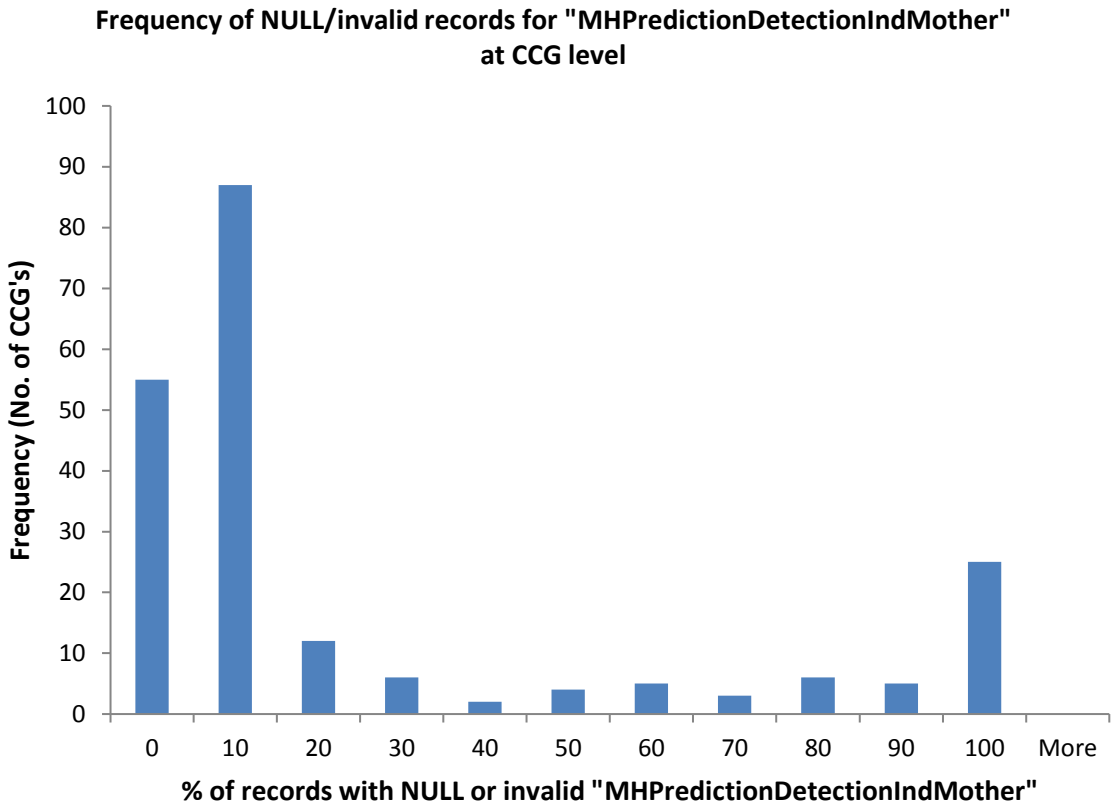
	Appraisal of quality of indicator for provisional CCG OIS
Indicator ref: IND CCG12	**Indicator title: Mental health assessment for pregnant women at their first booking appointment**
Key considerations for the NICE Committee	• The indicator is feasible for measuring whether women are asked about their emotional wellbeing only at the first antenatal booking appointment. The required data item is not available for each routine appointment. • The data item records only whether the recommended questions have been asked, and does not include information about the woman's response. • 48,948 women had their first antenatal booking appointment in December 2016. Out of these 46.2% were asked about their emotional wellbeing at the appointment. At CCG level, this figure ranges from 0% to 100%. • 20.8% of the 48,948 women had a NULL or invalid value for whether or not they had been asked about their emotional wellbeing. This ranges substantially at CCG level, from 0% to 99.7% of records. • These records have been retained in the denominator of the indicator. This will have the effect to decrease indicator values, but will encourage recording of this data item if the indicator were to be produced. • It is recommended to caveat the problem of NULL and invalid records in the denominator and present the number and percentage of these records as contextual information. • In the analysis presented here, 35 out of 209 CCG's indicator values were supressed due to small numbers. This suppression is likely to decrease as the reporting period is lengthened and it is envisaged that a quarterly CCG level indicator could be feasible. • **Summary: The view of the NHS Digital is that this indicator may be feasible, but NICE IAC should consider whether the indicator is of value.**
Rationale	NICE Clinical Guideline CG192, "Antenatal and postnatal mental health: clinical management and service guidance" gives recommendations to ask women about their antenatal and postnatal mental health. At a woman's first contact with primary care or her booking visit, and during the early postnatal period, health professionals are encouraged to ask depression identification questions as part of a general discussion about a woman's mental health and wellbeing. The corresponding NICE Quality Standard (QS115) states "Routine antenatal and postnatal appointments are opportunities for health professionals to discuss emotional wellbeing with women and identify potential mental health problems. It also gives women an opportunity to talk about any concerns they might have, such as fears around childbirth, multiple pregnancy, or past experiences, such as loss of a child or traumatic childbirth. This will help health professionals provide appropriate support." QS115 also recommends local measurement of the guideline by calculating the proportion of routine antenatal and postnatal contacts at which woman are asked about their emotional wellbeing by a healthcare professional.
What is measured	**Source of data** Maternity Services Data Set (MSDS), NHS Digital **Denominator** Number of booking appointments carried out within the reporting period by CCG **Numerator** Of the denominator, the number of booking appointments where the woman was asked about their emotional wellbeing at the appointment.

