Department of Health & Social Care

Title:	**Needs & Redistribution Technical Working Group**
Paper:	NR TWG 18-07: Discussion paper regarding the Public Health Grant allocation formula by the Department of Health and Social Care
Date:	Friday 18th May 2018
Venue:	MHCLG, 2 Marsham Street, London

POLICY DEVELOPMENT: NOT A STATEMENT OF GOVERNMENT POLICY

Introduction

1. The Government is undertaking a review (the review) that will set new baseline funding allocations for local authorities (LAs) in England by delivering an up-to-date assessment of their relative needs and resources. The focus of the review, including the December 2017 consultation on relative needs, has initially been on the services currently funded through the local government finance settlement.

2. In December 2017, the Government announced its aim that from April 2020, local government in England will retain at least 75% of business rates. It also confirmed that this would, in part, be achieved by devolving the Public Health Grant to LAs and 'rolling' this into the business rates retention (BRR) scheme from April 2020, subject to the appropriate assurance mechanisms being in place. The Government intends to use the intervening period to develop a set of measures to support a smooth transition of funding for public health services from a grant to retained business rates.

3. The review will consider each of the grants to be devolved to LAs under the reforms to the business rates system on a case by case basis.

4. Whilst the review will consider options for the future distribution of the Public Health Grant, the overall level of funding from 2020-21 onwards will be subject to the outcome of the 2019 Spending Review.[1]

Background to Public Health Funding

5. In April 2013, public health functions were transferred from the NHS to LAs. In anticipation, the Advisory Committee on Resource Allocation (ACRA) was asked in 2012 to develop a formula for distribution of the public health grant. This was used to set target allocations in 2013-14 and 2014-15.

6. At the point of transfer in 2013, the funding received by each LA primarily reflected historical NHS spend. This meant that some LAs received more than their target allocation under the ACRA formula and others received funding under target. In 2013-14 and 2014-15, when the overall grant was subject to growth, LAs' funding was iterated closer to their target through a mechanism called "pace of change".

7. In 2014 ACRA was asked to continue to develop a more evidence-based formula and to consider the implications for the formula of the transfer of responsibility for public health services for children aged under 5 from NHS England to LAs from October 2015.

8. Following a public consultation, ACRA made recommendations on an updated formula to the Secretary of State for Health in February 2016. The review of the formula focused in particular on sexual health treatment services, substance misuse treatment services and the weights given to the population health measure used. There was also a new component for public health services for children aged 0 - 5 years.

9. The new 2016 ACRA formula was not implemented at the time. The Spending Review 2015 (SR2015) set an average 3.9% real-terms reduction in the public health grant each year over the SR period, to 2020-21. It also announced an intention to move towards funding LA functions, including public health, through further business rates retention instead of central government grants.

10. In light of these developments, Ministers decided that LAs needed stability in public health funding and have therefore applied a uniform reduction to all LAs' allocations since 2016-17, rather than moving further towards target allocation shares generated from the new ACRA formula.

11. In May 2017, ACRA was further commissioned by DHSC to consider additional updates to the model, in particular considering the need to update key inputs and coefficients, and the scope for any simplification of the formula. DHSC and Public

[1] The national Public Health Grant budget in 2019-20 is £3.1bn.

Health England (PHE) are continuing to work with ACRA to ensure the formula is up to date, and to review for use as part of the review from April 2020.

Services funded through the Public Health Grant

12. The Public Health Grant funds a wide range of services, some of which are universal – such as the health visitor programme, and others which are targeted at specific population groups – such as drug misuse treatment services. In addition, some public health activity is prescribed or mandated where:
    a. Services need to be delivered in a standardised way across the country, such as NHS Health Checks
    b. Services must be available to all – for example, such as open access sexual health services, where there is a public health interest in controlling infections
    c. One of the Secretary of State's functions is delegated to LAs, such as contraceptive services

13. LAs are legally required to provide these mandated services and according to any regulations over the nature or level of provision, but there is no requirement over the level of spend.

14. Both the current and new public health allocation formulae distinguish between mandated and non-mandated services. A list of services funded through the Public Health Grant, and whether they are prescribed, is provided in Annex A.

The current (2012) public health allocation formula

15. Both the current and new public health allocation formulae calculate *target* allocation shares for each LA, based on estimated relative need for public health services. The actual cash allocation received by each LA will be dependent on the overall level of the grant, and pace of change policy.

