

Institution: University of Southampton		
Unit of Assessment: 20 Social Work and Social Policy		
Title of case study: 20-05 From measurement to action on adolescent reproductive health		
Period when the underpinning research was undertaken: 2007 – 2018		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Zoe Matthews	Professor of Global Health and Social Statistics	October 1993 – present
Sarah Neal	Associate Professor in Global Health	January 2011 – present
Kristine Nilsen	Senior Research Fellow, WorldPop	September 2013 – present
Period when the claimed impact occurred: August 2013 – December 2020		
Is this case study continued from a case study submitted in 2014? N		
<p>1. Summary of the impact</p> <p>Matthews, Neal and others in the Department of Social Statistics and Demography at the University of Southampton (UoS) have made their research on pregnancy and health among very young adolescents ‘count’ for teenagers around the world.</p> <p>(1) By providing the first rigorous scientific evidence of the global extent of early adolescent pregnancy for girls aged 10-15, UoS research directly influenced the creation and adoption of UN Sustainable Development Goal (SDG) indicator 3.7.2, which measures the early adolescent birth rate.</p> <p>(2) This world-leading UoS methodological research on the measurement of adolescent reproductive health has been complemented by their DFID-funded action-based research, documenting the most strategic use of evidence-based advocacy and accountability to improve maternal and new-born health outcomes in low income settings. These research findings have subsequently been utilised to drive funding, programmes and policy internationally, informing interventions in adolescent reproductive health as a direct result of countries implementing the new UN SDG.</p> <p>UoS research has had a sustained influence on international policy in relation to adolescent reproductive health through the provision of robust evidence to underpin policy design and promote accountability, potentially improving the lives of millions of teenage girls worldwide.</p>		
<p>2. Underpinning research</p> <p>(i) Producing robust estimates of the scale of childbearing among young adolescents</p> <p>After completing her PhD (supervised by Professor Zoe Matthews) on the determinants of neonatal mortality in developing countries at UoS in 2009, Dr Sarah Neal was awarded a British Academy postdoctoral fellowship researching childbearing in very young adolescents (under 16 years) in developing countries [G1]. This research identified pregnancy in early adolescence as a neglected area that affects millions of young girls worldwide. Each year, around two million girls give birth before the age of 16 years, with around half having their first birth before their 15th birthday. These young girls face specific and severe risks to their health and well-being.</p> <p>In 2010 Neal, Matthews and colleagues collaborated to produce the “Atlas of Birth,” which identified the largest health threats to young women and girls in low income countries [3.1], highlighting that many maternal deaths were preventable. In 2012, Neal and Matthews led the development of the first comparative estimates on the scale of childbearing amongst young adolescents [3.2]. Data was drawn from 42 large, nationally representative household surveys in low resource countries carried out since 2003 to present estimates of age-specific birth rates for girls aged 12–15, and the percentage of girls who give birth before the age of 16. The highest rates were found in Sub-Saharan Africa, where in Guinea, Mali, Mozambique, Niger and Sierra Leone more than 10% of girls become mothers before their 16th birthday [3.2]. Research using data for 144 countries to produce disaggregated maternal mortality rates, and focussing adolescents, was then published in the Lancet Global in 2014 [3.3]. Further research then</p>		

highlighted that early childbearing is concentrated amongst the poorest and rural girls and in geographic “pockets” [3.4].

(ii) Ensuring a place for adolescent health on global agendas; producing a new indicator for young adolescents

In 2014 Neal and Matthews were invited to be members of the Expert Consultative Group on Adolescence, part of the UN Secretary General’s Global Strategy for Women and Children’s Health. The Group provided evidence to ensure the inclusion of adolescent health issues in the relaunch of the UN Global Strategy – timed to coincide with the ratification of the SDGs. Matthews and Neal conducted a review [3.5] of evidence-based inputs to inform expert meetings on adolescent health conducted by the Partnership for Maternal, Newborn and Child Health (PMNCH) and the UN Population Fund (UNFPA) in 2015. Members of the Expert Group argued for the inclusion of a specific UN SDG indicator that would measure the birth rate to young adolescents.