	A booking appointment is the appointment where the women first enters the maternity care pathway, characterised by information giving and detailed history-taking to help the woman choose the most appropriate antenatal care pathway. Also includes measurement of height, weight, blood pressure and blood tests for determine blood group, rubella status and haemoglobin level. Blood and urine samples for screening may also be taken at booking after the woman has been well informed and has given consent. The booking appointment follows the first contact with a health professional. If a woman has not had antenatal appointments prior to giving birth a booking appointment will be created at the time of delivery for recording purposes even though they didn't actually have a booking appointment. This indicator excludes all booking appointments with dates equal to or greater than the labour onset date or date of caesarean section.
Suitability of indicator for purpose	**Data Quality dimensions:** **Completeness** The Maternity services data set is a relatively new dataset which has been running since 1st April 2015. The unique pregnancy identifier was implemented in April 2017, overcoming an issue with the original data set whereby distinct pregnancies for the same woman had to be identified using business rules. The December 2016 MSDS report states that 125 Providers successfully submitted data to MSDS (http://www.content.digital.nhs.uk/catalogue/PUB23944), contrasted to the 134 Providers currently submitting data to Hospital Episode Statistics (HES). NHS Digital Community and Mental Health Team are working closely with providers who did not respond and expect coverage and data quality to increase over time. In the meantime, coverage for those CCGs where providers are not submitting will be poor and therefore data may not be a true representation. Currently the tables MAT001 (MotherDemog), MAT003 (GP) and MAT101(Booking appointment) are mandatory and coverage has steadily been improving, 125 providers out of 131 (95.4%) submitting data in December 2016. The coverage of the MAT404 (Labour Delivery) table has also steadily been increasing however is still at a much lower percentage than the mandatory tables, in December 2016 90 of 131 providers (68.7%) submitted data. The discrepancy in the number of providers submitting booking appointment data compared to labour delivery data will result in records being included in the construction of the indicator when they should have been excluded due to the appointment date being greater or equal to the labour onset or caesarean date. **Accuracy** A substantial number of records have NULL or invalid records for the data item "MHPredictionDetectionIndMother", which is used to select records for the numerator. For the analysis presented here, at the national level, 20.8% of records have NULL or invalid values for this data item, and there is significant sub-national variation (please see Figure 1, below)



The December 2016 Data Quality report from MSDS states that 81% of MHPredictionDetectionIndMother data items in the December 2016 submission were valid, and this has improved significantly from the December 2015 submission, when only 72% of records were valid.

MSDS now contains a Unique Pregnancy ID which allows the user to uniquely identify women in the data set in a reporting period. As such, counts presented in this analysis should not include double-counts.

A small proportion (0.8% of the 48,948) of the unique records in this analysis had to be removed to due poor data quality; those records where gestational age at booking was negative, and where the antenatal booking appointment date fell after the delivery date.

Timeliness

Finalised data becomes available for use four months after the reporting period end. For example, the submission window for January 2017 data opens on 01/03/2017 and closes on 30/04/2017, and extracts become available on 10/05/2017.

Accessibility

MSDS monthly reports do not currently present figures for the number/proportion of women that have been asked about their emotional wellbeing (though data quality on the validity of the MHPredictionDetectionIndMother data item is presented).