16. Both formulae are based on ONS population projections for LAs, with a weight per head to reflect relative need and an adjustment for unavoidable costs. The structure of the current formula is depicted in
17. Figure 1.

18. The current formula has three components:
    a. Mandated services
    b. Non-mandated services (excluding drug and alcohol services)
    c. Substance misuse services

19. The primary indicator of need is the standardised mortality ratio for those under 75 (SMR<75). This is used as a measure of whole population health, and is highly correlated with deprivation. The SMR<75 is applied at middle super output area (MSOA) level to reflect localised health inequalities within LAs as well as

inequalities between LAs. The gradient of the SMR<75 based weight is exponentially weighted at a ratio of 5:1 to target funding towards areas with the poorest health outcomes.

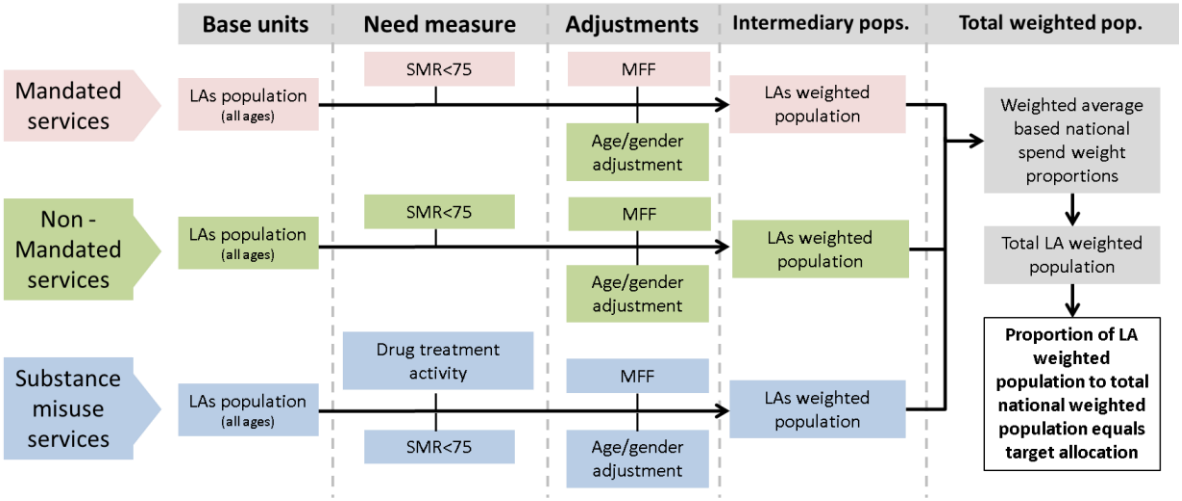
20. For substance misuse services, the weighting follows the approach taken to allocate the pooled treatment budget (PTB), from which drug treatment services were funded up to 2012-13. This is based on a need component, an activity component and an outcome component. The need component was replaced with SMR<75.

21. After the weighted population for each LA is aggregated from constituent MSOAs, age-gender adjustments are applied. These weight for the relative needs between different age and gender groups. A list of adjustments is provided in Annex B.

22. The "markets forces factor" (MFF) is then applied to adjust for variations in unavoidable geographical costs of providing public healthcare services between LAs. This is a multiplicative adjustment applied to the weighted populations for each LA in the three components. The index is based on the clinical commissioning group (CCG) MFF developed by NHS England and used in the CCG allocation formula.

23. The weighted populations for each component are combined using national outturn spend weights. Each LA's share of the total weighted population gives the target percentage share of the national budget.