(iii) Providing evidence for action on adolescent reproductive health

At the same time as Neal’s British Academy Fellowship, in 2011 other members of the Department’s Global Health research cluster, including Matthews and Professor Nyovani Madise, successfully secured a DFID-funded research project “Evidence for Action”. This programme of research documented effective approaches to the strategic use of evidence-based advocacy and accountability to improve maternal and new-born health outcomes in six sub-Saharan African countries: Ethiopia, Ghana, Malawi, Nigeria, Sierra Leone, and Tanzania [G2]. As part of this project, research on accountability for adolescent reproductive health was launched as part of the “MamaYe” initiative launched by Matthews, Dr Louise Hulton (a previous PhD researcher at UoS) and others. This research highlighted the positive impact that introducing evidence-based accountability mechanisms at national and subnational levels can have in accelerating reductions in maternal and newborn mortality. This included applying specific examples of accountability interventions to catalyse change. [3.6]

Building on earlier research on the 2010 Atlas of Birth, in 2015 Matthews secured a grant from the Norwegian Development Agency (NORAD) to examine the geography of maternal and newborn health [G3]. This was followed in 2016 by an ESRC IAA grant to update and extend the earlier Atlas [G4] which facilitated an interdisciplinary collaboration with Dr Kristine Nilsen (returned in this UOA and whose postgraduate research was previously supervised by Matthews) and Professor Andrew Tatem with colleagues from WorldPop, a UoS research group specializing in open spatial demographic data. This collaboration has generated novel data allowing “gridded” estimates of pregnancies for local areas [3.7]. Adolescent childbearing is associated with a range of adverse outcomes for both the mother and infant, including neonatal mortality. The critical importance of reducing adolescent births among the youngest age group was confirmed by Neal’s 2018 article in PLOSOne that highlighted that the risk of neonatal mortality in 45 low and middle income countries was markedly higher for infants born to mothers aged under 15 in all regions [3.8]. The many layers of data generated by the unique research collaboration at UoS have provided the evidence and insight to inform interventions by policy-makers in international organisations, national governments and other agencies including charities and non-governmental organisations (NGOs).

3. References to the research

3.1 Neal S., McConville, B., Woods, K., Bell, J., Matthews, Z. & Graham, W. (2010) White Ribbon Alliance *Atlas of Birth*. London: WRA, GHP3 (University of Southampton) and IMMPACT (University of Aberdeen), WRA London. Available on request

3.2 Neal, S.E., Matthews, Z., Frost, M., Fogstad, H. Laski, L. and Camacho, V. (2012) Childbearing in adolescents aged 12 – 15 in developing countries: a neglected issue. Evidence from 47 countries, *Acta Obstet Gynecol Scand*. 2012; 91. <https://doi.org/10.1111/j.1600-0412.2012.01467.x>

3.3 Nove, A., Neal, S., Camacho, VA., Matthews, Z. (2014), Maternal mortality in adolescents compared with women of other ages: evidence from 144 countries, *The Lancet Global* [https://doi.org/10.1016/S2214-109X\(13\)70179-7](https://doi.org/10.1016/S2214-109X(13)70179-7)

3.4 Neal, S., Ruktanonchai, CW, Venkatraman, CM., Matthews, Z. Tatem, A. (2016) Mapping adolescent first births within three east African countries using data from Demographic and

Health Surveys: exploring geospatial methods to inform policy, *Reproductive Health*, 13:98, <https://doi.org/10.1186/s12978-016-0205-1>

3.5 Laski, L., and the Expert Consultative Group for Every Woman Every Child on Adolescent Health (*Members include Matthews, Z., Neal S. et al.*) (2015) Realising the health and well-being of adolescents, *BMJ* 2015; 351: h4119. <https://doi.org/10.1136/bmj.h4119>

3.6 Hulton, L., **Matthews, Z.**, Martin-Hilber, A., Adanu, R., Ferla, C., Getachew, A., Makwenda, C., Segun, B., & Yilla, M. (2014). Using evidence to drive action: A “revolution in accountability” to implement quality care for better maternal and newborn health in Africa. *International Journal of Gynecology and Obstetrics*, 127(1): 96-101. <https://doi.org/10.1016/j.ijgo.2014.07.002>

3.7 James, W. H. M., Tejedor Garavito, N., Hanspal, S. E., Sutton, A., Hornby, G., Pezzulo, C., **Nilsen, K.**, Sorichetta, A., Ruktanonchai, C. W., Carioli, A., Kerr, D., **Matthews, Z.** & Tatem, A. (2018) Gridded birth and pregnancy datasets for Africa, Latin America and the Caribbean, *Scientific Data* (Science). <https://doi.org/10.1038/sdata.2018.90>

3.8 Neal S., Channon, A. and Chintsanya, J. (2018) ‘The impact of young maternal age at birth on neonatal mortality: Evidence from 45 low and middle income countries’ *PLOSOne*. <https://doi.org/10.1371/journal.pone.0195731>

Grants:

G1 Neal, S. Very early adolescent childbearing in developing countries: Distribution, trends, determinants and outcomes, British Academy October 2012-June 2016 GBP216,628

G2 **Matthews, Z.**, Madise, N.J. Evidence for Action to Reduce Maternal Neonatal Mortality in Africa (E4A), DFID February 2012-April 2016 GBP338,846

G3 **Matthews, Z.**, Geography of Maternal and Newborn Health: Mapping for MNH, NORAD January-December 2015 GBP98,534.

