Introduction
Sexual and reproductive health (SRH) is important at every age and in every community, both as an independent aspect of health and as an underpinning dimension of identity and personal well-being.

The breadth of the WHO definition of SRH and the subsequent global framework for action challenges practitioners and policy makers to think beyond a purely disease treatment paradigm and take approaches which integrate and embed the knowledge and skills for healthy, safe and empowered sexual and reproductive choices across the life-course.

What is the life-course approach?
A life-course approach considers an individual's entire progress throughout life to explain why certain outcomes result. The outcomes depend on the interaction of multiple protective and risk factors throughout people's lives. A life-course approach examines how biological (including genetics), social and behavioural factors throughout life and across generations act independently, cumulatively and interactively to influence health outcomes. In epidemiology a life-course approach is being used to study social and physical factors during gestation, childhood, adolescence and adulthood that affect chronic disease risk and health in later life (1). This approach provides a more comprehensive vision of health and its determinants. It provides a framework that examines opportunities to intervene to improve health in later life and highlights the importance of services that focus on the needs of the individuals/groups in each stage of life.

Sir Michael Marmot set out the life-course approach as a way to conceptualize the way an individual accumulates positive and negative health impacts through their life. Although some of these may be mitigated or fade with time, many have impacts that continue throughout life and may have a cumulative effect as they interact with new impacts (see Figure 1) (2).

Historically the points of transition between the life stages have always changed and evolved. For example, in 1913 in England, many children and women died in childbirth, a child would often be working before the age of 16 years and adults reached old age in their late 40s. Legislative changes for school requirements or retirement age, better understanding of child development emphasizing the very first years of life as crucial in neurological development and the understanding of the role of wider determinants of health, such as employment and housing, have given us a much greater level of granularity across the life-course.

When we describe the life-course approach in England we tend to use four life stages: Childhood, Adolescence, Working Age Adults and Older Adults. Although these can be chronological life stages they also mark key transitions in an individual's life experience and autonomy. Moving from childhood to adolescence often marks increased autonomy, particularly over lifestyle behaviours and seeking health advice. It is also a time traditionally associated with rebellion and challenge as individuals establish their adult identity. The transition from student to employee, or onto welfare benefit, is a significant transition into autonomy and independence and moving from employment into retirement may mark a shift to decreasing independence and autonomy due to frailty and fragility.

Rationale for adopting the life-course approach
By taking this long term approach, we can start to consider the fundamental causes behind health and well-being conditions and ensure actions nationally and locally will have the most impact on outcomes.

Furthermore, the population in the United Kingdom is anticipated to grow over the next thirty years, with the largest growth in the older age group. Therefore the interventions we invest in now across the life-course will be beneficial later as well if they are effective at reducing the burden of disease as the total population of older people increases.

What evidence is there that this works?
The understanding and evidence base relating to the impact of events across the life-course has grown substantially over the last fifty years (3). For example, we now recognize the impact of maternal nutrition on osteoporosis risks (4), the long term impact of adverse early childhood experi-
ences on adult life and the impact of adult physical health and behaviours on conditions such as dementia in older age (2).

There is robust international evidence of the importance of the first few years of life for making a positive difference in the lives and life chances of children (5). The Marmot review *Fair Society, Healthy Lives* highlighted the importance of taking a life-course approach to tackle health inequalities and stressed the importance of early years for special focus as a time when the most active development of the brain occurs (2). The WHO’s *Review of Social Determinants and the Health Divide in the European Region* (6) argues that this approach is fundamental to identifying the cumulative effects of these determinants on health and health inequalities.

A national household survey of adverse childhood experiences in England showed that adults who had four or more adverse childhood experiences had higher levels of health harming behaviours including binge drinking, smoking, sexually transmitted infections (STIs), teenage pregnancy and violence perpetration in adult life (7).

Although much of the focus on prevention has been on early years and adolescence it is important to recognize that it is never too late to take action to reverse the impact of accumulated negative health impacts. For example, in older adults with dementia and cognitive impairment, exercise training significantly improves not only fitness and physical function but also cognitive function and positive behaviour (8).

**The life-course approach for SRH**

So what are the implications of taking a life-course approach to improve SRH outcomes?

**Starting in childhood**

As children grow they develop an identity and a sense of self. Research has demonstrated the lifelong importance of positive parenting in creating the social and emotional foundations on which to build healthy and safe relationships (9).

Sadly, in childhood, we still have to consider the impact of sexual abuse and the lifetime burden that abuse can create. Prevention interventions like the National Society for the Prevention of Cruelty to Children’s (NSPCC) Underwear Rule (10), which provides parents with the tools to talk with children about personal boundaries and awareness of self to prevent abuse, could be preventing a lifetime of personal and social cost.

The school remains a pivotal space for both the educational attainment and social development of children. Age appropriate universal education on personal health, social and economic (PHSE) and sexual and relationship education (SRE) has been shown to add to their knowledge and resilience and also helps them achieve at school (11).

**Building in adolescence**

Adolescence is a time of great change both physically and emotionally. It is a time when it is vitally important that the young person has high quality education and skills development around negotiating personal relationships and SRH choices, alongside access to age appropriate services and a supportive social and emotional environment in which to grow and develop their personal and sexual identity.

