

Sexual Health in Undergraduate Medical Education: Existing and Future Needs and Platforms



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ABSTRACT

Introduction: This article explores the evolution and current delivery of undergraduate medical education in human sexuality.

Aim: To make recommendations regarding future educational needs, principles of curricular development, and how the International Society for Sexual Medicine (ISSM) should address the need to enhance and promote human sexuality education around the world.

Methods: The existing literature was reviewed for sexuality education, curriculum development, learning strategies, educational formats, evaluation of programs, evaluation of students, and faculty development.

Main Outcome Measures: The prevailing theme of most publications in this vein is that sexuality education in undergraduate medical education is currently not adequate to prepare students for future practice.

Results: We identified components of the principles of attitudes, knowledge, and skills that should be contained in a comprehensive curriculum for undergraduate medical education in human sexuality. Management of sexual dysfunction; lesbian, gay, bisexual, and transgender health care; sexuality across genders and lifespan; understanding of non-normative sexual practices; sexually transmitted infections and HIV, contraception; abortion; sexual coercion and violence; and legal aspects were identified as topics meriting particular attention.

Conclusion: Curricula should be integrated throughout medical school and based on principles of adult learning. Methods of teaching should be multimodal and evaluations of student performance are critical. To realize much of what needs to be done, faculty development is critical. Thus, the ISSM can play a key role in the provision and dissemination of learning opportunities and materials, it can promote educational programs around the world, and it can articulate a universal curriculum with modules that can be adopted. The ISSM can create chapters, review documents, slide decks, small group and roleplay topics, and video-recorded materials and make all this material easily available. An expert consensus conference would be needed to realize these recommendations and fulfill them.

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Key Words: Sexuality Education; Sexual Health; Human Sexuality; Undergraduate Medical Education

INTRODUCTION

The past several decades have seen an exponential expansion of the role that physicians are expected to play in managing issues in human sexuality. This development is due to a multitude of factors, including advances in contraception and family planning,

public health crises such as HIV, AIDS, and sexually transmitted infections (STIs), novel treatments for sexual concerns, and increasing (albeit incomplete) acceptance of discussions about sexuality in public discourse.¹ At the same time, the role of mental health professionals in sexuality education and the management of sexual concerns in patients has continued to be of great importance. It is clear that contemporary physicians, mental health experts, and other health care providers are expected to be knowledgeable and capable of conversing fluently with patients on a wide range of topics related to human sexuality.²

Although the recommendations of this document are meant to be broadly applicable to all health care and mental health providers, this article focuses on undergraduate medical education. It is likely that many of the present recommendations will be applicable to other disciplines.

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This article explores the evolution and current delivery of undergraduate medical education. Understandably, the amount of biomedical “evidence” relating to this is limited; hence, this description is largely qualitative and descriptive. It is our hope that this article will present a “snapshot” of the current state of affairs in undergraduate medical education and actionable recommendations to meet future educational needs.

BACKGROUND

Sexuality is a lifelong human experience that is influenced by biology, psychology, and social factors (ie, the biopsychosocial model).¹ Patients want their physicians to be knowledgeable and open about sexuality and willing to discuss sexual health concerns and sexual development.^{1,3,4} Sexuality is a critically important topic for physicians who deal with issues pertaining to reproduction and mental health (eg, obstetricians and gynecologists, urologists, and psychiatrists).¹ Primary care physicians (eg, family practitioners, internists, and pediatricians) also play a critical role as the point of first contact for most patients; many sexuality issues can be addressed in the primary care setting and, hence, a broad understanding of human sexuality is essential for these providers. Physicians in other fields might encounter sexuality issues less commonly in their practices. However, given the numerous biopsychosocial influences on human sexuality, nearly every sort of health care provider will encounter patients who have issues or concerns about sexuality.⁵ These concerns can stem from health consequences of sexual activities, negative sexual side effects of various health conditions, and/or negative sexual side effects of treatments.⁶ Therefore, it is essential that all medical undergraduates, regardless of future area of specialization, be well versed in the fundamentals of human sexuality. Because expectations are high, education of medical undergraduates in sexuality is of critical importance for the medical profession and for society.

