HHS Public Access

Author manuscript

Acad Emerg Med. Author manuscript; available in PMC 2020 December 01.

Published in final edited form as:

Acad Emerg Med. 2019 December ; 26(12): 1357–1368. doi:10.1111/acem.13809.

A research agenda for emergency medicine-based adolescent sexual and reproductive health

Melissa K. Miller, MD[1], **Lauren S. Chernick, MD, MSc**[2], **Monika K. Goyal, MD**[3], **Jennifer L. Reed, MD, MS**[4,5], **Fahd A. Ahmad, MD, MSCI**[6], **Erin F. Hoehn, MD**[4,5], **Michelle L. Pickett, MD**[7], **Kristin Stukus, MD**[8], **Cynthia J. Mollen, MD, MSCE**[9]

[1]Department of Pediatrics, Division of Emergency Medical Services, Children's Mercy Hospitals and Clinics, Kansas City, MO

[2]Department of Emergency Medicine and Pediatrics, Columbia University, New York, NY

[3]Department of Pediatrics, Children's National Medical Center, The George Washington University, Washington, DC

[4]Division of Emergency Medicine, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

[5]Department of Pediatrics, University of Cincinnati College of Medicine, Cincinnati, OH

[6]Department of Pediatrics, Washington University School of Medicine, St. Louis, MO

[7]Department of Pediatrics, Medical College of Wisconsin, Milwaukee, WI

[8]Department of Pediatrics, Division of Emergency Medicine, Nationwide Children's Hospital, Columbus Ohio

[9]Department of Pediatrics, Division of Emergency Medicine, Children's Hospital of Philadelphia, Philadelphia, PA

Abstract

Objective: To identify key questions for emergency medicine (EM)-based adolescent sexual and reproductive health and to develop an evidence-based research agenda.

Methods: We recruited national content experts to serve as advisory group members and used a modified Delphi technique to develop consensus around actionable research questions related to EM-based adolescent reproductive and sexual health care. Author subgroups conducted literature reviews and developed the initial list of research questions, which were iteratively refined with advisory members. External stakeholders then independently rated each item for its importance in expanding the evidence base (1= not important to 5 = very important) via electronic survey.

Results: Our final list of 24 research questions included items that intersected all sexual and reproductive health topics as well as questions specific to human immunodeficiency virus/sexually transmitted infections (HIV/STIs), pregnancy prevention, confidentiality/consent, public health, and barriers and facilitators to care. External stakeholders rated items related to HIV/STI, cost

Contact information for corresponding author: Melissa K. Miller, MD, Children's Mercy Hospital, 2401 Gillham Road, Kansas City, MO 64108, mmiller@cmh.edu, 816.302.3142.

Conflict of Interest: The authors have nothing to disclose.

effectiveness, brief intervention for sexual risk reduction, and implementation and dissemination as most important.

Conclusions: We identified critical questions to inform EM-based adolescent sexual and reproductive health research. Because evidence-based care has potential to improve health outcomes while reducing costs associated with HIV/STI and unintended pregnancy, funders and researchers should consider increasing attention to these key questions.

Keywords

adolescent; clinical decision support system; reproductive health; health services research

Introduction

Although preventable, sexually transmitted infections (STIs), human immunodeficiency virus (HIV) infection, and unintended pregnancy are significant and costly public health problems in the United States that disproportionately impact adolescents, especially racial and ethnic minorities and those without commercial insurance.[1–4] Appropriate and timely care can mitigate or prevent these outcomes, but many adolescents do not receive preventive, evidence-based care.[5–7] Access to care also may be limited due to insurance barriers or geography. This limited access results in reliance on emergency departments (EDs), with those at highest risk for HIV/STIs and pregnancy—minority and uninsured adolescents—now over-represented in this setting.

Adolescents account for almost 19 million annual ED visits, most of which are non-urgent and many of which are related to sexual health complaints.[8–10] Furthermore, several million high-risk adolescents use the ED as their *only* or primary contact with health care.[9] Adolescents in the ED frequently report behaviors that increase their risk for HIV/STI and unintended pregnancy.[10–15] Among adolescent ED patients, rates of infection with chlamydia and gonorrhea are up to seven times higher than the general adolescent population.[16–19] Furthermore, female adolescents accessing the ED for care have a risk of pregnancy within the next 12 months that is three times greater than adolescents in the general population.[22–23]

The Society for Academic Medicine recognizes the ED as an “effective site for preventive care,” evidenced by organizational conferences, consensus statements, and specialized training opportunities to reduce disparities stemming from social determinants of health.[24–28] Further, national organizations recommend that all clinicians capitalize on any health visits to provide key preventive sexual health services.[29–30] While the ED represents an important location for reaching large numbers of sexually at-risk adolescents, it is underutilized as a setting to improve adolescent sexual health outcomes.[31–34] Achieving behavior change among providers or adolescents is complex and generally requires comprehensive, multi-level approaches.[35] As such, we need research to guide diverse efforts in order to achieve optimal outcomes. Some interventions to improve HIV screening have been successful, but these are mostly designed for adults. ED-based interventions to address adolescent-specific needs are central to increasing access to 1) contraception, 2) HIV/STI

detection and treatment, 3) behavioral risk reduction counseling, and 4) linkage to ongoing care.

Goals of this work

Despite the significant individual, societal, and public health costs of HIV/STIs and unintended pregnancy, only a limited body of rigorous ED-focused adolescent sexual health research exists. More evidence is needed to inform best clinical practices and quality initiatives, shape support for policy decisions, and foster EM-based educational guidelines. In order to develop prioritized research recommendations to fill this void, we aimed to establish an expert working group to review the existing literature, identify knowledge gaps, and use consensus techniques to develop a research agenda for adolescent sexual and reproductive health in the ED setting.

Methods

Study design

All consensus processes were conducted between May 2017 and October 2018. We recruited an advisory group of content experts and used a modified Delphi technique to identity the most pressing emergency medicine (EM)-focused adolescent sexual and reproductive health research questions. We obtained Institutional Review Board approval from the lead author's institution to conduct this work.

Authorship group formation

In 2015, a pediatric EM-based Adolescent Sexual Health Working Group was formed to expand the breadth of adolescent sexual and reproductive health research in the acute care setting. Working group membership included 23 volunteers from 12 institutions who regularly participated in scheduled meetings. The group discussed development of a research agenda as a one of multiple projects and in May 2017, nine members volunteered to form the authorship group conducting this work. Three authorship chairs (MKM, LC, and CJM) moderated authorship team meetings, led data analysis, and recorded detailed notes.

