

## **Irish Maternity: A Changing Ethnic Landscape**

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### **Abstract**

#### ***Aim***

We have experienced an increase in non-Irish women booking at the Rotunda Hospital. The aim of this study was to identify changing trends in ethnicity in women booking for prenatal care at the Rotunda Hospital.

#### ***Methods***

A retrospective review of hospital data on ethnicity of 90,715 mothers booking over an 11-year period (2001-2012) was undertaken. Trends in numbers of Irish vs. non-Irish women were compared. A Linear regression model was used to analyse if these trends reached statistical significance.

#### ***Results***

A total of 62,259 Irish and 28,456 non-Irish women booked over the study period. The number of Non-Irish women booking each year significantly increased over the study timeframe, from 1453 women in 2001 to 3136 women in 2012 ( $p < 0.0001$ ). Regarding non-national women, a significant increasing trend in bookers from South Asia ( $p < 0.0001$ ), South East Asia ( $p = 0.005$ ), East Asia ( $p = 0.008$ ) and Eastern Europe ( $p$  values  $< 0.05$ ) was observed.

#### ***Conclusion***

In a single large tertiary referral maternity hospital, we witnessed a significant increase in the number of women booking of non-Irish ethnicity over the past decade. Barriers to language, as well as cultural differences, will be encountered, and will require attention to improve clinical outcomes, and maternal well-being.

## **Introduction**

Over the past 20 years, Ireland has seen significant changes in its population. Immigration is increasing, and our population is becoming more ethnically diverse every year. There has been an overall increasing trend in numbers of non-Irish nationals immigrating to Ireland. Over the years examined in this study (2001-2012), there was a positive overall net migration into Ireland almost every year, with 2007 seeing the highest levels of immigration of the previous ten years <sup>1</sup>.

Immigrant mothers have been shown to be at increased obstetric risk. Many studies have identified that, compared with women from the host country, immigrant women are at an increased risk of a number of poor maternal and fetal outcomes including low birth weight infants <sup>2</sup>, poor mental health <sup>3</sup>, gestational diabetes <sup>4</sup>, and late pregnancy stillbirth <sup>5</sup>. As well as this, communication and language barriers can impede doctor-patient interactions.

In the Rotunda Hospital, an increase in women booking for prenatal care from non-Irish backgrounds has been observed over recent years. We sought to examine how trends in ethnicities have changed over the past decade, in order to assess how our patient population, and women's needs, may be changing.

## **Methods**

A retrospective review of prospectively collected hospital data on ethnicity over an 11-year period, from 2001-2012, was carried out. Ethnicity is recorded for all women at their first booking visit. Ethnicity was determined from the woman's self reported country of birth. This data was extracted from electronic records in the form of anonymised reports, which were then used for analysis. Over this time, 92,580 mothers delivered at our institution. We compared the number of women of Irish ethnicity vs. all other non-Irish ethnicities booking for prenatal care over this time period. Trends in ethnicities of non-Irish women were sought. A linear regression model was used to analyse if these trends reached statistical significance.

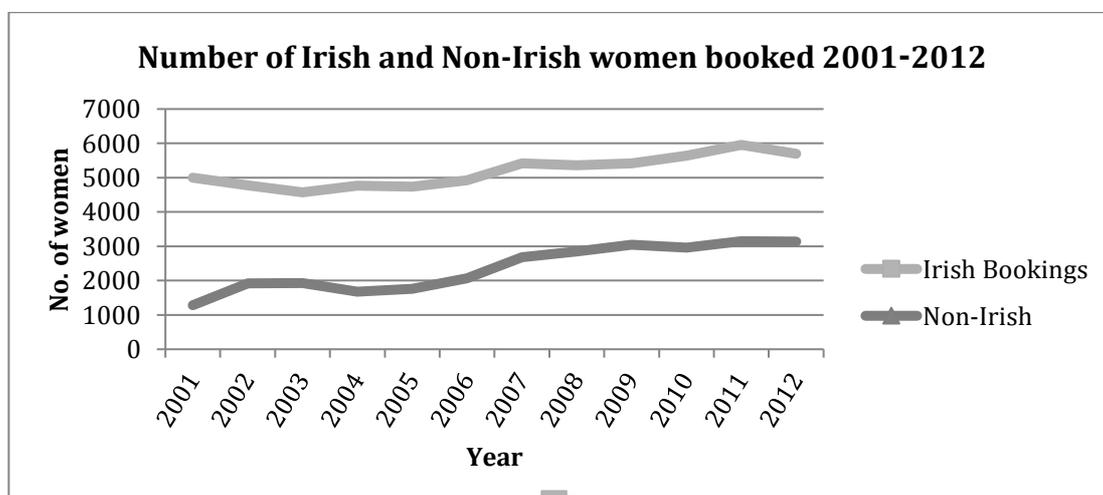
## **Results**

A total of 62,259 Irish and 28,456 non-Irish women booked in our institution over the study period. There were 1865 women over this timeframe for whom nationality was not listed at booking. Women's countries of origin were grouped into geographical regions for analysis (see table 1 for examples). Trends in ethnicities of women from each geographical region were analysed.