Students enrolling in medical undergraduate training are a heterogeneous group. In general, students who are introverted and/or have lower self-esteem could experience difficulty addressing sensitive sexual issues with patients.⁷ The medical undergraduate body also is tremendously diverse in terms of sex, sexual orientation, sexual experience, cultural mores, and religious beliefs.^{8–12} These variations can influence how individual students perceive the importance of sexuality in the medical curriculum.^{9,13} Several studies have suggested that students with conservative political ideologies and/or deeply held religious convictions are more likely to report low knowledge and more negative attitudes toward sexuality.¹⁴ Students with limited sexual experience and/or social anxiety also are more likely to report discomfort in addressing sexuality in the clinical context.^{7,9,15} In contrast, some studies have suggested that religious affiliation is predictive of greater attention to safer sex counseling.¹⁰

The cultural milieu of a given medical school also will have profound effects on how sexuality is viewed by the student body

and likely by their teachers; religious and/or cultural traditions in the larger society surrounding a medical school will influence how many medical undergraduates view sexuality and indeed can influence how the topic can be legally taught.^{16,17} Clearly, the perceived importance of (and difficulty in broaching) various aspects of clinical sexuality will vary markedly within a medical school student body.

It is not the purpose of medical education to change a person’s deeply held convictions, nor is it the purpose to condone or condemn any particular sexual behaviors. Similarly, regional variations in cultural and religious views on sexuality should be respected as long as they are fundamentally protective and supportive of human rights.^{1,17} However, it is essential that all medical school graduates receive adequate training to enable them to care for the wide range of patients they will see in their clinical practice. Training in sexuality issues is strongly correlated to the expressed comfort in addressing sexuality with patients.^{9,11,13,18,19} It has been a longstanding concern that students who experience the most discomfort when addressing sex also are the least likely to supplement their education in sexuality during schooling unless such course work is made mandatory.^{20,21} Therefore, it is essential that core sexuality education be made a mandatory requirement for aspiring clinicians.^{9,22}

A critical component of sexuality education is the recognition of one’s own feelings and potential for conscious and unconscious biases. It has been recognized for decades that physicians’ attitudes and beliefs on sexuality exert a profound and important influence on the efficacy of providing sexual health information.^{23–25} Even students with negative attitudes toward some aspects of sexuality have reported increased confidence in caring for patients in practice after directed education.¹¹ Students who plan to enter fields that do not pertain directly to sexuality should also be aware of their own beliefs and biases to prevent these issues from interfering with appropriate care of the patient.

CURRENT STATE OF MEDICAL UNDERGRADUATE SEXUALITY EDUCATION

The quality and scope of material on sexuality in medical school curricula have fluctuated markedly over the years. Before the widespread promulgation of highly effective medical contraceptives and effective treatment options for sexual dysfunction, many medical educators did not believe that sexuality was an appropriate topic for inclusion in medical school curricula. In the mid-20th century, just three medical schools in the United States featured content on sexuality.²⁶ With changes in social mores and breakthroughs in medical contraception, there was an increasing push by medical students for education on issues of human sexuality.²⁷ This interest peaked in the 1970s with the sexual revolution; a 1974 survey indicated that 95% of 112 medical schools in the United States included curricula on human sexuality.²⁸ A similar push for increased sexuality education occurred in British medical schools.^{29–31}

Unfortunately, there has recently been a decrease in sexuality education in medical schools despite the fact that a comprehensive education in sexuality is more critical for medical students. The most contemporary data on sexuality education in the United States are from a 2003 survey of curriculum directors at North American medical schools. In this study, just more than half the responding institutions reported 3 to 10 hours of instruction on sexuality, with another third reporting more than 11 hours of curricular content on sex. In slightly more than 80% of responding schools, sexuality lectures were a required component of the curriculum. There was tremendous heterogeneity among schools; two schools reported no content explicitly related to sexual function, whereas others had intensive programs such as 4-day retreats dedicated to the discussion of sexuality issues.³²

A more recent study found that of 92 responding institutions (of 122 U.S. medical schools), just slightly more than half (55%) had a formal sexual health curriculum identified as such. In the vast majority of these schools (92%), the curriculum had been developed internally.³³ A 2003 study in the United Kingdom found that 17 of 22 medical schools taught skills for taking a sexual history but that student competency in sexual health interview was formally assessed in just 6. In this same study, it was reported that these 22 U.K. medical schools incorporated a median of 5 hours of teaching on genitourinary medicine and a mean of 1.8 hours of teaching on taking a sexual history.³⁴

A significant limitation of the existing data on undergraduate medical education is the focus on Western countries; there are relatively scant publications on medical education in other regions of the world.³⁵ A worldwide survey found that up to 30% of medical schools globally have no sexual health curriculum. An additional 50% have less than 10 hours, with a common focus being reproductive biology.¹⁶ A 2014 study of Chinese third-year medical and nursing students reported relatively high rates of conservative attitudes toward sex and discomfort addressing sexuality with “strangers.”³⁶ Whether this translates to difficulty addressing sexuality in patients is unclear but is a reasonable supposition.