Selection of expert advisory group members

We recruited individuals with expertise in adolescent health, emergency medicine, public health, infectious disease, and/or health services research to serve as advisory group members for the consensus process. Between November 1 and December 1, 2017, we identified experts by reviewing previously published peer-reviewed adolescent sexual health research, leadership/membership rosters for related research and/or medical professional societies (e.g., Society for Adolescent Health and Medicine), and personal recommendations from leading investigators in the field. Potential members (N=42) were recruited via email. The final group consisted of 18 members (Appendix).

Selection of external stakeholders

We introduced this work at a quarterly meeting of the Pediatric Emergency Care Applied Research Network (PECARN), the first federally-funded multi-institutional network for

pediatric EM research in the US. We sent email requests to solicit feedback from all members serving as leaders at the local or regional level (i.e., principal investigators).

Consensus methods

We used a modified Delphi technique to develop consensus around actionable research questions. This technique involves a systematic method for collecting and analyzing data and developing consensus among a small group of content experts.[36] The process consists of successive rounds of questionnaires and summarized responses to attain consensus on an issue.[37–38] The initial steps are designed to elicit a wide range of responses. A common and acceptable modification of the Delphi process is to use a structured questionnaire in the first round that is based on current literature.[37] The Delphi process is considered complete when there is convergence of opinion or when a point of diminishing returns is reached. The process can include between 3–5 rounds of iteration.

These consensus methods are particularly useful as a means of synthesizing information where unanimity of opinion does not exist, often owing to insufficient evidence. Strengths of this method include avoidance of individual dominance by using private survey responses and providing controlled feedback to the group's responses and using the round-robin process which allows individuals to change their opinions. To address potential limitations associated with the technique, we utilized an experienced team leader (CJM) and ensured consistent participation from advisory members and authors.

For Phase 1, the authorship group met in person and via conference calls. We emailed survey links to advisory members and non-chair authors (Phase 2) and to external stakeholders (Phase 3). Reminder emails were sent at 1 and 2 weeks after the initial email for those who had not yet responded.

Phase 1 (May-October 2017): Structuring the process and generating initial questions with authorship team—The authorship team met in May 2017 to begin structuring the process. We selected two over-arching questions to guide this work: "What are the current knowledge gaps related to improving adolescent sexual health outcomes in the emergency department setting?" and "What are the highest priority research questions related to improving adolescent sexual health outcomes in the emergency department setting?" Among the nine authors, we formed three subgroups to review the literature on broad EM-based research categories (i.e., pregnancy prevention, HIV/STI, and other topics) to facilitate participation and thinking around a more refined area. Each subgroup then generated a brief summary of the literature (with key references) and an initial list of research questions. Literature summaries and initial lists were shared among the authorship team. Authors then provided edits and suggestions to all items in written format and during a conference call. Authorship chairs then consolidated all suggestions into a first draft that included revised items.

Phase 2: Iterative refinement and establishing priority

Round 1(November-December 2017)

Revisions and new questions: Advisory members received the literature summaries generated in Phase 1 and were informed about project goals and the two over-arching questions driving the process. They were provided with the initial questions generated in Phase 1 and asked to suggest revisions for each item. Advisory members were also asked to provide additional questions to be included in the research agenda. Authorship chairs discussed all suggestions for revisions to initial items as well as all new items generated by advisory members. Based on advisory member feedback, the chairs then edited, deleted, added, and consolidated items to achieve a revised list of questions. During this phase, the chairs noted that additional research categories were needed and certain questions were common across categories; thus, we added new categories, including a category for "intersecting" questions that were relevant across categories.

Round 2 (February-June 2018)

Revisions and ratings: Advisory members received a summary of changes, including new categories, as well as the newly generated list of questions. They were asked to suggest revisions to each item and rate the importance of each question as it relates to EM-based sexual and reproductive health research overall (1=unimportant to 5=very important). Authorship chairs discussed all suggested revisions and achieved consensus around final changes to items. All authors reviewed priority ratings and achieved consensus by eliminating questions that met pre-determined criteria. Specifically, items with mean scores <3 or those with mean scores < 4 but with significant variability (standard deviation ≥ 1) were dropped.

Phase 3 (July-September 2018): Feedback from External Stakeholders—These stakeholders were asked to rate each item for its importance in expanding the evidence base for EM-based adolescent sexual and reproductive health research via electronic survey (1= not important to 5 = very important). Stakeholders were not asked to edit, delete, or suggest new items. All authors then reviewed these priority ratings and achieved consensus on final items.

Results

In Phase 1, we generated 50 research questions. In Phase 2 (round 1), advisory members (n=18) suggested nine new questions. After refinement, consolidation, and separation of intersecting questions, a list of 30 potential questions remained. In Phase 2 (round 2), advisory members (n=15) and non-chair authors (n=6) provided final suggestions for revisions and priority ratings. Based on values established *a priori*, we removed six questions and retained a total of 24. These final questions were presented to external stakeholders in Phase 3 (n=22, response rate=92%). The questions receiving the 10 highest mean values from external stakeholders are indicated with an asterisk (Tables 1–6).

DISCUSSION

To improve adolescent health outcomes and reduce the burden of HIV/STIs and unintended pregnancy, high-quality research is needed to develop the evidence for best practices, especially in EDs, where high-risk adolescents frequently seek care. We used rigorous methodology to identify key ED-based research questions that address HIV/STI screening and diagnosis, promote unintended pregnancy prevention, and support adolescent confidentiality, as well as intersecting questions that address broader concerns such as dating violence and specific medico-legal issues. With the input of multi-disciplinary stakeholders, we propose these research questions as a guide for future investigators and funders. Given the national priority of reducing HIV/STIs and adolescent pregnancy as stated by the Centers for Disease Control and Prevention (CDC) and defined in the objectives of Healthy People 2020,[39] increased funding is needed via research networks, federal research institutes, and philanthropy to address these urgent public health issues and research questions.

As an introduction to this agenda, we present these overarching themes. Barriers to accessing and providing sexual healthcare to adolescents in the ED have been fairly well described.[40–46] However, our understanding of parental perspectives on this care could be expanded. We lack knowledge on facilitators to adolescent sexual healthcare and also lack studies that are multi-centered or represent geographically diverse populations. For research involving aspects of confidentiality and consent, we advise that these topics are investigated together, as they are difficult to separate both clinically and within research. We encourage investigators to consider inclusion of cost-effectiveness assessment with any intervention, especially those outside of HIV screening where some of this work has been published.[47–49] Further, we lack research describing the effect of policies on healthcare provision and best practices for implementation and dissemination once effective ED-based interventions are identified.

