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Review article

Research on Clinical Preventive Services for Adolescents and Young Adults: Where Are We and Where Do We Need to Go?

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A B S T R A C T

We reviewed research regarding system- and visit-level strategies to enhance clinical preventive service delivery and quality for adolescents and young adults. Despite professional consensus on recommended services for adolescents, a strong evidence base for services for young adults, and improved financial access to services with the Affordable Care Act's provisions, receipt of preventive services remains suboptimal. Further research that builds off successful models of linking traditional and community clinics is needed to improve access to care for all youth. To optimize the clinical encounter, promising clinician-focused strategies to improve delivery of preventive services include screening and decision support tools, particularly when integrated into electronic medical record systems and supported by training and feedback. Although results have been mixed, interventions have moved beyond increasing service delivery to demonstrating behavior change. Research on emerging technology—such as gaming platforms, mobile phone applications, and wearable devices—suggests opportunities to expand clinicians' reach; however, existing research is based on limited clinical settings and populations. Improved monitoring systems and further research are needed to examine preventive services facilitators and ensure that interventions are effective across the range of clinical settings where youth receive preventive care, across multiple populations, including young adults, and for more vulnerable populations with less access to quality care.

IMPLICATIONS AND CONTRIBUTION

This review identified system- and visit-level strategies that increase the delivery of clinical preventive services to adolescents and young adults and interventions that influence the behavior of adolescents and young adults. Recommendations include expanding research on young adults, parent involvement, health effects of preventive services, and innovative technology and utilizing developmental science to inform models of care.

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Adolescence and young adulthood bring opportunities and challenges for improving health and preventing disease in the short and long term [1]. The psychological, physical, and social role changes—shaped by social determinants and other risk and protective factors—affect health-related behavior. The life course framework posits that health is a trajectory in which early events and influences shape outcomes throughout the lifespan [2]. Transitional periods, when individuals can be particularly sensitive to environmental inputs, assume a critical role in this framework. Although the life course framework has mostly been applied to early childhood, it also suggests that improving adolescent and young adult health is critical as adolescent and young adult behaviors, and the social and biological contexts shaping those, lay the foundation for future health behaviors and outcomes (Figure 1) [3,4]. Behaviors often initiated during adolescence, such as substance use, high-risk sexual behavior, and risky driving, contribute to poor health outcomes and mortality during adolescence and later life; in addition, almost 20% of adolescents experience impairment due to behavioral and mental health disorders [5,6]. Young adults fare worse than adolescents in many areas, with rates of motor vehicle deaths, homicide, substance use, sexually transmitted infections, and mental health problems peaking during young adulthood [6].

Emerging evidence suggests that puberty and the broader period of adolescent brain development present a unique window of opportunity for social experiences to shape neural systems in enduring ways [7–9]. This developmental science research offers additional insight into the opportunities for preventive intervention and the nature of health risks during adolescence and early adulthood. The health care system can play a key role in supporting adolescents and young adults (AYAs) and their parents with healthy developmental transitions [10]. Optimizing clinical encounters to deliver effective preventive interventions to this age group may yield dividends in the near term and across the life course.

Clinical preventive services

The World Health Organization has set broad guidelines and standards for "youth-friendly care" that aims to make health care services and systems accessible, acceptable, equitable, appropriate, and effective for young people [11,12]. Primary care visits represent a key opportunity for preventive screening and intervention, and a broad consensus for clinical preventive services for adolescents has emerged in the United States since the 1990s [13,14]. The Bright Futures guidelines from the American Academy of Pediatrics provide comprehensive preventive care recommendations for youth up to age 21 years [15], and the forthcoming edition includes greater focus on the social determinants of health [16]. The guidelines generally focus on an annual well visit to a primary care provider where clinicians can screen for risky behavior and reinforce healthy behaviors, strengths, and competencies. Professional recommendations for an annual adolescent visit were first issued by the American Medical Association in 1994 [17]. In 2011, rates of attending an annual visit ranged from 43% to 74% among adolescents aged 10–17 years and 26% to 58% among young adults aged 18–25 years, according to an analysis of national surveillance systems. This analysis yielded significantly higher rates of preventive visits among insured AYAs across all data sources [18]. Confidentiality for adolescent care, when appropriate and ensured by law, is recommended, as is parental guidance and engagement

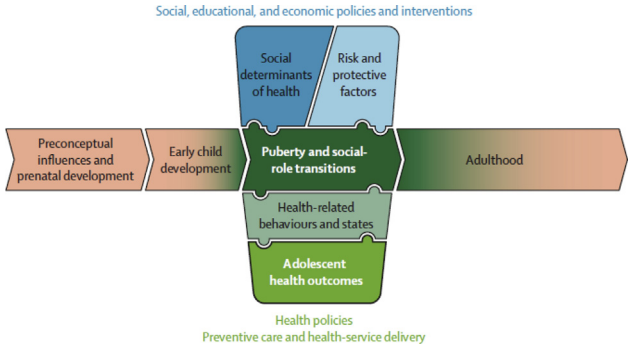

Figure 1. The framework emphasizes the crucial importance of a life course perspective in the understanding of adolescent health and development (represented by the horizontal flow of the framework) and the importance of social determinants of health (vertical flow). The axes intersect around the unique characteristics of adolescence (the complex interactions between puberty, neurocognitive maturity, and social role transitions) to emphasize how these factors affect adolescent health and development. The text outside the boxes refers to settings and scope of policies, preventive interventions, and services that affect adolescent health. From Sawyer SM, Afifi RA, Bearinger LH, et al. Adolescence: A foundation for future health. Lancet 2012;379:1630–40.

consistent with the need for confidential care [11,15,17,19,20]. Currently, the evidence supporting the efficacy of recommended clinical preventive services varies across services, according to the U.S. Preventive Services Task Force (USPSTF) ratings [21,22].

From a life course perspective, young adulthood (ages 18–25 years) is distinct from adolescence, bringing greater autonomy and unique health-related vulnerabilities [23,24]. However, there are currently no comprehensive preventive care guidelines developed specifically for young adults. Bright Futures covers up to 21 years of age and thus intersects with the young adult age group; guidelines from other professional organizations are also relevant to young adults. Several recommended preventive services in these guidelines have sufficient evidence to warrant a USPSTF recommendation [25]; indeed, the evidence is stronger for clinical preventive services among young adults ($\geq$18 years) than for adolescents (Table 1). However young adults' range of medical service sources is a challenge for the consistent delivery of preventive services. Although young adults obtain care from several specialties, including internal and family medicine, obstetrics, gynecology, emergency medicine, and pediatrics, they typically do not represent a priority focus for any of these specialties [26,27].

The 2010 Patient Protection and Affordable Care Act (ACA) includes provisions that aim to increase delivery of preventive services to AYAs. The ACA requires that private insurers cover selected preventive services with no out-of-pocket cost, including services drawn from Bright Futures [28], the USPSTF recommendations [21], immunizations recommended by the Centers for Disease Control and Prevention Advisory Committee on Immunization Practices [29], and the women's preventive health guidelines issued by the Health Resources and Services Administration [30] (Table 1).

Estimates of receipt of clinical preventive services among AYAs, based on clinician [31–33] and patient/caregiver report [34–39], suggest suboptimal levels. Only 40% of sexually active 15- to 21-year-old females reported receiving a chlamydia test in the prior year (2006–2010 data [40]), and only 66% of pediatricians in a 2012 national survey reported counseling most of their adolescent patients about tobacco use [41]. A chart review study