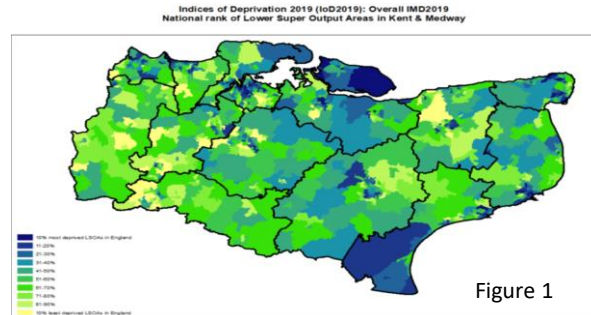


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Introduction

East Kent NHS trust serves a population with two third of pregnant mothers living above the 3rd quintile of Index of Mass deprivation (IMD) (figure 1)¹. The annual average birth is 6500 with preterm birth rate of 7.4% which averages 488 births per year.



Following the publication of Saving babies life care bundle version², a dedicated preterm Surveillance service was established in the East Kent Hospital in March 2021. The referral to the clinic included intermediate and high risk for Preterm birth as per the care bundle guidance (figure 2). The interventions included Progesterone pessary, Cervical cerclage and Arabin pessary. We prospectively collected data on the outcome of those who had surveillance from preterm clinic.

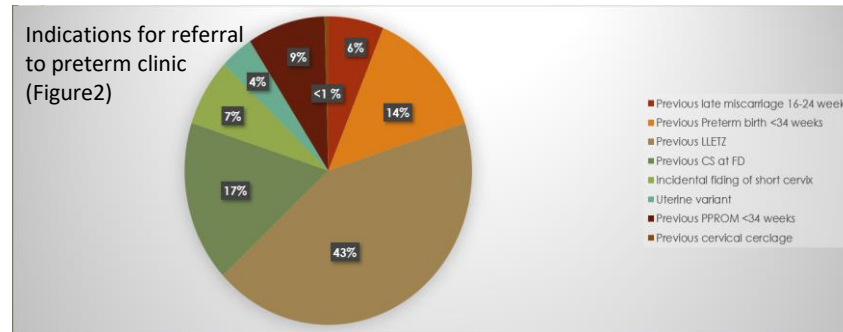
Method

Preterm clinic data was prospectively collected from 2 separate sites at the East Kent Hospitals from January 2022 till December 2023 and analysed with Excel. Clinical outcome data was collected from patient notes and Euroking records and validated with clinical database. All Preterm births which occurred in 2021-2023 were identified from the Euroking records and analysed for risk factors including the major and intermediate risk factors as well as low risk factors such as extremes of age and BMI, social deprivation, anxiety and domestic violence .

References:

1. The Index of Multiple Deprivation (IMD2019): Headline findings for Kent
2. Saving Babies Lives Version 2, A care bundle for reducing perinatal mortality

Results



Year	Incidence per 1,000 births			Grand Total
	<28 weeks	28+0-33+6 weeks	34+0-36+6 weeks	
2018	4.86	19.91	46.37	71.15
2019	4.36	19.16	54.53	78.05
2020	5.70	19.39	45.79	70.88
2021	7.56	19.78	45.83	73.16
2022	5.28	17.43	56.45	79.16
2023	5.62	16.86	51.84	74.32
	5.55	18.80	50.10	74.46

Table 1- Incidence of prematurity in East Kent

- Out of the 308 pregnant women who attended preterm surveillance clinic, 45% (140) had interventions. The intervention included cervical cerclage in 63 (45%), progesterone pessaries in 74 (52%) women and an Arabin pessary in 3. Arabin pessary was inserted following cervical shortening below 15mm in the late second trimester around 27-28 weeks.
- 53 (17%) of the referrals were in women following previous full dilation caesarean section. 15 of them (28%) had significant cervical shortening needing intervention, as cerclage, progesterone and Arabin pessaries.
- Out of the 232 women who delivered, 85% (197) continued pregnancy beyond 37 weeks; 10%(25) had a preterm birth between 34-36+6 weeks and only 6% (10) had a preterm birth below 34 weeks . All the preterm births below 34 weeks were related to iatrogenic prematurity due to preeclampsia or antepartum bleed.
- Of the 53 women(17%) who had full dilation caesarean section there was no preterm delivery before 34 weeks, however 7.5% (4) had a preterm delivery after 34 weeks, three of which were spontaneous and one iatrogenic.

- The incidence of extreme preterm births before 28 weeks was 7.56/1000 in 2021 (before the service was established), and 5.3/1000 and 5.6/1000 in 2022 and 2023 respectively (Table1).
- Of the total 64 extreme premature deliveries below 28 weeks in 2022 and 2023 combined, 92% (58) did not have any intermediate or high risk for preterm birth at booking and hence did not fit the criteria to be referred to preterm clinic.
- However, 2/3rd of this cohort had at least one low risk factor for preterm birth . This included age below 18 and above 40, primi-gravida, social deprivation, extremes of BMI, domestic violence and anxiety.
- These low risk factors were identified in 35% of those who had spontaneous preterm birth between 34-36+6 weeks and in half (154 patients) of women referred to preterm birth clinic.

Discussion

- The incidence of extreme pre-term birth at the East Kent Hospitals NHS trusts in 2021 was 7.56/1000 which is in line with national figures. Our initial analysis suggest that introduction of preterm surveillance service has reduced the rate of extreme prematurity before 28 weeks from 7.6/1000 in 2021 to 5.6/1000 by 2023. It is possible that the interventions and the continuity of care provided in the preterm surveillance clinic had reduced the risk in intermediate and high risk group.
- However in the cohort of women who delivered extremely preterm before 28 weeks, less than 1/10 (8%) had either a high or intermediate risk factor for preterm birth leading to majority of these women disadvantaged by lack of surveillance or continuity of care.
- Two third of extreme preterm birth in East Kent occurred in low risk population with risk factors such as primigravida, extremes of age, low/ high BMI, social deprivation, anxiety and domestic violence; which are not included as criteria for screening. Even a modest reduction in preterm birth in this group will have a huge population effect. Hence addressing this group of low risk women and modifying the risks is crucial in order to try and further reduce the preterm birth in this population.

Conclusion: Preterm birth has multifactorial aetiology and saving babies live care bundle 2 recommends women with high and intermediate risk factors to be considered for surveillance and interventions. Although extreme prematurity incidence has reduced from 7.6/1000 to 5.6/ 1000 in East Kent, our preliminary analysis has identified that majority of those who delivered extreme preterm had low risk factor for preterm birth which is a reflection of deprivation index in East Kent. Hence in order to reduce prematurity burden further, we propose a care bundle which is inclusive of these low risk factors and of public health relevance. Even a modest reduction of prematurity in this group will have a huge population effect especially with the given degree of deprivation in East Kent. This is the first study we are aware of which has proposed an inclusive service to include women with low risk factors in addition to high and intermediate risks for surveillance so that appropriate risk modification and strategies to reduce extreme prematurity in an already deprived population may be achieved.