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Commentary

School-based Sex Education in the U.S. at a Crossroads: Taking the Right Path

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School-based sex education in the U.S. is at a crossroads. The United Nations defines sex education as a curriculum-based process of teaching and learning about the cognitive, emotional, physical, and social aspects of sexuality [1]. Over many years, sex education has had strong support among both parents [2] and health professionals [3–6], yet the receipt of sex education among U.S. adolescents has declined or stagnated over the past 25 years (1995–2019) [7–9]. In 2015–2019, only half of adolescents received sex education that met the minimum standards articulated in Healthy People 2020 [9]. Receipt of sex education is even worse among young men and men of color than that among young women and white men [8].

Strong scientific evidence has demonstrated that sex education is effective in reducing adolescent behaviors that lead to unintended pregnancy, HIV, and sexually transmitted infections [10]. Sex education also impacts a broader set of outcomes, including appreciation of sexual orientation and gender diversity; prevention of homophobic bullying, intimate partner violence, and child abuse; and promotion of healthy relationships, social emotional learning, and media literacy [11]. Sex education received before college may also protect against sexual assault during college [12]. Despite this growing body of evidence, the content of sex education taught in U.S. public schools has often diminished over time. For example, in 1995, 87% of females and 81% of males reported sex education about birth control methods, compared with 64% and 63% in 2015–2019 [7,9].

Support for sex education and reproductive rights has been strong and consistent among mainstream medical and health organizations [3–6,13]. This support should not be surprising. Health care providers know that preventing adverse sexual and reproductive health outcomes is much better than attempting to treat their consequences.

As adolescent health care providers who support sex education, we were dismayed by the revised and recently released Medical Institute for Sexual Heath (MISH) K-12 Standards for Optimal Sexual Development (M-SOSD) [14]. MISH has long been a strong supporter of abstinence-only approaches (now described as sexual risk avoidance) to adolescent sexual and reproductive health—despite a lack of evidence for the efficacy for such approaches and the harm from withholding lifesaving information from young people [4]. These new “standards” are seriously flawed from both scientific and human rights’ perspectives. We strongly support sex education that is science-based, medically accurate, and developmentally appropriate. Our review of the M-SOSD finds they fail on each of these criteria.

There are multiple ways to strengthen the provision of sex education in the U.S. One important mechanism has been the promulgation of standards for sex education that reflect scientific understanding and adolescent developmental needs. The National Sex Education Standards (NSES) [15], developed in partnership between sex education organizations and health professionals, provide clear, consistent, and straightforward guidance on the essential content for students in grades K–12. The NSES have also been used in the development of Centers for Disease Control and Prevention’s recently released Health Education Curriculum Analysis Tool [16]. Similarly, global guidance is

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available in the 2018 UNESCO International Technical Guidance on Sexuality Education [1].

Key concepts within NSES include the following:

- Information should be medically accurate information, and curricula should include a broad set of topics essential to human sexuality (Table 1). Medical accuracy means curricula should be based on weight of scientific evidence and scientific theory, published in peer-reviewed journals, and recognized as accurate, objective, and complete by mainstream professional organizations [17].
- Opportunities for adolescents to explore their identity and values and the values and beliefs of their family, their religion, their culture, and their community.
- Opportunities to practice the communication, negotiation, decision-making, and assertiveness skills needed to create healthy relationships.
- Sex education should be developmentally appropriate information and geared to the age-appropriate interests and developmental capacity of children and adolescents. For example, while sex education for children should focus on family life, sex education for adolescents needs to focus on their expanding social world including peers, media, and culture [15].

Although the revised M-SOSD represent some progress from a previous version, they still fall short. Those prior MISH recommendations were criticized as medically inaccurate, based in faith not fact, and providing inaccurate information on condoms and contraception [18]. In the new M-SOSD, information on contraception is factually correct, although incomplete and focused on limitations in contraceptive effectiveness. Marriage is specifically defined as a "couple" and not as a "man and a woman", and the focus on adolescent relationships and sexual consent and inclusion of adolescent developmental concepts such as resiliency, developmental assets, and adverse childhood experiences is potentially helpful. However, the application of these ideas is not well developed in the document.