Because we lack high-quality evidence for many areas of sexual and reproductive health, we chose to keep many of the research questions broad in order to reflect the need for a wide breadth of work. In some instances, published evidence supported more focused questions. In addition to research exploring these specific questions, multi-pronged approaches that include quality improvement, legislative advocacy, and community engagement are needed to improve health outcomes. These approaches can be integrated and included as part of the systematic investigations to develop evidence for best practices.

Intersecting Themes

While it is well established that adolescent ED patients are a high-risk population, how to provide evidence-based sexual and reproductive healthcare in the unique ED setting is less clear. Genito-urinary (GU) complaints are common among adolescents presenting to the ED, but providers often lack the knowledge, comfort, time, and skills to provide evidence-based sexual healthcare.[8, 40, 46] Many ED providers do not follow evidence-based STI testing and treatment guidelines; further, they lack accuracy in identifying which patients tested for STIs need empiric treatment, contributing to under-and over-treatment for STIs .[46,33,50–52] Many sexually-active females in the ED report recent unprotected intercourse, making them

eligible for pregnancy prophylaxis with emergency contraception.[15,17] However, this opportunity to provide intervention is often missed as many adolescents are not routinely asked about recent unprotected sex or offered timely emergency contraception, except in cases of sexual assault.[53–54] Research is needed on how ED providers can better deliver evidence-based care to adolescents with increased risk for STIs and pregnancy.

Central to the feasibility of providing sexual and reproductive healthcare in the ED is defining how this care should be delivered and which patients may benefit most. Tailoring approaches that identify, diagnose, treat, and refer high-risk patients, such as those presenting with complaints related to the GU system, may be more feasible than providing key aspects of sexual healthcare routinely to all patients. However, many adolescent patients presenting with complaints not clearly related to the GU system also participate in high-risk sexual behaviors and could benefit from interventions to reduce their risk of STIs and pregnancy.[14,18,19] We lack understanding of best practices to reduce sexual risk behaviors for these patients and more attention needs to be given to the cost-effectiveness of interventions in order to develop our understanding for effective and scalable implementation.

For all patients presenting to the ED, especially those with complaints related to sexual health, referral to outpatient adolescent-tailored care is essential to health maintenance. While referral to care may occur through multiple efforts during the ED visit (e.g., discharge instructions, verbal communication), limited data demonstrate that adolescents often do not complete such referrals when advised.[55–56] Efforts are needed to improve referral and follow-up from the ED, ensuring adolescents access to comprehensive sexual and reproductive care for needs unlikely to be addressed during the routine ED visit (e.g., vaccination) or that require ongoing management (e.g., contraception).

Variations in care can be influenced by state statutes, political influences, and/or differences in opinions between administrators and providers at the ED level. Specific for contraception, some states explicitly allow all minors to consent for these services, while many other states allow consent only in specific circumstances (e.g., minors who are parents).[57] In addition, regional and professional differences in attitudes towards emergency contraception have been documented among ED staff and may limit access to care.[41,42] A deeper understanding of how these considerations impact care provision is essential to achieve sustained improvements in health outcomes. Further, once effective interventions or best practices are identified, little is known about best methods for dissemination and implementation across EDs that may vary widely in regard to state statues, institutional resources, setting type, and expected practices.

Finally, adolescent relationship abuse (ARA), also known as teen dating violence, is a major public health concern with wide-reaching and lifelong negative health outcomes. While one in 10 high school students report dating violence victimization, prevalence of physical or sexual violence in dating relationships among ED adolescent patients may be as high 50%.[58–61] Despite guidelines to provide universal education to reduce ARA during clinical interactions, little work describes effective interventions or best models for use in the ED. Rare ED-based interventions, such as SafERteens and Project U-Connect, show promise for

reducing dating victimization and perpetration following a single ED visit but have yet to be widely disseminated.[62–64]

Human Immunodeficiency Virus and Sexually Transmitted Infections

Adolescents account for nearly half of the 19 million new cases of STIs each year.[65] STIs contribute to reproductive morbidity such as ectopic pregnancy, pelvic inflammatory disease (PID), and infertility. Adolescents in the ED have especially high rates of STIs: 22–26% among those with symptoms and 5–10% among those without symptoms.[17–21,66–67] Since the ED visit may be the only contact with a medical clinician for many adolescents, EDs represent a key site for STI prevention and treatment. However, while adolescent patients and their parents have repeatedly demonstrated acceptance of sexual health discussion and HIV/STI testing, clinicians have reported less acceptance of directly providing this care.[22–23, 68–69] Further, racial disparities have been demonstrated in ED-based STI testing, with Black females nearly four times more likely to be tested than non-Black females.[70] With CDC recommendations to expand HIV screening to the ED environment, more consideration has been given to development of optimal screening strategies across unique EDs.[71] For common STIs like Chlamydia, use of computerized surveys to assess risk and provide decision support to clinicians has shown promise to increase testing among high-risk adolescents.[18–19] We also need research to eliminate barriers to timely treatment including development of novel technologies that could provide rapid (e.g., point of care) and accurate test results[72] and evaluation of system-level changes to facilitate patient contact to share test results.[73–74]

Rapid HIV screening is well described in the adult literature, though many ED clinicians still report poor knowledge of adolescent HIV screening recommendations.[20] Some efforts have been shown to increase ED-based HIV testing among all ages including use of opt-out testing practices[75] and educational interventions to increase parental involvement and improve adolescent and parental HIV knowledge.[76–77] Additional research is needed to determine best practices for cost-effective and feasible HIV/STI screening of asymptomatic adolescent patients and to facilitate the implementation and dissemination of identified practices.

Provision of partner-based interventions for adolescents diagnosed with an STI has been largely unexplored in the ED setting. Partner notification involves identifying and informing partners of exposure, ensuring partners receive evaluation and treatment, and providing prevention counseling.[78] Expedited partner therapy (EPT), which is permissible in most states, is the practice of providing treatment to patients' sexual partners without a medical evaluation or clinical assessment.[79] Specific gaps include stakeholder knowledge, attitudes, and beliefs towards partner-based intervention as well as intervention feasibility and acceptability.[46,80]

Pregnancy Prevention

Despite declines in adolescent pregnancy rates over the past several decades, the U.S. has one of the highest rates in the industrialized world and reduction of adolescent pregnancy remains a top priority for both the CDC and U.S. Department of Health and Human

Services.[81] The risk of unintended pregnancy among adolescent females seeking care in the pediatric ED setting is more than three times greater than the national average.[22–23] Frequent ED utilization and lacking a primary provider or private insurance are associated with higher risk for unintended pregnancy.[22–23] Thus, interventions that identify females in EDs at high risk for unintended pregnancy are critically needed.