G4 Tatem, A., **Matthews, Z.** The Atlas of Birth, Embedding the health of women and children into the post 2015 development agenda using online mapped evidence, ESRC – IAA January-March 2016 GBP8,500

4. Details of the impact

Impact 1: Influencing the creation and adoption of a new UN Sustainable Development Goal (SDG) indicator 3.7.2 – making the scale of childbearing among young adolescents visible

Each year an estimated 16 million young women give birth between ages 15 and 19 and a further one million girls give birth before age 15, with 95% of these births taking place in low or middle income countries [3.7], risking the lives of both the mother and child. Globally, neonatal deaths now make up 45% of all deaths in children under five. In 2015, the Sustainable Development Goals were launched and signed by 201 nations including the pledge to improve the health of adolescents and end child marriage. Researchers at UoS directly influenced the development and adoption of the **SDG 3.7.2 indicator**: the adolescent birth rate. A key UN SDG development document [5.1] cites two papers by **Neal** and **Matthews** on adolescent childbearing as underpinning its methodology. The indicator itself is publicly available by the UN on the UN SDG statistics site [5.2]. The SDG 3.7.2 indicator is a Tier 1 indicator (of the 3 Tiers in UN SDGs) which is defined as ‘conceptually clear, established methodology and standards available and data regularly produced by countries’ [5.1].

Matthews’ and **Neal’s** long-standing networks and relationships with policy-makers, advocates and social accountability actors, enabled them to influence the SDG process and other key events within global and national health arenas. The availability of reliable and robust statistics was crucial as childbearing in the early teenage years had been previously ignored or assumed as negligible. The process of developing indicators for the health-related SDGs involved a series of high-level meetings between UN agencies. A key player in negotiations was Dr Laura Laski, Head of Sexual and Reproductive Health at UNFPA at the time, who used Neal’s analyses to press for the inclusion of a measure on very young adolescent childbearing.

‘This paper [3.2] was a vital first step in getting the issue on very young adolescent pregnancy on the policy agenda and highlighting the need for age-disaggregated adolescent fertility data’ [5.3].

International frameworks such as the SDGs are used as leverage to create change and incentivise governments and other key players at both national and international level. Prior to

being defined as an SDG indicator, the early adolescent birth rate had not been adopted by any international monitoring system. The new measure, directly based on UoS research, provides indirect evidence of the abuse of human rights in adolescence, as fertility at that young age often indicates forced child marriage and sexual abuse. It also provides indirect evidence of adolescents' access (or lack thereof) to sexual and reproductive health services.

The inclusion of a new indicator at such a high level of influence has increased the visibility and focussed policy, research and programme attention on the sexual and reproductive health of very young adolescents. According to a recent report on the impact of the inclusion of the early adolescent birth rate in the Sustainable Development Goals, more nations are now collecting data to measure the scale of adolescent programmes and developing new policies to address the issue. Over the period 2017-2020, 14 countries submitted information about birth rates of younger adolescents in their SDG National Voluntary Reviews (NVR). Even more countries (34) reported that adolescent birth rates and child marriage are of concern for their young adolescent population, highlighting that the influence of the indicator's inclusion is gathering momentum. [5.4].

In response to the inclusion of the adolescent birth rate as a monitoring indicator in the SDGs, the early adolescent fertility rate has become a part of the United Nations Evidence and Data for Gender Equality (EDGE) project. The UN has recently issued guidance on data collection for the 10-15 years age group and the early adolescent birth rate is now part of the minimum set of indicators that countries should report on for gender equality assessment [5.5]. Neal continues to provide advice on the development of international statistical infrastructures as a member of the UN Population Division Expert Group on Early Adolescent Fertility.

Since the introduction of the SDG indicator, UN Agencies, international organisations and national governments have supported research, policy change, and instituted programmes targeting adolescent girls under 16 years old. International NGOs such as Save the Children and the Population Council have developed information and resources related to this key group.

... health, wellbeing and empowerment of women and girls (particularly their reproductive health and rights) is core to the work of the Population Council. Scholars at the University of Southampton Department of Social Statistics and Demography were among the first to study the reproductive health of adolescents [3.3]. Their identification of the importance of the younger group of adolescents (aged under 16) [3.2] has provided the main insight into the importance of the early teen years as the key to healthy reproductive lives.... These very vulnerable young girls face very specific risks and disadvantages to their health and wellbeing; yet until recently statistics for adolescent childbirth were rarely disaggregated by age. As a result, very early adolescent motherhood had previously been a hidden problem which had failed to gain the attention it deserves." [5.6]

Impact 2: 'Evidence for Action': improving adolescent and maternal health through increased accountability and measurement