Our review finds that the M-SOSD miss many essential topics. We compared the extensive glossary of terms provided in both the NSES and the M-SOSD. Remarkably, the two glossaries overlap rarely (Table 1), except on a few issues like sexual violence and sexual consent. Missing from M-SOSD but included in NSES are topics such as sexual orientation and gender identity; social determinants of health such as poverty, racism, and other forms of discrimination; disabilities; reproductive justice; prevention of HIV infection using PreP therapy; and adolescent health care issues such as adolescent rights and minor consent laws. Topics included in M-SOSD but not included in NSES include discipline, marriage, and infatuation and love. Many of sex education topics missing from the M-SOSD are recommended by mainstream medical groups including the American Medical Association, the American Academy of Pediatrics, and the Society for Adolescent Health and Medicine [3–5]. A glaring omission from M-SOSD is any information on the authors or their process for evidence review; these are standard in scientific review and guideline development.

A few topics are addressed but are woefully incomplete. M-SOSD misleadingly assert it is "inclusive of all students, irrespective of their sexual orientation or gender identity" as well as culturally inclusive; however, the M-SOSD learning objectives do not address either sexual orientation or gender identity. Remarkably, the M-SOSD say little about how adolescent health

Table 1
Comparing glossaries from Medical Institute for Sexual Heath K-12 Standards for Optimal Sexual Health (M-SOSD) and the National Sex Education Standards (NSES)

Key
• = Included in both glossaries
X = Not included in the other glossary
* = Included in both but with different definitions, see table footnotes

M-SOSD[a]	NSES[b]	Both M-SOSD and NSES
Glossary		
X	Ableism	
X	Abstinence	
X	Abstinence-only-until-marriage programs	
Adolescence	Adolescence	•
X	Adoption	
ACEs[c]	X	
X	Age appropriate	
X	Age of consent	
X	Agender	
X	AIDS[d]	
X	All students	
Anal sex*	Anal sex	•
X	Androgynous	
X	Asexual	
Asymptomatic	X	
X	Biological sex	
X	Biomedical approach	
X	Bisexual	
X	Bodily autonomy	
X	Body image	
X	Bullying	
X	Child sexual abuse	
X	Cisgender	
X	Classism	
X	Climate setting	
X	Community violence	
X	Comprehensive sex education/sexuality education	
X	Conscious bias	
Coercion	X	
Cognitive Maturity	X	
Connectedness	X	
Consent	Consent	•
Consistent and correct condom use*	Condoms (see external condoms, internal condoms)	•
Consistent and correct contraceptive use	Contraception	•
Counselors	X	
X	Cultural competence	
X	Culturally responsive	
X	Cycle of violence	
Dating	X	
X	Dating violence	
Discipline	X	
X	Disclosure	
X	Disproportionate risk	
X	Domestic violence	
X	Emergency contraception	
X	Experiential learning cycle	
X	Fact	
Family/family members	Family structure	•
Fertilization	X	
X	Gay	
X	Gender	
X	Gender binary	
X	Gender expansive	
X	Gender expression	
X	Gender identity	

(*continued on next page*)