While adolescents are receptive to learning about and initiating contraception in the ED, research on best practices to reduce pregnancy risk and optimize contraceptive provision remains unclear.[22–23,69] Small, single-site studies have demonstrated feasibility and acceptability of brief interventions for text-messaging and personalized counseling to reduce pregnancy risk and improve access to both point-of-care and referral-based contraception.[82–85]

Large studies to evaluate the efficacy and cost-effectiveness of such interventions have not been conducted. And ED-based research regarding patient-centered counseling and reproductive justice (i.e., the ability of any woman to determine her own reproductive destiny) is lacking. Virtually no ED-based work describes how to engage males and parents or trusted adults in pregnancy prevention efforts, although there is rich literature from other settings describing the important role these referents play in reducing sexual risk-taking.[86–90] Additional knowledge gaps involve understanding provider- and system-level issues such as how this work may fit into various provider roles, intervention to improve completion of reproductive health referral, and impact on ED work flow.

Emergency contraception (EC) is used by women within 120 hours following unprotected intercourse to prevent pregnancy. Many adolescents may be eligible for pregnancy prophylaxis as 10–14% of sexually active females reported unprotected intercourse within 120 hours preceding the ED visit.[13,15] Barriers to EC in the ED are well described and include provider lack of knowledge and adolescent concerns about privacy.[12, 41–42] Adolescents in the ED are accepting of EC education and prefer to receive education from clinicians.[91] While many ED directors report support for ED-based pregnancy prevention intervention, many ED clinicians do not support screening for recent unprotected intercourse and rarely provide EC outside of sexual assault.[41–42, 53–54] More research is needed that improves our ability to identify eligible patients who may be interested in EC and also targets elimination of barriers to provision while connecting these adolescents to regular, and more effective, contraception.

Confidentiality and Consent

Multiple national medical societies consider confidential care for minor adolescents to be essential and most states allow minors to independently consent for evaluation and treatment of specific conditions.[57, 92–93] This varies from state to state but generally includes mental health services, treatment for substance abuse and addiction, pregnancy-related care, contraceptive services, and STI testing and treatment. While adolescents report that confidentiality is critically important in their decision to seek reproductive care, the best practices for maintaining confidentiality in the ED are not well defined.[94]

Barriers to confidentiality in the ED include provider lack of knowledge, unique work environments, and patient flow patterns that make private interviews challenging to conduct. ED clinicians must also manage sensitive conversations within newly-formed relationships. Adolescent privacy may also be breeched inadvertently by electronic health records and billing documents.[68,92] In most states, parents have access to their minor children's medical records, which may include sensitive information about gender identity, risk behaviors, and test results. Parents are highly accepting of sexual health discussions and services when their adolescent children receive ED care, but also express desire to understand the details of the visit, including testing results.[68–69] ED clinicians are challenged to balance the interests of both adolescents and parents, while adhering to state statutes and institutional expectations. More research is needed to understand how to best facilitate confidential care in accordance with expert guidelines.

Research has potential to advance care and improve outcomes for both individual participants and for the larger population. These potential benefits cannot be achieved without research participation. However, adolescents have often been excluded from participation, in part because of unique challenges involving informed consent, institutional review board requirements, and parental involvement.[95] Among adolescents in the ED, requiring parental consent appears to preclude participation in minimal risk STI research, especially for younger non-black females.[96] Further, although variation in development occurs, many adolescents and younger children are capable of meaningful participation in complex decision-making.[97–99] And for mid- and late adolescents, the cognitive abilities to understand research and to make decisions about participation are similar to these abilities in adults.[97]

Research with adolescents must balance respect for their emerging capacity for independent decision-making with the need for special protections in the context of contemplating risks and benefits.[100] There is a paucity of ED-based literature and studies that describe parental and adolescent views on research participation are needed.

Public Health

As reported in the 2009 *Academic Emergency Medicine* Consensus Conference focused on ED-based public health efforts, integrating proven public health interventions into routine ED care requires "disseminating the information, developing then implementing a plan, evaluating the success of the initial attempt, and then modifying procedures and processes to create sustainability."[101] Further, we must demonstrate that ED-based sexual health interventions lead to short- and long-term effects on key outcomes at the patient, community, regional, and national levels. To successfully integrate public health practices in to the ED, a multi-pronged approach is needed that includes rigorous research, updated educational curriculum for health professional trainees, enhanced delivery of preventive services through various personnel including public health professionals, and use of clinical information systems and digital technology to facilitate screening, intervention, and referral.[102]

Social emergency medicine is an approach to care that recognizes the ED's unique position within the community and strives to address the social determinants driving medical illness, in addition to providing illness-related care.[27] Because there is growing support for a

broader, ecological perspective to amplify and extend efficacy of sexual risk reduction interventions, we should consider how to partner with community-based organizations when developing or implementing ED-based interventions. Advancing research that considers larger public health problems including social determinants may create opportunities to reduce adolescent sexual risk-taking on a large scale and lead to improved population health.

Barriers and Facilitators

As described above, barriers to care have been fairly well described, though our understanding of facilitators could be broadened. Developing a deeper understanding of parental perspectives for both clinical care and research participation may facilitate improved outcomes and warrants investigation.

Limitations

Although work utilizing consensus techniques are subject to selection and collective expert bias, we attempted to reduce this risk by inviting advisory members with varied expertise and by sharing only de-identified data to minimize influence from one or more members. External stakeholders were limited to PEM physician researchers and our work may lack generalizability outside of the academic setting. Because the established processes for developing consensus involves the use of small groups of experts, some relevant topics may not have been identified as highest priority for research. We intentionally did not examine the feasibility of conducting any research needed to address these agenda items.

Conclusion

Using validated consensus-building processes, we identified critical questions to inform ED-based adolescent sexual and reproductive health research. The evidence generated from these priority items has potential to inform a multi-pronged approach needed to improve health outcomes. Thus, these items may warrant increased attention from funders and researchers.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements:

We thank Vince Staggs, PhD for his assistance with statistical analysis during this project.

Funding Sources: This work was supported in part by the Eunice Kennedy Shriver National Institute of Child Health and Human Development/National Institutes of Health (NIH) Career Development Awards (K23HD083405, MKM; K23HD075751, JLR; K23HD070910, MKG), The National Center for Advancing Translational Sciences/NIH (UL1TR000040, LSC), and the National Cancer Institute/NIH diversity supplement award (R01CA181047, MLP). The funding sources had no role in the design and conduct of the study; collection, management, analysis, or interpretation of the data; preparation, review, or approval of the manuscript.