Figure 1: Methodological breakdown of the 2014/15 public health grant formula

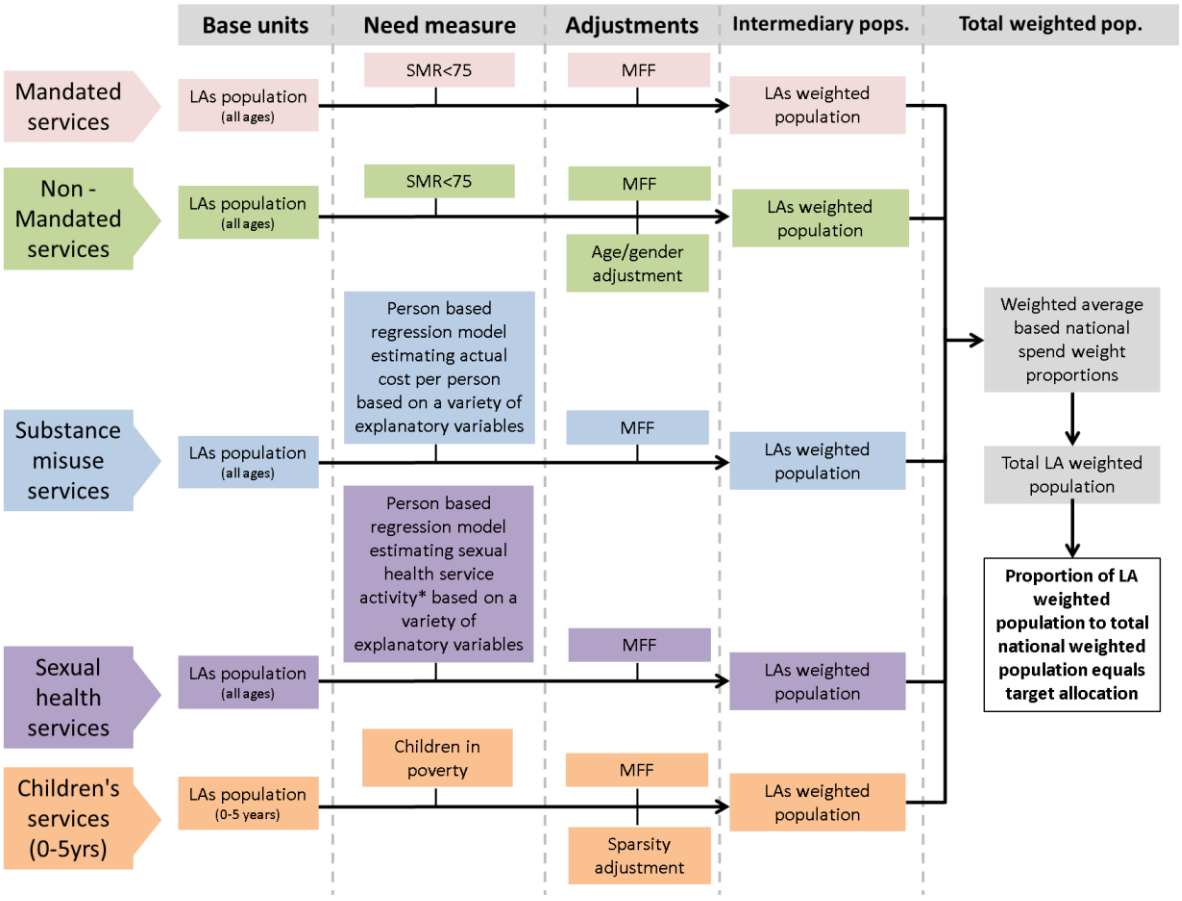


The new (2016) formula

24. As set out earlier, a review of the public health allocation formula was carried out by ACRA in 2014-15. Following public consultation, ACRA recommended use of an updated formula to the Secretary of State for Health.

25. Broadly, the new formula incorporated the following key changes:
    a. Routine data updates to the current formula
    b. A change to the way that SMR<75 is applied
    c. A new formula for substance misuse services
    d. A new formula for sexual health services
    e. A new component for children under 5, reflecting the transfer of responsibility for commissioning these services to LAs in October 2015

Figure 2: Methodological breakdown of the 2016/17 proposed public health grant formula



26. The structure of the new formula is shown in Figure 2, and has five components:
    a. Mandated services
    b. Non-mandated services
    c. Substance misuse services
    d. Sexual Health services

e. Children's services (0-5)

Mandated and non-mandated services

27. As with the current formula, SMR<75 remains the primary indicator of need or population health for the mandated and non-mandated service components, and is applied at MSOA level to reflect both intra- and inter-LA health inequalities. However, the grouping and weighting of SMR values was revised to a ratio of 10:1, to more heavily target funding towards areas with the highest SMR<75.

28. As a result of the revised components for substance misuse and sexual health, alcohol/drugs misuse and sexual health age-gender adjustments previously captured in the mandated and non-mandated service components were removed[2]. Age-gender indices for the remaining non-mandated services continue to be applied. A list is provided in Annex B.

