increasing	Stable
Gravesham	Stable	Stable
Maidstone	Stable	Increasing
Sevenoaks	Stable	Stable
Folkestone & Hythe	Stable	Decreasing
Swale	Stable	Stable
Thanet	Stable	Stable
Tonbridge & Malling	Stable	Stable
Tunbridge Wells	Stable	Stable

Table C. Obesity for the districts in Kent – trends in Year R and Year 6

	Year R Trend	Year 6 Trend
Ashford	Stable	Stable
Canterbury	Stable	Increasing
Dartford	Increasing	Stable
Dover	Stable	Stable
Gravesham	Stable	Increasing
Maidstone	Stable	Stable
Sevenoaks	Stable	Stable
Folkestone & Hythe	Increasing	Increasing
Swale	Stable	Increasing
Thanet	Increasing	Stable
Tonbridge & Malling	Stable	Stable
Tunbridge Wells	Stable	Stable

Table D. Severe obesity for the districts in Kent – trends in Year R and Year 6

	Year R Trend	Year 6 Trend
Ashford	Stable	Stable
Canterbury	Stable	Increasing
Dartford	Stable	Stable
Dover	Stable	Stable
Gravesham	Stable	Increasing
Maidstone	Stable	Stable
Sevenoaks	Stable	Stable
Folkestone & Hythe	Increasing	Increasing
Swale	Stable	Stable
Thanet	Increasing	Stable
Tonbridge & Malling	Stable	Stable
Tunbridge Wells	Increasing	Stable