References

1. Geisler WM, Chyu L, Kusunoki Y, Upchurch DM, Hook EW III. Health insurance coverage, health care-seeking behaviors, and genital chlamydial infection prevalence in sexually active young adults. Sex Transm Dis 2006;33(6):389–396. [PubMed: 16505745]
2. Hall KS, Moreau C, Trussell J. Determinants of and disparities in reproductive health service use among adolescent and young adult women in the United States, 2002–2008. Am J Pub Health 2012 2;102(2):359–67. [PubMed: 22390451]
3. Newacheck PW, Hung YY, Park MJ, Brindis CD, Irwin CE. Disparities in adolescent health and health care: does socioeconomic status matter? Health Serv Res 2003;38(5):1235–52. [PubMed: 14596388]
4. Adams SH, Newacheck PW, Park MJ, Brindis CD, Irwin CE. Health insurance across vulnerable ages: patterns and disparities from adolescence to the early 30s. Pediatrics 2007;119(5):e1033–e1039. [PubMed: 17473076]
5. Irwin CE, Adams SH, Park MJ, Newacheck PW. Preventive care for adolescents: few get visits and fewer get services. Pediatrics 2009;123(4):e565–72. [PubMed: 19336348]
6. Hall KS, Moreau C, Trussell J. Determinants of and disparities in reproductive health service use among adolescent and young adult women in the United States, 2002–2008. Am J Pub Health 2012;102(2):359–67. [PubMed: 22390451]
7. Alexander SC, Christ SL, Fortenberry JD, et al. Identifying types of sex conversations in adolescent health maintenance visits. Sexual health 2015;13(1):22–8.
8. Ziv A, Boulet JR, Slap GB. Emergency department utilization by US adolescents. Pediatrics 1998;101:987–994. [PubMed: 9606224]
9. Goyal M, Hersh A, Luan X, et al. Frequency of pregnancy testing among adolescent emergency department visits. Acad Emerg Med 2013;20(8):816–21. [PubMed: 24033625]
10. McCaig LF, Nawar EW. National Hospital Ambulatory Medical Care Survey: 2004 emergency department summary. Adv Data 2006:1–29.
11. Wilson KM, Klein JD. Adolescents who use the emergency department as their usual source of care. Arch pediatr adol med 2000;154(4):361–5.
12. Mollen CJ, Miller MK, Hayes KL, Barg FK. Knowledge, attitudes, and beliefs about emergency contraception: a survey of female adolescents seeking care in the emergency department. Ped Emerg Care 2013;29(4):469–74.
13. Miller MK, Pickett ML, Leisner KL, Humiston SG. Sexual health behaviors, preferences for care, and use of health services among adolescents in pediatric emergency departments. Pediatr Emerg Care 2013;29(8):907–11. [PubMed: 23903671]
14. Miller MK, Randell KA, Barral R, Sherman AK, Miller E. Factors associated with interest in same-day contraception initiation among females in the pediatric emergency department. J Adol Health 2016;58(2):154–9.
15. Fine LC, Mollen CJ. A pilot study to assess candidacy for emergency contraception and interest in sexual health education in a pediatric emergency department population. Pediatr emerg care 2010;26(6):413–6. [PubMed: 20502389]
16. Walton MA, Resko S, Whiteside L, Chermack ST, Zimmerman M, Cunningham RM. Sexual risk behaviors among teens at an urban emergency department: relationship with violent behaviors and substance use. J Adolesc Health 2011;48(3):303–5. doi: 10.1016/j.jadohealth.2010.07.005. [PubMed: 21338903]
17. Miller MK, Dowd MD, Harrison CJ, Mollen CJ, Selvarangan R, Humiston SG. Prevalence of three sexually transmitted infections in a pediatric emergency department. Pediatr emerg care 2015;31(2):107. [PubMed: 25654676]
18. Goyal MK, Teach SJ, Badolato GM, Trent M, Chamberlain JM. Universal screening for sexually transmitted infections among asymptomatic adolescents in an urban emergency department: high acceptance but low prevalence of infections. J Pediatr 2016;171:128–32. [PubMed: 26846572]
19. Ahmad FA, Jeffe DB, Plax K, Collins KK, Schechtman KB, Doerhoff DE, et al. Computerized self-interviews improve Chlamydia and gonorrhea testing among youth in the emergency department. Ann Emerg Med. 2014;64(4):376–84 [PubMed: 24612901]

20. Mehta SD, Hall J, Lyss SB, Skolnik PR, Pealer LN, Kharasch S. Adult and Pediatric Emergency Department Sexually Transmitted Disease and HIV Screening: Programmatic Overview and Outcomes. Acad Emerg Med 2007;14(3):250–258. [PubMed: 17331918]
21. Schneider K, FitzGerald M, Byczkowski T, Reed J. Screening for Asymptomatic Gonorrhea and Chlamydia in the Pediatric Emergency Department. Sex Transm Dis. 2016;43(4):209–15. [PubMed: 26967296]
22. Chernick L, Kharbanda EO, Santelli J, Dyan P. Identifying adolescents at high risk of pregnancy in a pediatric emergency department. J Adol Health 2012;51:171–178.
23. Solomon M, Badolato GM, Chernick LS, Trent ME, Chamberlain JM, Goyal MK. Examining the role of the pediatric emergency department in reducing unintended adolescent pregnancy. J Pediatr 2017;189:196–200. [PubMed: 28709634]
24. Rhodes KV, Gordon JA, Lowe RA, Society for Academic Emergency Medicine Public Health and Education Task Force Preventive Services Work Group. Preventive care in the emergency department, part I: clinical preventive services—are they relevant to emergency medicine? Acad Emerg Med 2000;7(9):1036–41. [PubMed: 11044001]
25. Bernstein SL, Haukoos JS. Public health, prevention, and emergency medicine: a critical juxtaposition. Acad Emerg Med 2008;15(2):190–3. [PubMed: 18275450]
26. Bernstein E, Goldrank LR, Kellerman AL, et al. A public health approach to emergency medicine: preparing for the twenty-first century. Acad Emerg Med 1994;1(3):277–86. [PubMed: 7621210]
27. Alexander AB, Ott MA. A Social Emergency Medicine Approach to the Implementation of Sexual and Reproductive Health Interventions in the Emergency Department. Acad Emerg Med 2019;26(4):457–459. [PubMed: 30222227]
28. EMRA Fellowship Guide. https://www.emra.org/books/fellowship-guide-book/20-population-health-and-social-emergency-medicine/ Accessed on 2 27, 2019.
29. The Society for Adolescent Health and Medicine, Sexual and Reproductive Health Care: A Position Paper of the Society for Adolescent Health and Medicine. J Adol Health 2014;54(4):491–496.
30. Committee on Adolescence. American Academy of Pediatrics. Policy statement—Condom Use by Adolescents. Pediatrics 2013;132(5):973–981 [PubMed: 28448257]
31. Finelli L, Schillinger JA, Wasserheit JN. Are emergency departments the next frontier for sexually transmitted disease screening? Sex Transm Dis 1 2001;28(1):40–42. [PubMed: 11196045]
32. Cohen DA, Kanouse DE, Iguchi MY, Bluthenthal RN, Galvan FH, Bing EG. Screening for sexually transmitted diseases in non-traditional settings: a personal view. Int J STD AIDS 2005;16(8):521–527. [PubMed: 16105185]
33. Miller MK, Pickett ML, Reed JL. Adolescents at Risk for Sexually Transmitted Infection Need More Than the Right Medicine. J pediatr 2017;189:23–5. [PubMed: 28739182]
34. Miller MK, Mollen CJ. Critical access to care: bringing contraception to adolescents in nontraditional settings. J Adol Health 2017;61(6):667–8.
35. Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change in patients' care. The Lancet 2003;362(9391):1225–30.
36. Jones J, Hunter D. Consensus methods for medical and health services research. BMJ 1995;311(7001):376. [PubMed: 7640549]
37. Hsu CC, Sandford BA. The Delphi technique: making sense of consensus. Practical assess res eval 2007;12(10):1–8.
38. Stitt-Gohdes WL, Crews TB. The Delphi technique: A research strategy for career and technical education. J Career Tech Educa 200;20(2).
39. Office of Disease Prevention and Health Promotion. Healthy People 2020 https://www.healthypeople.gov/2020/topics-objectives/topic/family-planning/objectives; Accessed 12 12, 2017.
40. Miller MK, Mollen CJ, O'Malley D, et al. Providing adolescent sexual health care in the pediatric emergency department: views of health care providers. Pediatr Emerg Care 2014;30(2):84 [PubMed: 24457494]