29. All things being equal, higher values of SMR<75 in an LA would lead to a higher weighted population and target allocation share. SMR is closely correlated with other measures of mortality and morbidity in a population, as well as deprivation.

Substance Misuse and Sexual Health Treatment Services

30. The University of Manchester was commissioned to develop new formulae for substance misuse treatment and sexual health testing and treatment services. These are based on detailed person-level modelling of service utilisation, with predictors of use based on underlying determinants of need and past use of services. In both cases, supply variables were included in the model to account for the possibility of supply-induced demand, but are not included in the formula for target allocations.

31. For substance misuse, National Drug Treatment Monitoring System (NDTMS) data were used to model the use of individual treatment services for drugs and alcohol misuse, based on client characteristics and other explanatory variables.

32. The selection of the explanatory variables to be tested was based on the available research on the characteristics of treatment service clients. A wide range of potential need variables were tested and the final selection chosen on the basis of statistical criteria. Need variables that were tested but rejected included IMD crime, income and environment domain scores, as these were highly correlated with other predictor variables.

[2] The exception is for advice, prevention and promotion of sexual health services which remain in non-mandated services.

33. The need variables included in the preferred model are shown in Table 1, alongside whether they increase ('plus' in the table) or lower ('minus' in the table) target allocations per head.

Table 1: Need variables in substance misuse formula

Variable	Need
Days of treatment previous year (12/13)	+
Completed treatment previous year (12/13)	-
Received prescribing previous year (12/13)	+
SMR	+
Population turnover	+
Proportion male	+
Age 15-19	+
Age 20-24	+
Age 25-29	+
Age 30-44	+
Age 45-59	+
Age 60-64	+
Age 65+	-

34. Similarly, data from the Genitourinary Medicine Clinic Activity Dataset (GUMCADv2) and the Chlamydia Testing and Activity Dataset (CTAD) were used to model use of sexual health treatment services. The explanatory variables chosen for testing were based on key drivers highlighted in reports by Public Health England and the sexual and health profiles tool. A wide range of potential need variables were tested and the final selection chosen on statistical grounds.

35. The need variables included in the model are shown below, alongside whether they increase ('plus' in the table) or lower ('minus' in the table) target allocations per head.

Table 2: Need variables in sexual health formula

Variable	Need
IMD 2010 environment score	+
Jobseekers allowance claimants (2010 rate)	+
Average houshold size	-
Proportion black/carribean	+
Proportion same-sex civil partnership	+
Patient 2012-13	+
Female	+
Age 0-14	-
Age 15-19	+
Age 20-24	+
Age 35-44	-
Age 45-64	-
Age 65-99	-

36. The models produce modelled costs by age-group and postcode sector (for substance misuse), and predicted costs by age-gender group and LA (sexual health) based on these needs variables. These are then applied to population data to estimate needs-based weighted populations for each component.

Children's 0-5 services

37. The formula for the Children's 0-5 services component has three elements:
    a. Population base: number of children aged under 5 in each LA, as projected by ONS
    b. Adjustment for relative need per head of the population base
    c. Sparsity – subject to materiality

38. In addition to universal services, resources for public health for 0-5 children are targeted towards families with higher need and vulnerable first time mothers. The measure of "Children in Low Income Households" at LA-level is used to adjust for this, producing a relative needs index based on a 4:1 weighting for children in low income families.

39. A further adjustment for sparsity is included in order to reflect travel time for home visits made as part of the health visiting programme. Travel time is likely to be longer in sparsely populated areas, and possibly major conurbations.

40. The "travelling salesman" methodology was used to estimate the minimum travel time within MSOAs, given data on the number of children aged under 5 in output areas and assumptions on the proportion of time spent in clinics versus home visits, duration of contact time with families, and average speeds for different types of roads. These assumptions were based on advice from PHE.

41. Sparsity adjustments were considered by ACRA for the other components as part of the 2015 consultation, but it was felt that there was not sufficient quantified evidence at the time to carry out a full review of whether other public health services experienced higher costs in sparsely populated areas, and that this issue would be kept under review as part of future updates. Given this, the children 0-5 component was the only one in which a sparsity adjustment was applied given the clear link through health visitor home visits.

Across all components

42. For all five components of the formula, the MFF is applied to adjust for unavoidable geographical costs of providing public healthcare services between LAs due to location.