Geographical Region	Countries	
<b>EU European</b>	Spain	Romania
	France	Slovakia
	Lithuania	Estonia
	Poland	Slovenia
	Latvia	
<b>Non-EU European</b>	Moldova	Kosovo
	Ukraine	Belarus
	Kosovo	Chechnya
	Bosnia & Herzegovina	Serbia
		Albania
<b>Central Asia</b>	Kyrgyzstan	Uzbekistan
	Kazakhstan	Azerbaijan
	Afghanistan	
<b>South Asia</b>	Bangladesh	Sri Lanka
	India	Nepal
	Pakistan	
<b>East Asia</b>	China	Korea (North & South)
	Japan	Mongolia
<b>South-East Asia</b>	Malaysia	Vietnam
	Thailand	Philippians
<b>Middle East</b>	Turkey	Israel
	Iran	Palestine
	Iraq	Jordan
	Saudi Arabia	Qatar
	Syria	Oman

**Table 1:** Examples of countries included in each geographical region for analysis.

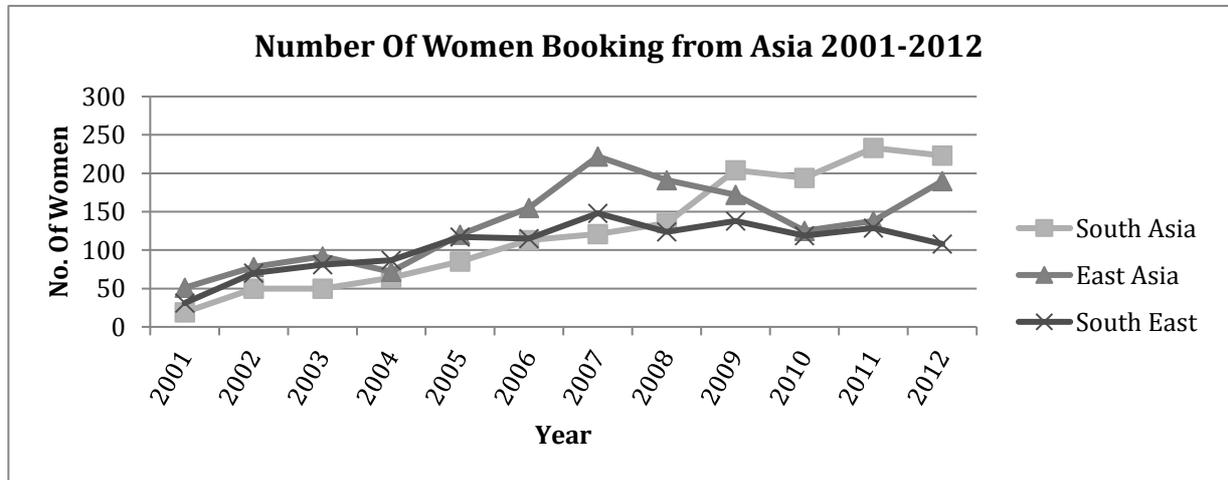
Both the number of Irish and Non-Irish women booking each year significantly increased ( $p < 0.0001$ , Figure 1). The overall number of Non-Irish women booking increased from 1453 in 2001 to 3136 women in 2012 (22.5% of total bookings to 35.4% of total bookings).