41. Miller MK, Plantz DM, Dowd DM, et al. Pediatric emergency health care providers' knowledge, attitudes, and experiences regarding emergency contraception. Acad Emerg Med 2011;18(6):605–12. [PubMed: 21676058]
42. Goyal M, Zhao H, Mollen C. Exploring emergency contraception knowledge, prescription practices, and barriers to prescription for adolescents in the emergency department. Pediatrics 2009;123(3):765–70. [PubMed: 19255000]
43. Goyal M, Hersh A, Luan X, Localio R, Trent M, Zaoutis T. Are emergency departments appropriately treating adolescent pelvic inflammatory disease?. JAMA pediatr 2013;167(7):672–3. [PubMed: 23645074]
44. Goyal M, Hersh A, Luan X, et al. Frequency of pregnancy testing among adolescent emergency department visits. Academic Emergency Medicine. 2013;20(8):816–21. [PubMed: 24033625]
45. Musacchio NS, Gehani S, Garofalo R. Emergency department management of adolescents with urinary complaints: missed opportunities. J Adol Health 2009;44(1):81–3.
46. Pickett ML, Melzer-Lange MD, Miller MK, Menon S, Vistocky AM, Drendel AL. Physician Adherence to Centers for Disease Control and Prevention Guidelines for Sexually Active Adolescents in the Pediatric Emergency Setting. Pediatr Emerg Care 2016.
47. Silva A, Glick NR, Lyss SB, et al. Implementing an HIV and sexually transmitted disease screening program in an emergency department. Ann Emerg Med 2007;49(5):564–572. [PubMed: 17113684]
48. Farnham PG, Hutchinson AB, Sansom SL, Branson BM. Comparing the costs of HIV screening strategies and technologies in health-care settings. Pub Health Rep 2008;123(3suppl):51–62. [PubMed: 19166089]
49. Walensky RP, Morris BL, Reichmann WM, et al. Resource utilization and cost-effectiveness of counselor-vs. provider-based rapid point-of-care HIV screening in the emergency department. PloS One 2011;6(10):e25575. [PubMed: 22022415]
50. Breslin K, Tuchman L, Hayes KL, Badolato G, Goyal MK. Sensitivity and specificity of empiric treatment for sexually transmitted infections in a pediatric emergency department. J pediatr 2017;189:48–53. [PubMed: 28629687]
51. Anaene M, Soyemi K, Caskey R. Factors associated with the over-treatment and under-treatment of gonorrhea and chlamydia in adolescents presenting to a public hospital emergency department. Int J Infect Dis 2016;53:34–8. [PubMed: 27771470]
52. Center for Disease Control and Prevention. 2015 Sexually Transmitted Disease Treatment Guidelines. https://www.cdc.gov/std/tg2015/screening-recommendations.htm Accessed on 3 30, 2019.
53. Patel S, Miller MK, Dowd MD. Patient characteristics and provider practice patterns for emergency contraception in a pediatric emergency department. Pediatr Emerg Care 2010;26(1):6–9. [PubMed: 20042915]
54. Miller MK, Mollen C, Behr K, Dowd MD, et al. Development of a Novel Computerized Clinical Decision Support System to Improve Adolescent Sexual Health Care Provision. Acad Emerg Med 2019;26(4):420–433. [PubMed: 30240032]
55. Chernick LS, Westhoff C, Ray M, Garcia M, Garth J, Santelli J, Dayan PS. Enhancing referral of sexually active adolescent females from the emergency department to family planning. J Women's Health 2015;24(4):324–8.
56. Miller MK, Champassak S, Goggin K, et al. Brief behavioral intervention to improve adolescent sexual health: a feasibility study in the Emergency Department. Pediatr Emerg Care 2016;32(1): 17–9. [PubMed: 26727196]
57. Institute Guttmacher. State policies on teens. https://www.guttmacher.org/united-states/teens/state-policies-teens; Accessed 1 12, 2019.
58. Singh V, Walton MA, Whiteside LK, et al. Dating violence among male and female youth seeking emergency department care. Ann Emerg Med 2014;64(4):405–12. [PubMed: 24993689]
59. Carroll BC, Raj A, Noel SE, Bauchner H. Dating violence among adolescents presenting to a pediatric emergency department. Arch Pediatr Adolesc Med 2011;165(12):1101–1106. [PubMed: 22147777]