43. As for the current formula, spend weights based on national outturn are used to combine the weighted populations for each formula component and derive the target allocation shares.

Comparison to cost drivers identified in MHCLG consultation

44. The cost drivers in the public health allocation formula compare well against the criteria set out by MHCLG in the December 2017 consultation:

    a. **Relevant**
    The cost drivers for mandated, non-mandated and children's 0-5 services are clearly tied to the population base or service delivery for these groups (e.g. children 0-5, smoking prevalence etc.). The needs variables selected for consideration in the substance misuse and sexual health models were based on research on the characteristics of treatment service clients, and drivers identified by PHE.

    b. **Objective**
    The data used in the new formula are generally based on official statistics, with the exception of the modelled outputs. These are based on operational data on substance misuse and sexual health treatments held by PHE and collected on a consistent basis nationally. The recommendations made as part of the 2015 ACRA review included changes made explicitly to reduce the possibility of perverse incentives in the commissioning of drugs services, and opted not to use datasets where data were not felt to be robust enough.

    c. **Distinct**
    Different cost or need drivers are used in each component, to reflect the distinct public health service offered. For example, separate age-gender indices are used for smoking services to those for nutrition, obesity and physical activity. In the substance misuse and sexual health models, the final need variables were selected on statistical grounds and removed if highly correlated with other predictors.

    d. **Stable**
    The use of target allocation shares and structure of the formula, with cost drivers feeding through specific formula components weighted by national spend, naturally limit the impact any one cost driver can have on overall targets.

    The cost drivers that could theoretically have the largest impact on target shares, if there was a large swing in values, would be SMR<75, population and MFF. As mentioned, both population and MFF are set for multiple years at a time and have been relatively stable. For SMR<75: as these values are grouped, and weighted separately for each constituent MSOA within a LA, the marginal impact from year to year will be limited - particularly given the relative stability of SMR.

e. Future proof

The formula seeks to estimate the underlying relative need for public health services, which we would expect to drive ongoing activity for public health services. Further, the data used in the formula would be the latest available. The use of population projections and other multi-year inputs such as the MFF would also allow for target allocations to be calculated for more than one year at a time if need be.

There are a number of need variables, such as the rate of jobseeker's allowance claimants and civil partnerships, which may not remain appropriate for use in future (due to the roll-out of Universal Credit and provisions for same-sex marriage respectively). However these needs variables are part of the substance misuse and sexual health models so are not integral to the formula in themselves. Any updating of the models, and the modelled/predicted costs for these services, would update the need variables considered as a matter of course.

<u>Advantages over the current formula</u>

45. As stated earlier, the new public health allocation formula was recommended for use by ACRA in 2016 following public consultation. It has a number of advantages over the current formula, in particular:
    a. The new formula is based on more recent data
    b. The new formula is based on a more detailed and evidence based review of public health need, and also utilises detailed person-level datasets on substance misuse and sexual health service activity.
    c. The new formula reflects new responsibilities for LAs and more closely aligns to public health delivery, with a specific component for children's 0-5 services
    d. The revision of the SMR<75 groups and weights addresses concerns that the current formula was insufficiently sensitive to areas with the most extreme deprivation
    e. The use of modelled, rather than actual drug misuse treatment activity, removes the perverse incentive to treat more people rather than invest in prevention and is less volatile than the current PTB formulation.
    f. In the current formula, need for sexual health treatment services was captured through SMR<75 and an age-gender adjustment. However, SMR<75 (mortality) is not well correlated with the need for sexual health services. In contrast, there is a specific sexual health component in the new formula, estimating predicted costs by age-gender based on activity data for sexual health treatments in England and characteristics known to be associated with need.

46. It would also not be possible to objectively implement the current public health allocation formula, given the absence of a specific component for children's 0-5 services.

47. It should be noted however that:
    a. A number of areas for further investigation were highlighted as part of the ACRA review or through subsequent work, and recommended for longer-term updates subject to new evidence or data availability. This included issues such as the use of modelled SMR<75 values, to reduce the risk of target shares falling for areas who successfully implement policies to reduce SMR. A number of these proposals are under consideration by DHSC and PHE for future developments to the formula.

    b. Any re-estimation of the substance misuse and sexual health models as part of this further work with ACRA or in future updates could result in a different set of needs drivers, which could change the modelled or predicted costs for substance misuse and sexual health activity used to determine target shares in the formula. However, it should be noted that any changes would be an improvement, by ensuring that the strongest indicators of need for substance misuse and sexual health services continue to be reflected in the formula.

    c. The results of the formula will be subject to data updates and any changes in the models due to further work on the formula with ACRA.