Age appropriate universal education on PHSE and SRE is beneficial. Research findings in the Natsal-3 study (12) demonstrated that experience of school based SRE correlated with better SRH health, including less risk taking behaviour, fewer STI diagnoses, unplanned pregnancies or sexual coercion. In fact, the success of the teenage pregnancy strategy in England has been the result of taking a whole system approach which included professional development of teachers in how to deliver SRE in schools, supporting parents to talk to their children about sex and relationships, engaging community practitioners in touch with young people to encourage them to access early advice and providing youth friendly SRH services informed by feedback from children and young people (13).

Creating safe environments for young people to develop their sexual identity is key to enabling a healthy sexual and reproductive life in both the short and long term. There is growing understanding of the impact of bullying and discrimination on mental health and well-being and how this interacts with sexual risk taking, particularly for lesbian, gay, bisexual and trans youth (14) and long term physical health (15). Hence tackling homophobia and transphobia in schools is a good example of why addressing the wider determinants is fundamental to promoting positive SRH.

**Working with working-age adults**

The working age population is a diverse and heterogeneous group who may experience a range of significant life events from marriage, pregnancy and parenting, to buying a house and changing employment or becoming unemployed.

All of these life events are associated with significant impacts on mental health and well-being, in some cases positive but in some negative.

There are also physiological changes as individuals grow through adulthood. For women pregnancy, cervical cancer screening and menopause may present opportunities for healthcare professionals to recognize and support better SRH. For men there are potentially fewer opportunistic opportunities, however in England the National Health Service Health Checks programme may provide an opportunity for healthcare professionals to raise the important risk of health issues such as impotence linked to chronic diseases like diabetes and hypertension.

SRH services for working-age adults bridge contraception, pregnancy, termination of pregnancy and diagnosis and treatment of STIs. There are some specialized services focusing on psycho-sexual medicine and the response and support of those affected by sexual violence.

Patterns of STIs, unwanted pregnancies and HIV infection vary across the life course and between particular groups in the population. The data demonstrates that these remain issues for adults across their lives, with significant numbers of
older adults acquiring STIs and repeat terminations remaining an issue for middle age women (12, 16-17). HIV infections in the United Kingdom continue to disproportionately affect homosexual, bisexual and other men who have sex with men (MSM) and individuals from black and minority ethnic communities (18). This requires us to think not just about the individuals who are currently infected but also consider the wider social and economic factors across the life course that might underpin this disproportionate burden at an individual and population level. The Public Health England report (19) on health inequalities affecting MSM is an example of taking a life-course approach that considers the wider determinants of SRH in a prevention approach to a specific community.

In working age adults the whole system approach to SRH at a general population level has received less emphasis historically and presently. There is perhaps more to be learnt from the whole system approach applied to adolescent pregnancy, particularly in the prevention of HIV, STI and unwanted pregnancies, for adults.

Continuing for older adults

The paradigm of sexual activity in later life is perhaps driven more by desire and libido than by procreation due to the physiological reproductive changes of age. It is a period in which adults may become more socially isolated as they leave the workplace, develop impairments, or become bereaved.

Although there is some evidence that sexual activity declines with age, there is also a clear view that many adults remain sexually active well into old age (20), adjusting and adapting to disability and disease to continue to enjoy fulfilling sex lives (21). Research has suggested that although not all older people want an active sex life, for those that do, sexual dysfunction can have a significant impact on mental health and well-being (22). Sexual dysfunction is not an inevitability of ageing, for either gender, but rather a reflection of the burden of accumulated risk factors and immediate stressors (23).

Perhaps this is an under-utilized lever in adult health promotion? Sexual activity in older life continues to carry a risk of STIs and yet it is an area that is under-researched and under-discussed in the medical discourse.

Summary

The life-course approach provides a useful framework to ensure that action to improve health outcomes, including SRH, is truly delivered for all of the population and does not become isolated within one age group or portion of the community. It reminds us that creating a healthy sexual and reproductive life requires a whole system approach where interventions can resonate across an individual’s life span and highlights the importance of building sound foundations in childhood that can impact both directly and indirectly on outcomes beyond SRH indicators. It gives us an important reminder that sex is not just the preserve of the young and that although reproductive capability may decline with age, the risk of infection, sexual abuse and violence, coercion and harm continue across the life-course. Finally the life-course approach reiterates that SRH is important at every age and in every community, both as an independent aspect of health and identity and as a part of our lives that can bring pleasure and joy at every age throughout all stages of life.

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**Review of social determinants and the health divide in the WHO European Region. Final report, UCL Institute of Health Equity, WHO Regional Office for Europe, 2014.**


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This excellent review and framework for action advocates for a life-course approach in order to appropriately address the health inequalities faced by England and ensure social justice, health, sustainability are at the heart of policy making to maximise individual and community potential on all levels. Available in English at: [http://www.instituteofhealthequity.org/projects/fair-society-healthy-lives-the-marmot-review](http://www.instituteofhealthequity.org/projects/fair-society-healthy-lives-the-marmot-review)