However, the data can be requested from NHS Digital four months after the reporting period ends.

http://content.digital.nhs.uk/maternityandchildren/maternity

Relevance

There are very few indicators focusing on the antenatal period currently in production and none that

	look specifically at mental health in this period. The indicator can only be used to assess if the recommended questions are being asked, and not how this information is used locally, or indeed the state of the mothers antenatal health. At the time of writing, colleagues in NHS Digital advise that the first exploratory analysis of linked MSDS and Mental Health Services Data Set (MHMDS) data is expected to be published in May 2017. The linked data, particularly when coverage improves, will offer a richer set of data to explore mental health needs during pregnancy and following birth. **Comparability over time and between CCGs** The MSDS data source started in April 2015 and is still classed as experimental, although the data quality has steadily been improving, the coverage by provider has only exceeded 80% over the last four months. The MSDS should be implemented by all NHS-commissioned Maternity Services in England who have electronic data collection systems, including acute trusts, foundation trusts and private services commissioned by the NHS. It provides a national standard for gathering data from Maternity healthcare providers in England. The completeness of the data prior to Oct 2016 is likely to limit its comparability over time. However, it is expected that the data quality is going to continue to improve.
How data are aggregated	Record level data held within the MSDS are aggregated up to CCG level. CCG of commissioner is used in the first instance, which is the CCG code given by the provider submitting the data. If this field is invalid, then the CCG code of the mother's registered GP practice is used. Data are aggregated into the numerator by counting unique records where the MHPredictionDetectionIndMother field is "Yes", indicating that the question has been asked. Data are aggregated into the denominator by counting unique records where the MHPredictionDetectionIndMother field is "Yes", "No", or NULL or invalid, indicating that the question has not been asked, or this data has not been recorded.
Risk adjustment	The decision has been made not to risk adjust through standardisation as it would not be favourable to mask any variation in the indicator value. Whether or not women get asked about their emotional wellbeing should not be expected to change by the variables that are commonly adjusted for, in the same way that, e.g. mortality will vary by age. It is recommended to present the percentage of invalid records by CCG. The decision was made to include these invalid records in the denominator, in order to encourage increased data quality for the MHPredictionDetectionIndMother data item. As there is large variation in the percentage of invalid records at CCG level, some indicator values will be influenced more by poor data quality, and the proposed contextual column should aid in understanding changes in indicator values over time. Confidence intervals will be presented to help with interpretation of indicator values. These are especially useful where values based on small numbers are present, as it highlights the amount of variation expected within these small populations.
Scientific validity	As noted previously, this measure is only feasible for mothers attending their first antenatal booking appointment, and not for all routine antenatal and postnatal appointments as the NICE Quality Standard suggests. This difference would have to be highlighted in the accompanying Indicator Quality Statement. There will be bias in the indicator where the number of records with an invalid MHPredictionDetectionIndMother data item is high. This will have the effect to lower the indicator value for CCG's where this is common. As a high indicator value is favourable, CCG's should be encouraged to decrease the number of invalid records. How closely the data represent the truth in this situation is questionable as it could be that some women are asked about their emotional wellbeing but it is simply not recorded and/or extracted correctly. Nonetheless, the opposite method of excluding invalid records from the denominator would have the opposing bias, and would potentially encourage providers/CCG's not record the MHPredictionDetectionIndMother data item in order to try and improve their indicator values. As such, it would be noted in accompanying indicator quality statement that by including invalid records, the indicator is not only measuring whether an organisation has been asking women about

	their emotional wellbeing at their first antenatal booking appointment, but also how well this information is being recorded and extracted locally. It should also be noted that the indicator can only show that questions pertaining to emotional wellbeing have been asked. It cannot indicate whether concerns around antenatal mental health were raised, and if so, what course of action was taken. Although for December the coverage is high with 95% of providers submitting data the low numbers for some CCGs are likely due to women being treated at one of the providers that did not submit data, therefore for some CCGs the indicator value may not be a true reflection. It is however expected that the coverage will continue to improve.
Interpretation	A high indicator value is favourable as this indicates a high proportion of women that are being asked about their emotional wellbeing at their first antenatal booking appointment. Due to some CCGs having a low number of booking appointments the confidence interval can be large. When comparing CCGs it is important to also consider the confidence intervals. By including records where the MHPredictionDetectionIndMother data item is invalid in the denominator, we are able to discourage the practice of submitting NULL records in an attempt to 'game the system' to achieve a higher indicator value.
Equality assessment	The MSDS dataset has a number of fields that can be used to allow for additional equality assessment on factors such as mother's age, ethnicity. The MSDS dataset has a number of fields that can be used to allow for additional equality assessment on factors such as mother's age, ethnicity. It may be possible to publish indicator breakdowns for additional factors at national level, however due to small numbers publication of the indicator split by these additional dimensions at CCG level may be restricted due to small numbers as many of the CCGs would be suppressed. However CCGs could undertake local analysis considering these dimensions.