There is no universal standard for sexuality education in medical school and this fact indubitably contributes to the heterogeneous (and in many places incomplete) status of undergraduate medical education in sexuality.³⁷ The prevailing theme of most publications in this vein has been that sexuality education in undergraduate medical education is currently not adequate to prepare students for future practice. Most studies reporting on student satisfaction with sexuality-related curricula have reported that no more than 50% are generally satisfied, particularly in the preclinical years of training.^{4,7,9,18,33} There are numerous potential reasons for this generalized dissatisfaction and no single (or simple) solution to address it. However, it is clear that improvements and modifications in existing sexuality curricula are likely to be well received by the global undergraduate medical student body. There is a clear opportunity for organizations dedicated to sexual health to develop modules and curricula that can be used and adapted by faculty at institutions

around the world. Select aspects of sexuality have occasionally been addressed in an integrated fashion by a consensus process among concerned parties (eg, development of the Core Learning Outcomes in Sexual and Reproductive Health by a coalition of British HIV interest groups).⁵

CURRICULUM DEVELOPMENT

The scope of human sexuality is such that no single teaching modality, nor any single discipline, can hope to prepare medical undergraduates adequately for practice.^{19,34} The ideal medical school curriculum would involve input from different specialties, most particularly psychiatry, obstetrics and gynecology, urology, and primary care.^{2,19} Supplementary instruction from non-physicians (eg, sex therapists, psychologists, public health workers, sexologists, etc) adds nuance and important diversity of perspective on human sexuality. Ideally, this curriculum should be coordinated to facilitate broad coverage and diversity of opinions. This is likely best accomplished under the auspices of a single educator champion with a particular interest in human sexuality who can oversee the longitudinal curriculum and ensure that critical content areas are covered in detail.²²

Although there is some disagreement about the extent of the content,²⁷ there is general agreement that sexuality education of medical undergraduates can be divided into three specific areas of attitudes, knowledge, and skills.³⁸ These domains correspond to the three domains of adult learning: affective, cognitive, and psychomotor, respectively.³⁹ Integration and attention to these domains has been shown to produce the most robust results in long-term learning.⁴⁰ A brief synoptic of these three major content areas is presented in Table 1. There is substantial overlap among these categories; sexual health education should embrace development in all three spheres in integrated fashion during training to improve retention and learner performance.⁴⁰

Attitude refers to a student’s perception about the role of human sexuality in patients and in clinical practice.³⁸ This is the most subjective of the three core topic areas of human sexuality education. A key component of this facet of sexuality education is to ensure that students understand the importance of human sexuality to patients; students who take their patient’s sexuality issues seriously will be more likely to discuss it during consultations. As stated earlier, it is not the purpose and should not be the intent of undergraduate sexuality education to institute a particular orthodoxy of sexual mores and beliefs. However, students should objectively recognize (even if they elect to maintain) their personal biases and beliefs about sex to limit interference in the appropriate care of the patient.^{20,23} Attitudes and motivation have been shown to be critical components in adult learning; hence, instilling an attitude of interest in the patient’s sexual well-being is an essential goal.^{41,42}

Knowledge refers to an understanding of the biopsychosocial foundations of human sexuality.³⁸ Clearly, it is essential to have a scientific foundation in biological aspects of human sexuality. In

Table 1. Principle components of an undergraduate curriculum in sexual medicine

Attitudes	Knowledge	Skills
Awareness and reflection on personal beliefs and values toward sex	Biological aspects of human sexual development	Obtaining a sexual history
Understanding how personal beliefs and values can influence perceptions and care of the patient	Psychological aspects of human sexual development	Ability to adapt language and interview approach to address sexuality issues in a diverse ranges of patients
Understanding variations in human sexual expression and identification	Anatomy and physiology of the human sexual response cycle	Comfortable and complete examination of the genitourinary and gynecologic organs
Understanding ethical issues in sex, contraception, and relationships	Human reproduction including normal fertility, infertility, and contraceptive options	Ability to develop an integrated plan for diagnosis and management of patient issues in sexuality
	sexually transmitted infections and safer sex practices	Ability to manage pharmacologically or medically induced sexual dysfunction
	Psychosocial influences on human sexuality and sexual expression	Basic understanding of behavioral therapies for sexual dysfunction
	Sexual dysfunction, including biological, psychological, and social aspects	
	Sexual dysfunction, non-medical, medical, and surgical management	
	Role of medical illnesses and their treatments on sexual expression	
	Sexuality and sexual expression in special populations (eg, extremes of age, disabled persons, non-heterosexuals, etc)	
	Sexual coercion and violence	

general, information on the anatomy and physiology of sexual response, human reproduction and contraception, and STIs are well represented in medical schools. Knowledge also pertains to an understanding of the diversity of human sexual experience (eg, sexual orientation and gender vs sex). These important psychosocial issues germane to human sexual expression receive variable attention in existing medical school curricula; much of this variation could be regional and stem from different sexual mores around the world.³⁸