A core focus of the Global Health cluster has been to stimulate and support 'Social and Technical Accountability in Health'. Producing reliable statistics can highlight inequalities and galvanise action for adolescents and other groups disadvantaged in realising good reproductive health. Using a range of accountability mechanisms, the group has created websites such as "The Atlas of Birth", to ensure that accurate statistics are available and easily accessible to health workers, journalists, and health policy-makers. The initial hard copy of the Atlas was published in 2010; the ESRC IAA grant (2015-16) [G4] enabled the Atlas to be both updated and made electronically available, extending its reach; from Nov 2016 to Dec 2020 the website has had over 2.4 million hits and 593,054 visits [5.7]. The gridded maternal and new-born health related datasets hosted by the "WorldPop" website containing births and pregnancy estimates for small areas were used by the UNFPA, WHO and International Confederation of Midwives in the State of the World's Midwifery 2014 report, of which Matthews was a member of the core authorship team.

Examples of their more recent work include the creation of high resolution maps of births under 16 years. They also produced an easily accessible platform under the Atlas of Birth project, launched in 2007. Collaborations to map the data with ... WorldPop, have been included in country dashboards in the last two "State of the Worlds Midwifery" Reports.

These mapped statistics help us identify where the workforce, such as midwives, are needed, and help to ensure that no-one is left behind without essential health services in pregnancy. Testimonial from UNFPA [5.8]

Furthermore, the wider group led by Matthews, Hulton and others have built a social accountability movement called “MamaYe” in six African countries that has included public-facing websites and media channels to give easy to understand information direct to the population, including adolescents themselves. This has been running for over a decade and is now fully locally owned. One exemplar is provided by the improvements in the district information system in Ghana, including dashboards and scoresheets [3.6], with these now adapted to include an explicit focus on the under 16s [5.4].

Perhaps their most impactful programme, however, has been the “Mamaye” movement created by Hulton, Matthews and colleagues initiated in 2009. This initiative is still active today and was a fresh approach throughout its inception and beyond - creating impact in the original six countries as well as others that have subsequently also emulated the social accountability model. [5.9]

By providing evidence on both the extent of adolescent pregnancy [3.2] and its impact, including the heightened risk of neonatal mortality [3.7], the body of research at UoS has meant that adolescent (sexual and reproductive) health is now firmly on the international agenda.

“the team at the University of Southampton have made a significant contribution to put adolescence on the agenda of Women and Children’s Health in the UN, as well as on multiple national development plans.... the work of the Southampton team has been shown not only to galvanize indicators and data on the international scene, its impact has also reached into countries and into the lives of adolescents in many communities”. Testimonial from PMNCH/WHO [5.9]

Importantly, it is now a core component of the UN’s current programme as illustrated in the upcoming Special Session at the UN General Assembly on the wellbeing of Adolescents.

*‘... We are currently facilitating and supporting UN Member States to get a UN Declaration on adolescent well-being passed at the UN General Assembly in 2022 or 2023, where governments, civil society, multi-lateral agencies, the private sector, and youth networks can make political and financial pledges for adolescents’ well-being policies and programmes. **Neal, Matthews et al’s work and research has been a lynch pin in all of the above.** Neal’s involvement continues as she is a critical part of the International Reference Group for Adolescent Wellbeing.’ Testimonial from PMNCH/WHO [5.9]*

UoS research is playing a vital role in driving international funding decisions and informing national policy and programmes designed to reduce adolescent births, as a direct result of countries implementing the new UN SDG. The work supports gender equity and improves the lives of teenage girls and their infants in low and middle income countries.

5. Sources to corroborate the impact

5.1 Reference in key SDG document proves we were behind inclusion of indicator 3.7.2

<https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-03/Provisional-Proposed-Tiers-for-SDG-Indicators-24-03-16.pdf> page 11

5.2 UN SDG 3.7.2 on early adolescent fertility UN SDG statistics site

<https://unstats.un.org/sdgs/METADATA?Text=&Goal=3&Target=3.7>

5.3 Testimonial letter Laura Laski (formerly UNFPA) 5 October 2020

5.4 Laura Laski and Parth Pandya Report: The impact of the inclusion of the 10-14-year-old adolescent birth rate in the Sustainable Development Goals (SDG 3.7.2) July 2020

5.5 Evidence and Data for Gender Equality (EDGE), 2020 <https://unstats.un.org/edge/>

5.6 Testimonial from President of the Population Council 02 February 2021.

5.7 Atlas of Birth website statistics November 2016-December 2020 (summary and month example from November 2016) Further data available on request

5.8 Testimonial from SRHA Technical Adviser, United Nations Population Fund (UNFPA) 01 December 2020

5.9 Testimonial from Head of Partnership for Maternal, Newborn and Child Health (PMNCH), World Health Organization (WHO) 11 November 2020