Sample Data - December 2016 MSDS

Please note that MSDS disclosure control rules have been followed in the production of this report; subnational figures of between 0 and 4 have been suppressed, along with corresponding indicator values and confidence intervals. All other subnational figures have been rounded to the nearest 5. Percentages are calculated from unrounded values and are rounded to one decimal place.

In the data presented here, 35 CCG's have had to be suppressed due to small numbers. The reporting period only covers the one month (December 2016), so this suppression is likely to be less apparent if for e.g. a quarterly reporting period was used for the final indicator.

48,948 women had a first antenatal booking appointment in December 2016. After removing records with poor data quality, 99.2% of records were valid for analysis. Of these women, 21,709 (46.2%) were asked about their emotional wellbeing at this appointment.

Figure 2

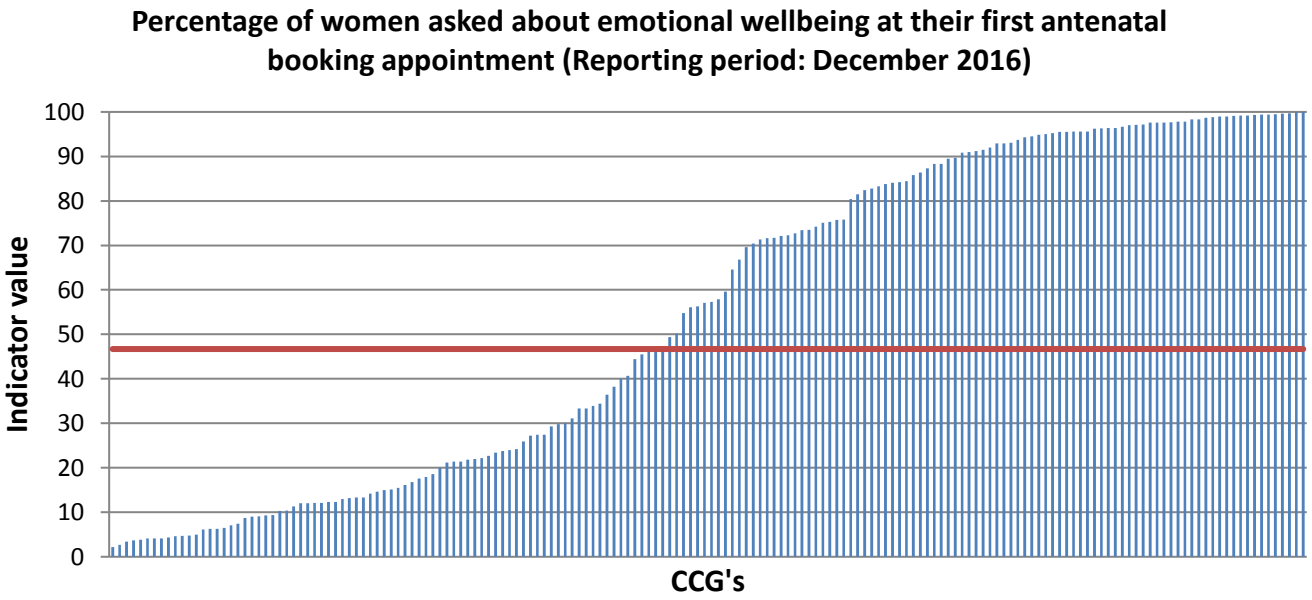


Figure 2 shows the variation of the indicator value at CCG Level. This includes 171 CCG's. As figure 2 shows, there is a large variation in the proportion of women that are asked about emotional wellbeing at their first antenatal booking appointment. This may partially be driven by the tendency for some CCG's to have a large proportion of invalid records in their indicator (See table 2 below).

Table 1

CCG	Denominator	Numerator	Indicator value	CI lower	CI upper	Count of invalid records	% of invalid records
1	175	175	100	97.9	100	*	0
2	145	145	100	97.5	100	*	0
3	285	285	99.7	98	99.9	*	0
4	250	245	99.6	97.8	99.9	*	0
5	185	185	99.5	97	99.9	*	0

Table 1 shows the top 5 CCG's by indicator value. Note the lack of invalid records present.

Table 2

CCG	Denominator	Numerator	Indicator value	CI lower	CI upper	Count of invalid records	% of invalid records
167	135	5	3.8	1.6	8.5	*	0
168	520	20	3.7	2.4	5.6	*	0.2
169	205	5	3.4	1.7	6.8	155	74.3
170	375	10	2.7	1.5	4.8	360	96.3
171	650	15	2.2	1.3	3.6	75	11.8

Table 2 shows the bottom 5 CCG's by indicator value. Note that some of these poor values could be driven by the large proportion of invalid records present in the denominator.