Skills are the “real-world application” of a student’s knowledge and interpersonal qualities in interacting with patients.³⁸ It is arguably the most important aspect of training because it represents the ability of the student to address and resolve (or refer) sexuality issues appropriately in patients. Although it is the critical real-world application of a medical student’s training, it is founded on attitudes and knowledge and, hence, represents a composite of the prior two aspects of medical student sexuality education.³⁸

No “one-size-fits-all” curriculum in human sexuality exists because any curriculum must be flexible to meet the educational and cultural needs of the students being taught. This applies to regional or even national differences in the perception of human sexuality. However, the scientific fundamentals of human sexual response are universal, albeit subject to modification with new discoveries; hence, these can be included in a universal curriculum template. More subjective issues in sexuality should be

presented based on the best available evidence; in issues of controversy, it is ideal to present factual data only with as little subjective opinion as possible. Ideally, information on sexuality should be incorporated and integrated into existing courses.³⁴ One example of this was reported from the Leicester-Warwick medical school in which sexuality topics were part of an existing course on human diversity.¹¹

A few topical areas merit special consideration because they have traditionally been identified as areas of deficiency in current training programs and/or as particularly challenging issues for practicing physicians.

Management of Sexual Dysfunction

There are numerous treatment modalities for the management of erectile dysfunction in men. A more limited selection of approved treatments is available for the management of other sexual concerns in men and women. Medical school curricula should ensure that graduates feel comfortable discussing management options for sexual dysfunction,⁴ that they are knowledgeable of risk factors for sexual dysfunction in men and women, and that they can provide basic advice on management.^{43–50} This should include knowledge on the potential sexual side effects of prescribed medical treatments and how general health variables (exercise, weight, tobacco use, etc) influence sexual wellness.⁴

Lesbian, Gay, Bisexual, and Transgender Persons

The past several decades have been witness to a marked increase in the acceptance of lesbian, gay, bisexual, and transgendered (LGBT) persons in Western countries. Although the percentage of the population that expresses approval or tolerance of LGBT persons and relationships has increased, issues of sexual orientation and gender identity remain very controversial throughout the world; in many countries, same-sex sexual activity continues to be a crime with potentially serious penalties.⁵¹

Bias against LGBT persons is prevalent but by no means ubiquitous among medical students.⁵² A Hong Kong study reported that medical students were more likely than non-medical university students to harbor negative sentiments about LGBT persons.⁵³ Two studies published in 1999 (one from the United States and the other from New Zealand) reported that a significant minority of medical students held negative opinions about homosexuality.^{14,54} A more contemporary study at a U.S. medical school found that although these medical students were mostly supportive of civil rights for LGBT persons, a significant minority harbored negative views toward certain aspects of gay men and gay male sexual activity.⁵⁵

Education on LGBT issues is considered by many to be a priority in medical education.⁵¹ Education on issues germane to LGBT persons extends beyond issues of sex and gender; LGBT persons have social networks and health risk factors that have been shown to differ substantially from those of the general population.⁵¹ Because these topics extend beyond issues of sex and sexuality, it is important to incorporate curricular material on social issues; this need not be part of the sexuality curriculum but should be coordinated with this aspect of undergraduate medical education.¹⁹ A 2011 study of North American medical schools reported a median of 5 hours of LGBT-focused content during the entire course of the curriculum; 7% and 33% of those surveyed had no LGBT content during the preclinical and clinical years, respectively.⁵⁶ A similar study in South Africa reported that just 10 of 127 respondent schools taught content on LGBT issues.⁵⁷

Conservative political ideology and religious affiliation have been associated with negative feelings toward LGBT persons.¹⁴ Although medical undergraduates need not adhere to any particular orthodoxy regarding their feelings on LGBT persons, medical professionalism dictates that all medical graduates adhere to the central tenants of respect for equality and diversity. Avoiding questions that presume heterosexuality and eliciting information on the patient's sexual orientation or practices are of particular import because data indicate that persons who are open with their health care providers about their sexual orientation have better health outcomes.⁵⁸ Providers should, at a minimum, provide basic evaluation and advice and institute appropriate referral if they cannot provide optimal care for the LGBT patient.

Addressing Sexuality With Patients of Opposite Sex

In general, students are more likely to report feeling more comfortable when addressing sexuality with a person of the same sex.^{15,18} Education on sexuality should incorporate training on how to relate to persons of the other sex and the potential for sexual attraction between patient and physician. Such responses are predictable and normal; they should be explicitly addressed and coping skills should be taught.