X	Gender nonbinary	
X	Gender nonconforming	
X	Gender pronouns	
X	Gender roles	
X	Genderqueer	
X	Gender-based violence	
Grit/resilience	X	
X	Harassment	
Healthy marriage	Healthy relationships	
X	Heterosexual	
X	HIV[e]	
X	Homophobia	
X	Incest	
X	Inclusive	
Inconsistent and incorrect condom/contraceptive use	X	
X	Induced abortion	
Infatuation	X	
X	Institutional value	
X	Interpersonal violence	
X	Intersectionality	
X	Intersex	
X	Intimate partner violence	
Legacy	X	
X	Lesbian	
X	Lived experience	
X	LARC[f]	
Love	X	
Marriage	X	
X	Masturbation	
Maturity	X	
Medically accurate	Medically accurate	•
X	Miscarriage	
Mutual masturbation	X	
Nonmarital sexual activity	X	
Objectify	X	
Oppression	X	
Optimal sexual development	X	
X	Oral sex	
Outercourse	X	
X	Pansexual	
Parent	X	
X	PEP[g]	
Personal boundaries	X	
Pornography	Sexually explicit material**	•
X	Power	
X	Pregnancy options	
X	PrEP[h]	
X	Privilege	
X	Professional boundaries	
Puberty	Puberty	•
X	Queer	
X	Questioning	
X	Racial justice	
X	Racism	
Rape	Rape	•
Refusal skills	X	
Reproduction	X	
X	Reproductive justice	
Romantic relationships	X	
X	Safe and affirming learning environments	
X	Safety plan	
X	Self-concept	
X	Self-esteem	
X	Sex assigned at birth	
X	Sex positive	
Sex trafficking	Sex trafficking	•
X	Sexism	
Sexting	X	
Sexual abuse	Sexual abuse	•
Sexual activity	Sexual behavior	•
X	Sexual agency	
Sexual assault	Sexual assault	•
Sexual consent	See “consent” above.	•
Sexual exploitation	Sexual exploitation	•
Sexual grooming	X	
X	Sexual harassment	
X	Sexual identity	
Sexual intercourse	Sexual intercourse	•
X	Sexual orientation	
X	Sexual response cycle	
Sexual risk avoidance	Sexual risk avoidance	•
Sexual risk reduction***	X	
Sexual violence	Sexual violence	•
X	Sexuality	
Sexualize	X	
Sexually explicit content	Sexually explicit material	•
STDs[i]/STIs[j]	STDs	•
X	Social justice	
X	Socioeconomic status	
X	Spontaneous abortion	
X	Student centered	
STD/STI-related cancer	X	
“Success sequence”	X	
X	Teaching strategies	
X	Teasing	
Teen	X	
Teen pregnancy	X	
Transactions (transactional sex)	X	
X	Transgender	
X	Transphobia	
X	Trauma (individual)	
X	Trauma (systemic)	
X	Trauma informed	
Trusted adult	Trusted adult	•
X	Two-spirit	
Typical human use	X	
X	Unconscious bias	
X	Undetectable viral load	
X	Universal values	
Vaginal intercourse	Vaginal sex	•
Values	Value	•
X	Viral suppression	
State of well-being	X	
Wholeness	X	

* M-SOSD lists “incorrect/correct” usage, and NSES lists “internal/external”. The M-SOSD definition heavily implies that correct condom use is rare and exaggerates ineffectiveness.

** NSES includes pornography in its definition of “sexually explicit material”.

*** Exaggerates ineffectiveness of risk reduction compared with risk avoidance.

[a] Medical Institute for Sexual Heath K-12 Standards for Optimal Sexual Development.

[b] The National Sex Education Standards.

[c] Adverse childhood experiences.

[d] Acquired immune deficiency syndrome.

[e] Human immunodeficiency virus.

[f] Long-acting reversible contraception.

[g] Post-exposure prophylaxis.

[h] Pre-exposure prophylaxis.

[i] Sexually transmitted diseases.

[j] Sexually transmitted infections.

care should be addressed in sex education or about adolescents’ legal rights to counseling, diagnosis, and treatment, despite coming from a self-identified medical group. M-SOSD learning objectives briefly mention vaccines and medications to prevent sexually transmitted infections but without endorsing these and instead focusing on parental permission.