60. Erickson M-JE, Gittelman MA, Dowd D. Risk factors for dating violence among adolescent females presenting to the pediatric emergency department. J Trauma 2010;69(4 Suppl):S227–232. [PubMed: 20938314]
61. Whiteside L, Walton MA, Stanley R, et al. Dating aggression and risk behaviors among teenage girls seeking gynecologic care. Acad Emerg Med 2009;16:632–638. [PubMed: 19508314]
62. Cunningham RM, Whiteside LK, Chermack ST, et al. Dating violence: Outcomes following a brief motivational interviewing intervention among at-risk adolescents in an urban emergency department. Acad Emerg Med 2013;20(6):562–9. [PubMed: 23758302]
63. Cunningham RM, Walton MA, Goldstein A, et al. Three-month follow-up of brief computerized and therapist interventions for alcohol and violence among teens. Acad Emerg Med 2009;16(11): 1193–207. [PubMed: 20053240]
64. Walton MA, Chermack ST, Shope JT, et al. Effects of a brief intervention for reducing violence and alcohol misuse among adolescents: a randomized controlled trial. JAMA 2010;304(5):527–35. [PubMed: 20682932]
65. Center for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2017. https://www.cdc.gov/std/stats17/adolescents.htm Accessed on 3 30, 2019.
66. White DA, Alter HJ, Irvin NA, Clark MC, Frazee BW. Low rate of syphilis screening among high-risk emergency department patients tested for gonorrhea and chlamydia infections. Sex Transm Dis. 2012;39(4):286–90. [PubMed: 22421695]
67. Territo HM, Wrotniak BH, Bouton S, Burstein GR. A New Strategy for Trichomonas Testing Female Adolescents in the Emergency Department. J Pediatr Adolesc Gynecol 2016;29(4):378–81. [PubMed: 26820440]
68. Reed JL, Punches BE, Taylor RG, Macaluso M, Alessandrini EA, Kahn JA. A Qualitative analysis of adolescent and caregiver acceptability of universally offered gonorrhea and chlamydia screening in the pediatric emergency department. Ann Emerg Med 2017;70(6):787–796. [PubMed: 28559031]
69. Miller MK, Hornberger L, Sherman AK, Dowd MD. Acceptability of sexual health discussion and testing in the pediatric acute care setting. Pediatr Emerg Care 2013;29(5):592–7. [PubMed: 23611917]
70. Goyal MK, Hayes KL, Mollen CJ. Racial disparities in testing for sexually transmitted infections in the emergency department. Acad Emerg Med 2012;19(5):604–7. [PubMed: 22594368]
71. Branson BM, Handsfield HH, Lampe MA, et al. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. MMWR: Recommenda Reports 2006;55(14):1–CE.
72. Rivard KR, Dumkow LE, Draper HM, Brandt KL, Whalen DW, Egwuatu NE. Impact of rapid diagnostic testing for chlamydia and gonorrhea on appropriate antimicrobial utilization in the emergency department. Diag micro infect dis 2017;87(2):175–9.
73. Huppert JS, Reed JL, Munafo JK, et al. Improving notification of sexually transmitted infections: a quality improvement project and planned experiment. Pediatrics 2012;130(2):e415. [PubMed: 22753557]
74. Lolar SA, Sherwin RL, Robinson DM, Courage C, Welch RD. Effectiveness of an urban emergency department call-back system in the successful linkage to treatment of sexually transmitted infections. Southern Med J 2015;108(5):268–73. [PubMed: 25972212]
75. Montoy JC, Dow WH, Kaplan BC. Patient choice in opt-in, active choice, and opt-out HIV screening: randomized clinical trial. BMJ 2016;352:h6895.
76. Barbour WL, Rodgers JB, Wang HE, Donnelly JP, Tapley AM, Galbraith JW. Human Immunodeficiency Virus Risk Factors and Beliefs Reported by Families Presenting to a Pediatric Emergency Department. Pediatr Emerg Care 2018;34(1):1–5. [PubMed: 26555308]
77. Calderon Y, Cowan E, Nickerson J, et al. Educational effectiveness of an HIV pretest video for adolescents: a randomized controlled trial. Pediatrics. 2011;127(5):911–6. [PubMed: 21482613]
78. Center for Disease Control and Prevention. Sexually Transmitted Diseases: Expedited Partner Therapy. 2018. Available at https://www.cdc.gov/std/ept/default.htm. Accessed on 1 2, 2018.

79. Burstein GR, Eliscu A, Ford K, et al. Expedited partner therapy for adolescents diagnosed with chlamydia or gonorrhea: a position paper of the Society for Adolescent Medicine. J Adolesc Health 2009;45(3):303–309. [PubMed: 19699429]
80. Reed JL, Huppert JS, Gillespie GL, et al. Adolescent patient preferences surrounding partner notification and treatment for sexually transmitted infections. Acad Emerg Med 2015;22(1):61–66. [PubMed: 25545855]
81. The National Campaign to Prevent Teen and Unplanned Pregnancy. (2016) Teen Pregnancy in the United States. https://thenationalcampaign.org/sites/default/files/resource-primary-download/fast_facts_-_teen_pregnancy_in_the_united_states.pdf. Accessed on 10 7, 2017.
82. Chernick LS, Stockwell MS, Wu M, Castaño PM, Schnall R, Westhoff CL, Santelli J, Dayan PS. Texting to Increase Contraceptive Initiation Among Adolescents in the Emergency Department. J Adol Health 2017;61(6):786–90.
83. Hoehn EF, Hoefgen H, Chernick LS, et al. A Pediatric Emergency Department Intervention to Increase Contraception Initiation Among Adolescents. Acad Emerg Med 2018.
84. Miller MK, Champassak S, DeLurgio S, et al. An emergency department intervention to increase adolescent access to key sexual health services: Feasibility and impact. J Adolesc Health 2016;58(2):S46–7.
85. Jayamaha D, Finocchario-Kessler S, Giovanni J, et al. A Novel Pediatric Emergency Department Intervention to Improve Adolescent Sexual Health Care. Pediatr Emerg Care 2019.
86. Forehand R, Armistead L, Long N, et al. Efficacy of a parent-based sexual-risk prevention program for African American preadolescents: a randomized controlled trial. Arch Pediatr Adolesc Med 2007;161(12):1123–9. [PubMed: 18056556]
87. Hutchinson MK, Jemmott JB, Jemmott LS, Braverman P, Fong GT. The role of mother–daughter sexual risk communication in reducing sexual risk behaviors among urban adolescent females: a prospective study. J Adolesc Health 2003;33(2):98–107. [PubMed: 12890601]
88. Parkes A, Henderson M, Wight D, Nixon C. Is parenting associated with teenagers' early sexual risk-taking, autonomy and relationship with sexual partners? Perspect Sex Repro Health 2011;43(1):30–40.
89. Sales JM, Lang DL, DiClemente RJ, et al. The mediating role of partner communication frequency on condom use among African American adolescent females participating in an HIV prevention intervention. Health Psychol 2012;31(1):63. [PubMed: 21843001]
90. Widman L, Choukas-Bradley S, Helms SW, Golin CE, Prinstein MJ. Sexual communication between early adolescents and their dating partners, parents, and best friends. J Sex Res 2014;51(7):731–41. [PubMed: 24354655]
91. Mollen CJ, Miller MK, Hayes KL, Barg FK. Developing emergency department-based education about emergency contraception: adolescent preferences. Acad Emerg Med 2013;20(11):1164–70. [PubMed: 24238320]
92. Committee on Pediatric Emergency Medicine, Committee on Bioethics. Consent for emergency medical services for children and adolescents. Pediatrics 2011;128(2):427–33. [PubMed: 21788221]
93. Bayer R, Santelli J, Klitzman R. New challenges for electronic health records: confidentiality and access to sensitive health information about parents and adolescents. JAMA 2015;313(1):29–30. [PubMed: 25562260]
94. Jones RK, Boonstra H. Confidential reproductive health services for minors: the potential impact of mandated parental involvement for contraception. Perspec Sexual Repro Health 2004;36(5):182–91.
95. Reed JKR, Fraiz LD, de Roche AM, Catallozi M, Breitkopf CR, Rosenthal SL. Management of Adolescent-Parent Dyads' Discordance for Willingness to Participate in a Reproductive Health Clinical Trial. J Empir Res Human Res Ethics 2018;13(1):42–49. [PubMed: 29226745]
96. Reed JL, Thistlethwaite JM, Huppert JS. STI research: Recruiting an unbiased sample. J Adolesc Health 2007;41(1):14–8. [PubMed: 17577529]
97. Santelli JS, Rosenfeld WD, DuRant RH, Dubler N, Morreale M, English A, Rogers AS. Guidelines for adolescent health research: a position paper of the Society for Adolescent Medicine. J Adolesc Health 1995;17(5):270–6. [PubMed: 8924431]