Sexuality at the Extremes of Age

Several studies have indicated that medical students are more likely to report discomfort when addressing sexuality with adolescents and with the very elderly.³³ This discomfort can stem in large part from attitudes toward the appropriateness of sexual activity in people at these extremes of age. Despite this discomfort, these two populations often have a great need for sexual health information. Adolescents need information on safer sex, decision making, reproduction and contraception, and establishing boundaries about what is and is not acceptable for them based on maturity and beliefs.¹⁹ Older adults are more likely to present difficulties with sexual functioning.⁵⁹ The past few decades have seen a marked increase in the rate of STIs in elderly persons,⁶⁰ which could reflect the increasing availability of effective treatments for sexual concerns and a general lack of awareness about safer sex practices in these older persons.

Non-Normative Sexual Practices

For many years, coital intercourse between a monogamous man and woman has been deemed the only appropriate form of sexual expression in most parts of the world. It remains the only socially acceptable form of sexual expression in many regions. Some societies and religious authorities view premarital sexual activity as inappropriate, although it is common. In Western nations, oral sex was considered by many as a deviant practice until relatively recently. Contemporary data have indicated that most sexually active adults in Western countries have received and performed oral sex, calling into question the designation of deviant. Although less frequently performed, experience with anal sex has been reported by almost a third of respondents in recent studies.^{61,62} Other sexual practices such as consensual non-monogamy; bondage, domination, and sadomasochism; and fetishism are less common but by no means rare.^{63,64}

Similar to the care of LGBT persons, all physicians should have at least a passing familiarity with the diversity of human sexual expression. This training need not be exhaustive, but there should be the confidence to ask for clarification about specifics of a patient's sexual activities when such knowledge is important for the patient's care.^{19,65,66} Advice on strategies to decrease harm during non-normative sexual practices should be unbiased and objective. If the provider's ethical or moral beliefs do not allow for such counseling, then an appropriate referral should be made.

Sexually Transmitted Infections and HIV

Diagnosis and management of STIs are critical public health concerns.⁶⁷ Most medical training programs have curricula on these topics,⁷ including issues of diagnosis and treatment, strategies to decrease risk, and reporting requirements.⁶⁷ In practice, although students often ask patients basic questions on safer sex practices, some reports have suggested that inquiry on STI history and specific sexual practices is lacking.⁶⁸

The public health importance of STI education has ensured that this topic is generally well covered in most medical schools; a 2008 study reported that more than 90% of surveyed U.S. medical students reported some or extensive training in discussing safer sex with patients. Despite this finding, almost half the clinical students reported that they were only “somewhat” confident in discussing safer sex with patients and only 17% engaged in this discussion “always.”¹⁰ Most concerning was a finding that up to 21% of senior medical students did not believe that counseling patients on safer sex would be important for future practice; of freshman students in the same study, just 10% answered in the same fashion, implying (albeit not conclusively demonstrating) that attention to safer sex counseling could decrease throughout the course of medical undergraduate education.¹⁰

HIV is highly prevalent in gay men; hence, teaching about HIV must incorporate information on gay men and male same-sex sexual activity. Students with negative attitudes toward homosexuals are more likely to report negative attitudes and discomfort about treating HIV-positive patients and addressing sexuality in general.^{7,69}

Contraception

There are numerous means of contraception with varying degrees of acceptance and efficacy.⁷⁰ The prevention of pregnancy by means other than abstinence is not an acceptable practice according to many religious doctrines. Despite this controversy, contraception is a powerful means for women to engage in sexual activity and have control over if and when they become pregnant. Although women are more directly affected by conception than men, contraception is of import to men who might wish to have intercourse but who do not desire conception. Hence, contraception and family planning are key elements of sexual health that must be addressed in medical education⁷⁰ and curricula should include information on contraceptive options, including abstinence.^{67,71}

Abortion

Abortion is an emotionally charged and very controversial topic. Although opposition to abortion is high in large segments of the population, recent data have indicated that one in five pregnancies worldwide ends in abortion.⁷² Given this high prevalence, it is necessary that medical undergraduates receive some education on abortion. Although students who have strong moral objections to the procedure need not be exposed to it

during their training, they should have at least a passing familiarity with medical issues germane to the practice and ideally on means to prevent unwanted pregnancies by contraception and other safer sex practices.⁶⁷

Sexual Coercion and Violence

A sizable number of women and a smaller number of men report a history of having been coerced or forced into sexual activity that they did not want.¹ Medical undergraduates should be educated on the prevalence of this problem in the general population and trained in ways to recognize those who have been abused. When abuse is identified, the provider should be able to provide referral to appropriate social services to protect the individual and remove that person from harm’s way.¹

Legal Aspects of Sexuality

There is tremendous variation in the legality of various sexual practices around the world. These guidelines cannot hope to convey specific recommendations accurately for each medical school globally, but it is essential that information on the legal status of certain controversial practices (eg, extramarital sexual activity, access to contraception, abortion, same-sex sexual activity, etc) within a given region be discussed with medical students.⁷³ Ideally, this information should be presented in neutral fashion, differentiating legal from ethical and moral considerations.