Next steps

48. The recent consultation on LAs' relative needs and resources set out the structure of the review, including asking which service areas may require a specific funding formula. Many respondents advocated the need for a specific formula for public health. The proposed PH formula is seen as a leading option for the review.

49. DHSC and PHE are continuing to work with ACRA to ensure the public health formula is up to date, and are reviewing the formula for use as part of the review of local authorities' relative needs and resources. Part of this work may include options for further development or re-estimation of the modelled substance misuse and sexual health components, which may affect the needs variables used.

50. The government will continue to seek views on the broad policy options for distribution of the Public Health Grant. These options might include:
    a. Status quo
    b. Use of the updated 2016 formula as a service-specific formula, with latest data. This would be subject to further work on the formula with ACRA.

c. Incorporation of the grant within the review without a specific Public Health formula

51. This paper will feed through into a technical paper, which will go out for wider sector engagement. In the longer term, a further formal consultation will include the proposed treatment of the Public Health Grant within the review.

Question 1: What are the group's views on the best option for alignment of public health with the FFR?

Question 2: What are the group's views on the specific aspects of the proposed public health formula?

Annex A: Breakdown of public health services across mandation and formula components

Service	Mandated vs non-mandated	Formula component	
		Current (2012)	New (2016)
Sexual health services - STI testing and treatment	Mandated	Mandated	Sexual health
Sexual health services - Contraception	Mandated	Mandated	Sexual health
Sexual health services - Advice, prevention and promotion	Non-mandated	Non-mandated	Non-mandated
NHS health check programme	Mandated	Mandated	Mandated
Health protection - Local authority role in health protection	Mandated	Mandated	Mandated
National child measurement programme	Mandated	Mandated	Mandated
Public health advice	Mandated	Mandated	Mandated
Obesity - adults	Non-mandated	Non-mandated	Non-mandated
Obesity - children	Non-mandated	Non-mandated	Non-mandated
Physical activity - adults	Non-mandated	Non-mandated	Non-mandated
Physical activity - children	Non-mandated	Non-mandated	Non-mandated
Substance misuse - Treatment for drug misuse in adults	Non-mandated	Non-mandated, Substance misuse	Substance misuse
Substance misuse - Treatment for alcohol misuse in adults	Non-mandated	Non-mandated, Substance misuse	Substance misuse

Service	Mandated vs non-mandated	Formula component	
		Current (2012)	New (2016)
Substance misuse - Preventing and reducing harm from drug misuse in adults	Non-mandated	Non-mandated, Substance misuse	Substance misuse
Substance misuse - Preventing and reducing harm from alcohol misuse in adults	Non-mandated	Non-mandated, Substance misuse	Substance misuse
Substance misuse - Specialist drug and alcohol misuse services for children and young people	Non-mandated	Non-mandated	Substance misuse
Smoking and tobacco - Stop smoking services and interventions	Non-mandated	Non-mandated	Non-mandated
Smoking and tobacco - Wider tobacco control	Non-mandated	Non-mandated	Non-mandated
Children 5–19 public health programmes	Non-mandated	Non-mandated	Non-mandated
Miscellaneous public health services - Children's 0–5 services	Mandated	N/A	Children's services 0-5yrs
Miscellaneous public health services - Children’s 0-5 services - Other	Non-mandated	N/A	Children's services 0-5yrs
Health at work	Non-mandated	Non-mandated	Non-mandated
Public mental health	Non-mandated	Non-mandated	Non-mandated
Miscellaneous public health services	Non-mandated	Non-mandated	Non-mandated

Annex B: Age gender indices used in the mandated and non-mandated formula components

Component	Age-gender adjustments made	
	Current (2012)	**New (2016)**
Mandated	Nutrition, obesity and physical activity	N/A
	Sexual Health	
Non-mandated	Nutrition, obesity and physical activity	Nutrition, obesity and physical activity
	Alcohol misuse	Smoking
	Smoking	Sexual Health
	Sexual Health	Children's 5-19 services
	Children's 5-19 services	
	Drug misuse	