98. Flicker S, Guta A. Ethical approaches to adolescent participation in sexual health research. J Adolesc Health 2008;42(1):3–10. [PubMed: 18155024]

99. Sanci LA, Sawyer SM, Weller PJ, et al. Youth health research ethics: time for a mature-minor clause? Med J Aust. 2004;180:336–338. [PubMed: 15059054]

100. Francis JKR, de Roche AM, Mauro C, et al. Adolescent-Parent Dyadic Retention in an Interview Study and Changes in Willingness to Participate in a Hypothetical Microbicide Safety Study. J Pediatr Adolesc Gynecol. 2018;31(6):592–596. [PubMed: 29906513]

101. McKay MP, Vaca FE, Field C, Rhodes K. Public health in the emergency department: overcoming barriers to implementation and dissemination. Acad Emerg Med. 2009;16(11):1132–7. [PubMed: 20053233]

102. Bernstein SL, Bernstein E, Boudreaux ED, et al. Public health considerations in knowledge translation in the emergency department. Acad Emerg Med. 2007;14(11):1036–41. [PubMed: 17699805]

Table 1:

Intersecting emergency medicine-related adolescent sexual and reproductive health research questions

1	How can we optimize referral and follow up care for reproductive or sexual health needs among adolescents treated in the ED?*
2	How can we optimize evidence-based care for adolescents with genito-urinary complaints in the ED?*
3	Which sexual-risk reduction interventions (e.g., STI, HIV, pregnancy prevention) are cost effective in the ED setting?*
4	How can efforts to reduce sexual risk behaviors be optimally delivered as part of ED care?
5	What is the role of the ED in identifying, preventing, and intervening with adolescent dating violence?
6	What are the legal considerations (e.g., local, federal) surrounding provision of sexual and reproductive health care in the ED?
7	How can we optimize parental involvement to promote healthy sexual behaviors for adolescents in the ED?
8	How can we disseminate and implement effective sexual health interventions in the ED?*

*Question was ranked as one of the top 10 most important items by external stakeholders.

Table 2:

HIV/STI related emergency medicine–relevant adolescent sexual and reproductive health research questions

1	How do we optimize STI screening for the asymptomatic adolescents across different ED settings? *
2	How can we facilitate implementation and dissemination of best STI screening practices? *
3	How can we optimize HIV screening for the asymptomatic adolescent ED population across different ED settings? *
4	What is the feasibility and acceptability of providing partner-based interventions (e.g., expedited partner therapy, notification) when adolescents are diagnosed with an STI in the ED? *

* Question was ranked as one of the top 10 most important items by external stakeholders.

Table 3:

Pregnancy prevention related emergency medicine–relevant adolescent sexual and reproductive health research questions

1	How can health care providers in the ED optimize contraception provision for adolescents?
2	How can we most effectively identify females with recent unprotected intercourse to discuss pregnancy intentions and need for pregnancy prophylaxis (e.g., emergency contraception)?*
3	What are the facilitators and barriers to ensuring reproductive justice (i.e., ability of any woman to determine her own reproductive destiny) when offering contraception?

* Question was ranked as one of the top 10 most important items by external stakeholders.

Table 4:

Confidentiality/consent related emergency medicine–relevant adolescent sexual and reproductive health research questions

1	What are best practices in the ED for maintaining adolescent confidentiality for sexual and reproductive health care (e.g., communication with parents/guardians, documentation on gender identity and risk behaviors)?
2	How do adolescents and parents/guardians view issues of confidentiality with respect to participation in sexual and reproductive health research?
3	How do adolescents and parents/guardians view issues of confidentiality with respect to clinical care for sexual and reproductive health?
4	What are best practices for consenting minor adolescents to participate in sexual and reproductive health research?

Table 5:

Public health related emergency medicine–relevant adolescent sexual and reproductive health research questions

1	What are the short- and long-term effects of evidence-based sexual health interventions on key outcomes (e.g., HIV/STI identification, prevention of unintended pregnancy, ED visits for care)? *
2	How can partnerships with other clinical settings and community-based organizations be used to improve health outcomes and extend positive effects from evidence-based intervention?
3	How can we assess the impact of evidence-based interventions on health outcomes at a community, regional, or national levels?

* Question was ranked as one of the top 10 most important items by external stakeholders.

Table 6:

Barriers and facilitators related emergency medicine–relevant adolescent sexual and reproductive health research questions

1	What are the parental attitudes, beliefs, and practices regarding adolescent participation in sexual and reproductive health research?
2	What are the parental attitudes, beliefs, and practices and associations regarding adolescent participation in receiving sexual and reproductive health care?