LEARNING STRATEGIES

In the same way that no single discipline can hope to teach the breadth of human sexuality, no single teaching format can adequately convey the information required for students to become competent providers of sexual health information. Different teaching formats have been used in the past for conveying information on human sexuality.⁴ Most of these have a role to play going forward in the development and improvement of human sexuality curricula and the integration of different teaching modalities (blended learning) is likely to lead to superior overall results.¹¹

The means of instruction on human sexuality cannot occur without consideration of the recent changes in medical education in general. A curriculum of 2 to 3 years of preclinical education followed by 2 to 3 years of clinical experience was standard for most of the 20th century at most medical schools around the world.⁴¹ The explosion of medical knowledge and innovations in technology have led to an increasing emphasis on early clinical exposure, integration of basic and clinical science education, and opportunities for self-directed learning.⁴¹ Furthermore, many experts now suggest that education must incorporate not just care of the patient but also improvement of the patient’s experience, public health advances, and decreasing cost.⁷⁴

The challenge is how to integrate all these considerations into a coherent curriculum. Educators (including sexuality educators)

Table 2. Principles of adult education and potential applications to human sexuality education

Principle of adult education	Example of application in human sexuality education
Adults have perceptions and knowledge that they bring to the educational encounter; adapting to their needs requires inquiry about baseline knowledge	A baseline assessment of attitudes and knowledge on sex should be incorporated into educational programs
Adults make a choice to learn or not learn and are personally accountable	Provide frequent formative feedback on performance; hold learners accountable for demonstrating proficiency
Adults prefer to apply and practice learned newly skills and knowledge promptly	Case-based learning and use of standardized patient's presents immediate use of acquired skills and knowledge on sexuality
Adults learn best when education is integrated with other priorities of their lives	Emphasize the importance of sexuality to patients and the need for medical professionals to be knowledgeable on sexuality issues
Adults learn best when they are engaged emotionally and mentally in the educational process	Provide educational material that is interactive and enjoyable
Adults bring expectations of the teacher to the encounter	Faculty development of sexuality-related knowledge and clinical skills
Adults learn to change and develop new skills and should feel that they have accomplished this after the intervention	Use of standardized patients and real patient encounters for students to test acquired knowledge and gain confidence

are well advised to consider evidence-based practices for adult learning, which emphasize the role of motivation, emotion, and attention.^{40,41} Some principles of adult education (adapted from Mahan and Stein⁴⁰) are presented in Table 2 with suggestions on how they might be relevant to human sexuality education. Because the process of curricular development will represent a substantial time commitment, institutional and organization support for faculty development is essential.^{42,75} A lack of knowledge is frequently cited as the reason that faculty do not address sexuality in education; this is a deficit in need of correction.¹⁹

A willingness to adapt to the learning styles of the current generation of medical students is key to successful outcomes in education.⁷⁶ The “millennial” generation tends to prioritize team-based approaches to solving problems, enjoyment as a key component of learning and work processes, and feedback on performance that is frequent, constructive, and includes positive affirmation of their progress and abilities. Contemporary students generally report better knowledge acquisition when they perceive themselves as active participants and when their preferred learning styles are accommodated.⁷⁷ Although older generations of educators might be skeptical of this approach, these techniques do appear to be effective in reaching the current generation of medical trainees and, hence, should be a priority for development.⁷⁸

It is particularly salient to mention the use of technology in all forms of education; the current generation of medical trainees grew up in a technologically advanced world and respond best to education that uses Web-based and mobile platforms for the conveyance of information.⁷⁸ Electronic media (eg, Web-based modules, Web simulations, and self-assessment tools) are ideally suited toward self-directed learning and permit great flexibility in learner access to information. Web-based materials

also permit interaction between learners.⁴² Of course, educator involvement will be required for the creation of material and discussion of nuances; the teacher will not be replaced by a software program or app. However, the important position of electronic learning media in medical education cannot be overemphasized.