**Figure 1:** Graph showing number of Irish and non- Irish women booking per year over the study period.

### Asia

A significant increasing trend in bookers from Asia was observed over the study timeframe, from 101 women in 2001 to 521 women in 2012. This geographical region was further subdivided into three areas for analysis – South Asia, South East Asia and East Asia. There was a statistically significant increase in women booking from each of these three regions- South Asia ( $p < 0.0001$ ), South East Asia ( $p = 0.005$ ) and East Asia ( $p = 0.008$ ). (Figure 2)

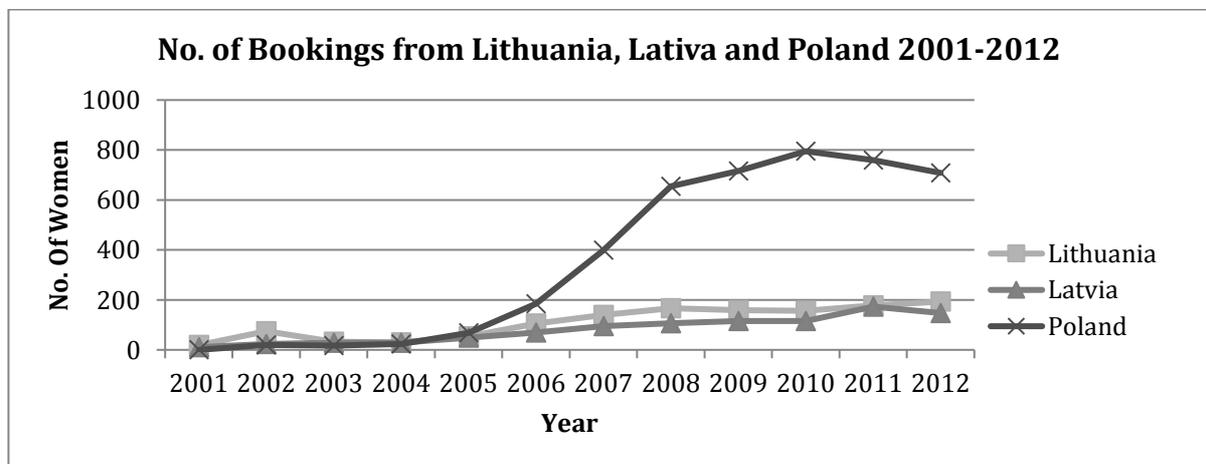


**Figure 2:** Graph showing the increasing number of women booking from South, East and South East Asia.

### Europe

We examined the numbers of women booking from both European Union (EU) and non-EU European countries. An overall increase in women booking from EU European countries was observed, increasing from 454 women in 2001 to 1873 women in 2012. In particular, a significant increase in women booking from Poland, Latvia and Lithuania was seen ( $p$  values all  $< 0.05$ ). (Figure 3)

The number of women booking from non-EU European countries did not vary significantly over the study period ( $p = 0.11$ )



**Figure 3:** Graph showing the increase in the numbers of women booking from Lithuania, Latvia and Poland from 2001- 2012.

### *North and South America*

A modest increase in bookings of women from North America was observed over the study period, rising from 16 women to 36 women in 2012. Although overall numbers remain small, this increase was found to be statistically significant ( $p=0.001$ ). An increase in the number of women booking from Brazil mainly accounts for the increase in bookings seen from South American women, which rose from one woman in 2001, up to 36 women in 2012 ( $p<0.0001$ ).

### *Africa*

The numbers of women booking from the African continent varied greatly over the study period, with booking numbers peaking in 2003 at 931 women, before steadily and significantly falling again in the following years, down to 400 women in 2012. Overall, this increase was found to be statistically significant ( $p=0.009$ ).

### *Middle East and Central Asia*

Overall, the numbers of women booking from these regions were small. The number of women booking from central Asia did not vary greatly over the 12 years ( $p=0.19$ ). The numbers of women booking from the Middle East increased from 18 to 58 over the study period, and this increase was statistically significant ( $p=0.0001$ ).

## **Discussion**

In the Rotunda hospital, one of the largest tertiary referral centres in the world, we witnessed significant changes in the number of women attending for prenatal care who represent non-Irish ethnicities over the past decade. We observed an increase in numbers of women from Asia, Eastern Europe, in particular Poland, Lithuania and Latvia, the Middle East and South America, particularly Brazil.

Studies have identified immigrant mothers are at increased obstetric risk. In a systematic review by the International Reproductive Outcomes and Migration collaboration, Asian and African women had greater perinatal health risks than women from the receiving country<sup>6</sup>. A study conducted in Norway identified that, compared with Norwegians, women from East, Southeast, and Central Asia had increased risk for operative vaginal delivery, postpartum bleeding, and low Apgar score. Women from South and Western Asia were also shown to have an increased risk for low birth weight<sup>2,7</sup>. A study from the UK indicated 74% of Chinese immigrants had little or no English. For this study, compared with their British counterparts, Chinese women's pre-defined risk, gestation at delivery, birth weight, duration of labour, estimated blood loss and mean 5-min Apgar scores were comparable, however Chinese mothers were more likely to have a perineal tear ( $p<0.005$ )<sup>8</sup>. Furthermore, research into the mental health of Chinese immigrants in the UK indicates a higher risk of poor mental health<sup>3</sup>. Higher rates of gestational diabetes are also seen in women of Asian and middle-eastern descent, and consequently increased rates of the associated adverse maternal and fetal outcomes<sup>4</sup>. Another study, carried out in Australia, showed a difference in rates of stillbirth according to nationality. Women of Asian descent, specifically south Asian, were found to have significantly higher rates of late pregnancy (after 37 weeks) stillbirths<sup>5</sup>.