While many topics are missing or incomplete, other topics are misrepresented or simply inaccurate (Table 2). Marriage and abstinence until marriage are portrayed as panaceas to healthy sexuality and are described as the expected goal for adolescent relationship building. This is inconsistent with research on marriage and adolescent sexual behaviors. The revised M-SOSD

Table 2
Examples of medically inaccurate information in the Medical Institute for Sexual Heath (MISH) K-12 Standards for Optimal Sexual Development (M-SOSD)

Topic	Quote from MISH standards	Evidence disproving claim
Abstinence	4.B.1. Explain how avoiding sexual activity is the only 100% effective way to avoid teen pregnancy.	Yes, but extensive research on adolescent sexual behavior suggests that abstinence intentions often fail. Likewise, abstinence-only-until-marriage programs are ineffective in delaying the age of sexual intercourse
Cognitive capacity	1.B.3. Cognitive maturity is not fully reached until the late 20s; therefore, guidance from parents, family members, or other trusted adults is beneficial and should be sought for healthy decision-making.	Research on cognitive capacity suggests adolescent cognitive capacity matures in early adolescence. The development of judgment takes longer. Adolescents can make wise choices when guided by teachers and clinicians who understand, respect, and nurture young people's decision-making capacities.
Conception	3.B.2 Define fertilization as the initiation of reproduction by the joining of a sperm and an egg, which results in the complete and distinct genetic profile of a unique individual.	Approximately 30% of fertilized eggs never implant. Most medical groups believe that conception begins at implantation [19].
Marriage as a panacea	2.D.7. Making healthy choices before marriage, including avoiding sexual activity, can strengthen fidelity in marriage.	Marriage is not a panacea. Half of marriages in the U.S. end in divorce. The vast majority of Americans initiate sex before marrying.
Sexual behavior	3.C.9. Summarize research on the physical and emotional benefits of avoiding nonmarital sexual activity.	Nonmarital consensual sex between adolescents does not cause emotional damage. Psychological harm related to adolescent sexual activity most likely occurs in coercive and nonconsensual experiences [4].
	4.A. Avoiding sexual risks: Sexual activity outside of marriage can have harmful physical and emotional consequences.	As the age of marriage has increased over the past several decades, marriage is no longer a realistic or relevant marker for the start of healthy sexual activity [4].
		While the median age at first intercourse for women is currently 17.8 years, the median age at first marriage is 26.5 years (a gap of 8.7 years); for men, the gap between the median age at first sex (18.1 years) and first marriage (29.8 years) is 11.7 years [4]. Only a small percentage of young people wait until marriage to have their first intercourse. In contrast, among women born in the 1940s (and turning age 15 years between 1955 and 1964), the interval between first intercourse and first marriage was between 1 and 1.5 years.
Success sequence	4.A.4. Describe the concept of the "success sequence" and how avoiding early sexual activity has the potential to protect against negative life outcomes, including maternal and child poverty.	The success sequence ignores social determinants of health, such as racial inequity, intergenerational poverty, and geographic segregation, that influence education, employment, and relationship opportunities

retain an erroneous belief that premarital and extramarital sex is dangerous to the adolescent's physical and mental health; the Society for Adolescent Health and Medicine has reviewed the research on this topic and specifically disagrees [4]. The M-SOSD also recycle old half-truths like "avoiding sexual activity is the only 100% effective way to avoid teen pregnancy". The M-SOSD say little about adolescent cognitive capacity, but include a wildly inaccurate statement that "cognitive maturity is not fully reached until the late 20s". Research on cognitive development suggests that cognitive capacity and young people's ability to participate in guided decision-making develop in early adolescence [20,21]. Adolescents can and do make wise choices when guided by teachers and clinicians who understand, respect, and nurture young people's decision-making capacities.

The new M-SOSD are incomplete and deeply flawed. Key science is ignored or misrepresented. On careful examination, the M-SOSD appear to be a justification for sex education based on abstinence-only-until-marriage beliefs, not science. Every adolescent has a right to complete and accurate information about human sexuality, as intrinsic to the right to health. School-based sexuality education is essential to that basic human right. States and local communities aiming to improve adolescent sexual and reproductive health and looking for national standards on sex education should adopt the NSES.

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