Continuous refinement will be required as the needs and expectations of progressive generations of aspiring physicians (and the tools with which to educate them) continue to evolve over time. Educational interventions should be subjected to the same rigorous evaluation process that students themselves experience.⁷⁹ How sexuality is incorporated and how it is evaluated in this evolving paradigm in education will require careful analysis of each medical school's resources and student body.

EDUCATIONAL FORMATS

A recent review of adult education in medical education has highlighted experiential learning, frequent feedback, teamwork, and variety of educational formats as key elements of highly effective education programs.⁸⁰ This variety of formats and modalities should be integrated into teaching of sexuality in medical school.⁴

Didactic Teaching and Lectures

Lectures are an efficient means of conveying information to a large audience. This has been the favored modality for instruction in most preclinical medical curricula and remains important in many institutions during clinical training. Lectures are intrinsically limited by their (generally) unidirectional interaction between teachers and students and by the teaching qualities of the lecturer. Accordingly, interactive workshops have been deemed superior to didactics in a systematic review of obtaining a

patient's sexual history.² Despite these limitations, lectures will remain an important and efficient means to convey information on the anatomy and physiology of the human sexual response.⁷⁷ They also can be used to teach more controversial or subjective topics, although consideration should be given to incorporating lectures that present different perspectives.

Small Groups and Workshops

This educational format typically centers on case discussions that illustrate important teaching points.⁶ A faculty leader is present but the leader's role is facilitation of discussion rather than didactic lecturing.¹¹ This format is less efficient than large lectures but permits greater interaction between and among faculty and students. For acquisition and honing of skills and discussion of controversial issues, the small group setting offers several essential opportunities in education; case-based learning in this format is generally effective.^{19,80} Small group sessions are generally perceived positively by attendees,^{6,71,77} and a recent meta-analysis has suggested that this modality is highly efficient in improving communication skills in medical students.⁸¹

Panel Discussions

The panel discussion format borrows from the small group and workshop and the didactic formats. Typically, there is discussion of information after a brief presentation by the members of the panel or discussion in small groups.⁸² Panelists can be faculty, outside speakers, or even patients. This format is optimal for the presentation of multidisciplinary management options and controversial issues; indeed, for some students, a panel discussion might be their first exposure to the opinions and perspectives of a patient whose sexual orientation, beliefs, and/or behaviors differ from their own.¹¹ There are data to support a slight but potentially significant influence of attendance at a panel discussion on shaping views on sexuality-related topics such as attitudes toward LGBT persons.^{52,82,83}

Roleplay and Standardized Patients

In this educational format, participants take on a role and act out an improvised clinical encounter. Roleplay can involve a student playing the role of patient and another student (or panel of students) acting as the physician. Faculty members also can play a role in this improvised encounter.³⁴ In the context of sexual health education, this might be an interview with an individual who has a sexual concern, a non-normative sexual identity, or who is dealing with a health consequence of a sexual behavior. Roleplay involves a degree of improvisation and this terminology has been used to refer to similar teaching modalities.⁸⁴

Roleplay allows the student to experiment with different interview styles and approaches in a safe and supportive setting. Evaluation of performance can be conducted by the roleplaying partner or by a third-party observer, although either approach carries some potential for bias. Moreover, there are data to

suggest that simply observing an interview (a form of roleplay) can improve the student's ability to conduct a sexual health interview.¹⁵ Roleplay is a useful and relatively low-cost means to practice interview skills.⁷¹ It is limited in that it requires a fair time investment and use of a protected space for the practice interview. Furthermore, any pre-existing relationships between the student and the person playing the patient can skew the nature of the interaction.

Standardized patients (SPs) are similar to roleplay in that the student conducts a mock clinical interview with an individual acting as a patient seeking care.^{85,86} It is differentiated from roleplay in that the person being interviewed is not a fellow student or faculty member, but rather an actor who is typically compensated for his or her time and effort in this capacity. Although actors are sometimes employed in this role, "real patients" presenting for care from practicing physicians also can choose to become involved in medical student education. In some medical schools, SPs or real patients also can provide practical education on the performance of intimate examinations (eg, genital, rectal, breast) examination. SPs decrease some of the awkwardness of practicing sexual health interviewing skills with fellow students or faculty, although it is likely to be more expensive. Some researchers have used a video recording of the encounter; then, the learner can discuss the performance and areas for improvement with a faculty mentor or other students.⁸⁰ Learners who have received feedback on their performance in sexual health interviewing are more likely to report feeling comfortable addressing sexuality in the clinical context.³³