This has implications for the way in which we deliver care to women of Asian descent and calls into question the actions required to address these disparities.

Ethnic diversity is over-represented in maternal mortality. According to the latest MBRRACE-UK report, there remains a five-fold difference in maternal mortality rates amongst women from Black ethnic backgrounds and an almost two-fold difference amongst women from Asian ethnic backgrounds compared to white women. In terms of the proportion of women who died during this triennium, 16% (13/100,000) and 4% (9/100,000) were of Asian and Chinese/other descent respectively <sup>9</sup>. Although we identified a decrease in women delivering in our institution who are of Black ethnic descent, our data regarding increasing numbers of Asian, Chinese and mixed ethnicity mothers requires attention in light of this report. Asian mothers also appear to be at increased risk of obstetric anal sphincter injury <sup>10</sup>, suggesting the need for increased vigilance and preventative strategies to be implemented during all vaginal deliveries.

The increase in numbers of women from non-Irish backgrounds being cared for at our institution will highlight the increasing need for efficient interpreting services. Language barriers have been shown to significantly increase the risk of serious adverse events due to inability to adequately communicate <sup>11</sup> and are also associated with less frequent visits, less follow-up and less satisfaction with health services <sup>12</sup>. Use of interpreting services improves delivery of health care to patients with limited English<sup>13</sup>. Unfortunately, these services are not always easy to access, particularly after-hours, or in the emergency setting. It is not uncommon for patients with limited English to experience difficulty accessing interpreting services when seeking medical care <sup>14</sup>. A study looking at immigrant women's experience with Maternity services found that women's satisfaction levels and quality of care are affected by communication difficulty, lack of information and lack of understanding of the consent process, as well as perceived discrimination or stereotyping <sup>15</sup>. The Rotunda Hospital in Dublin has been one of the first institutions in the country to successfully implement the electronic health care record (Maternal, Neonatal Clinical Monitoring System, MN-CMS). With advances in digital platforms, ease of access to interpreting services by means of hospital electronic devices and smart phone applications is a further step in improving delivery of care.

Given the link between some adverse obstetric outcomes and ethnicity, streamlined obstetric care pathways are required. Attention should also be given to the 'healthy immigration' effect and how this can, unfortunately, be mitigated by length of time since immigration. This may be relevant with respect to breastfeeding rates in Ireland, whereby immigrant rates are reported as high as 84% compared with native Irish of 46%. Studies indicate patterns of breastfeeding in immigrant populations converge to native levels as length of time in host country increases <sup>16</sup>. There may be learning opportunity to understand the breastfeeding successes for immigrant mothers and how these can be relevant to Irish mothers. Furthermore, preventing the loss of the 'healthy immigrant effect' over time, not only in relation to obstetric outcome, but for general health, is an important public health challenge in Ireland.

The inequalities in maternal mortality in relation to ethnic diversity emphasize the need for continued focus on actions to address these disparities.

The first step in addressing this is in understanding the reasons for inequality and identifying actions to reduce the disparity, with the aim of improving maternal and perinatal health. A greater awareness and questioning of the way we deliver care, and whether this involves unconsciously disadvantaging different groups of women based on ethnicity and socio-economic status is called into question. A next-steps approach is determining whether the current methods of identifying higher risk groups of women and current provision of interpreting services at our institution is adequate. Implicit bias amongst healthcare professionals can affect both the patient-doctor interaction, and how we deliver care <sup>17</sup>. Challenging our unconscious bias and drawing attention to our knowledge of how diverse cultural backgrounds may impact on maternal health will identify gaps and areas for individual and institutional improvement. Consideration needs to be given to ways in which we can address these biases going forward. Specific training and workshops for healthcare professionals may go some way to addressing this issue.

We have seen an increase in numbers of non-Irish patients booking at our hospital. This accurately reflects the multicultural nature of our society in Ireland today. We can expect to encounter language and cultural barriers on a more frequent basis. Inequalities in maternal mortality and morbidity are evident in relation to ethnic background. Pathways to aid communication between healthcare staff and patients are needed in order to improve the experience, and obstetric outcomes, of non-Irish mothers and their infants. Establishing streamlined obstetric care pathways is an increasingly important national maternity strategy. One of the first steps in improving outcomes is an awareness of our own unconscious biases.

**Declaration of Conflicts of Interest:**

The authors declare no conflicts of interest.

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**References:**

1. Central Statistics Office Available from: <http://www.CSO.ie>.
2. Bakken KS, Skjeldal OH, Stray-Pedersen B. Immigrants from conflict-zone countries: an observational comparison study of obstetric outcomes in a low-risk maternity ward in Norway. *BMC pregnancy and childbirth*. 2015;15:163. Epub 2015/08/06.
3. Huang SL, Spurgeon A. The mental health of Chinese immigrants in Birmingham, UK. *Ethnicity & health*. 2006;11(4):365-87. Epub 2006/10/10.
4. Carolan M, Davey MA, Biro MA, Kealy M. Maternal age, ethnicity and gestational diabetes mellitus. *Midwifery*. 2012;28(6):778-83. Epub 2011/10/18.

5. Drysdale H, Ranasinha S, Kendall A, Knight M, Wallace EM. Ethnicity and the risk of late-pregnancy stillbirth. *The Medical journal of Australia*. 2012;197(5):278-81. Epub 2012/09/04.
6. Gagnon AJ, Zimbeck M, Zeitlin J, Alexander S, Blondel B, Buitendijk S, et al. Migration to western industrialised countries and perinatal health: a systematic review. *Soc Sci Med*. 2009;69(6):934-46. Epub 2009/08/12.
7. Bakken KS, Skjeldal OH, Stray-Pedersen B. Higher risk for adverse obstetric outcomes among immigrants of African and Asian descent: a comparison study at a low-risk maternity hospital in Norway. *Birth*. 2015;42(2):132-40. Epub 2015/04/08.
8. Shah D, Tay A, Desai A, Parikh M, Nauta M, Yoong W. The obstetric performance of Chinese immigrants residing in the UK. *Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology*. 2011;31(6):480-2. Epub 2011/08/10.
9. Knight M BK, Tuffnell D, Shakespere J, Kotnis R, Kenyon S, Kurinczuk JJ on behalf of MBRRACE-UK. *Saving Lives, Improving Mothers Care - Lessons learned to inform maternity care from the UK and Ireland Confidential Enquires into Maternal Deaths and Morbidity 2015-17*. Oxford: National Perinatal Epidemiology Unit, University of Oxford, 2019.
10. Davies-Tuck M, Biro MA, Mockler J, Stewart L, Wallace EM, East C. Maternal Asian ethnicity and the risk of anal sphincter injury. *Acta obstetrica et gynecologica Scandinavica*. 2015;94(3):308-15. Epub 2014/12/17.
11. Cohen AL, Rivara F, Marcuse EK, McPhillips H, Davis R. Are language barriers associated with serious medical events in hospitalized pediatric patients? *Pediatrics*. 2005;116(3):575-9. Epub 2005/09/06.
12. Yeo S. Language barriers and access to care. *Annual review of nursing research*. 2004;22:59-73. Epub 2004/09/17.
13. Jacobs EA, Lauderdale DS, Meltzer D, Shorey JM, Levinson W, Thisted RA. Impact of interpreter services on delivery of health care to limited-English-proficient patients. *Journal of general internal medicine*. 2001;16(7):468-74. Epub 2001/08/25.
14. Blay N, Ioannou S, Seremetkoska M, Morris J, Holters G, Thomas V, et al. Healthcare interpreter utilisation: analysis of health administrative data. *BMC health services research*. 2018;18(1):348. Epub 2018/05/12.
15. Higginbottom GM, Safipour J, Yohani S, O'Brien B, Mumtaz Z, Paton P, et al. An ethnographic investigation of the maternity healthcare experience of immigrants in rural and urban Alberta, Canada. *BMC pregnancy and childbirth*. 2016;16:20. Epub 2016/01/29.
16. Nolan A, Layte R. The 'healthy immigrant effect': breastfeeding behaviour in Ireland. *European journal of public health*. 2015;25(4):626-31. Epub 2014/11/26.
17. Hall WJ, Chapman MV, Lee KM, Merino YM, Thomas TW, Payne BK, et al. Implicit Racial/Ethnic Bias Among Health Care Professionals and Its Influence on Health Care Outcomes: A Systematic Review. *American journal of public health*. 2015;105(12):e60-76. Epub 2015/10/16.