A systematic review of SP instruction on the intimate examination (primarily from the United States and a few other Western countries) has reported generally favorable short-term results, with trainees reporting less anxiety, better interpersonal skills, and greater technical facility as determined by faculty raters, the SP themselves, and student self-report.⁸⁶ This is consistent with general experiences using SPs for medical education.⁸⁰ SP experiences tend to be highly rated by participants.^{33,87} Despite suggestions of short-term benefit, a lack of long-term follow-up is an acknowledged limitation of most studies on the SP as a teaching modality in sexuality.⁸⁵ The authors of this study have suggested that recruitment of real patients for student education might be best accomplished from members of existing organizations concerned with sexual health (eg, women's health groups, cancer survivorship organizations, and medical professionals).⁸⁶

Frequent Evaluation

It has been recommended that frequent informal tests on material might be effective for providing feedback on areas of deficiency and aid in retention.⁸⁰ In general, it is recommended that assessments be "low stakes" (ie, have minimal influence on ultimate evaluation) and replicate the format that will be used in any final examination. These assessments are "formative" in that they aid learning, and it is essential that feedback be built into

the process. Electronic formats can facilitate the distribution of written assessments and automatic feedback can be built into the programs to provide learners with real-time feedback without the need for direct and immediate faculty evaluation.⁸⁰ Such assessments also can be used in the workplace to assess clinical skills.

Electives and Extracurricular Activities

The medical school curriculum is dense; nevertheless, the sheer scope of knowledge necessary for the understanding and practice of medicine makes even this dense presentation of material a superficial scratching of the surface of the sum of medical knowledge. Many medical schools have instituted supplementary learning opportunities in the form of electives, which can occur during advanced clinical training (eg, final years of medical school) or even during the preclinical years.⁷⁷ Sexual health electives offer the theoretical benefit of permitting students with a particular interest to explore in greater depth than the core medical school curriculum allows. The topics can be about sexuality in general or can explore specific issues (eg, contraception and family planning, sexual orientation and gender identity, and women's health).^{19,77} A particular form of elective that could be highly informative and of benefit to society is peer and community education programs run by medical students.¹⁸ The act of teaching laypersons about sexuality helps to solidify the students' understanding of sexuality and provides an educational service to the community.^{18,88}

Immersion and Desensitization

This form of teaching was promulgated in the 1960s and 1970s. The notion is to expose students to material, often sexually explicit, with the notion of familiarizing them with different sorts of sexual activity. This can include depictions of sexual activity in photographic or video format.³¹ Up to 88% of North American medical schools used explicit films as part of their curriculum by the early 1970s and studies suggested that most participants reported benefit from this part of the curriculum.^{31,89} However, a controlled study reported in 1983 that students who participated in small group workshops that incorporated sexually explicit material did not fare better on the knowledge and attitudes components of a validated scale for sexuality knowledge and attitudes than students who participated in workshops without explicit material.⁹⁰

Use of explicit material is less common in modern medical education, and when it is used, a relative minority of students report that it is beneficial.³³ Indeed, exposure to sexually explicit material without proper context and supervision might lead to worsened prejudice.³⁰ Faculty leadership and empathy are crucial if exposure to explicit content is incorporated into the curriculum.³¹ In more contemporary practice, desensitization is treated as a gradual process in which less sensitive topics are introduced before a discussion of more controversial or potentially embarrassing issues in sexuality.¹¹

EVALUATION OF UNDERGRADUATE HUMAN SEXUALITY EDUCATIONAL PROGRAMS

Accurate assessment of curricular efficacy in sexual health is a challenge for educators.⁹¹ Most studies that have assessed the quality and impact of sexuality education have (to date) focused on short-term self-assessment, whereas some studies have used objective feedback from faculty mentors or patients.^{2,11,13,18,19,69,86} These end points are important measurements of self-efficacy and are easily obtained; however, whether these end points translate into the most meaningful end point (ie, quality of care for patients with sexuality-related issues) is unclear.

A study reported in 2005 indicated that attendance at a workshop on sexuality during preclinical training was not associated with a significant difference in the likelihood of inquiring about sexuality during the clinical years.⁶ This might indicate deficiency of the workshop curriculum, alternative means of skill acquisition in non-attendees, or extinction of planned sexual health inquiry behavior owing to the lack of consistent reinforcement during clinical training.

EVALUATION OF PERFORMANCE OF STUDENTS AFTER EDUCATION IN HUMAN SEXUALITY

It is very difficult to gauge a medical student's clinical performance accurately. Knowledge and judgment can be assessed with standardized testing but higher-order functions such as skills and performance are more difficult to gauge objectively. However, assessment of students is appropriate in human sexuality in which at least minimal standards for competence and familiarity are important for all medical graduates.

Traditionally, quantitative testing has been useful to gauge objective knowledge during the preclinical years of training; whether this translates readily into facility in clinical management of patients is debatable. Evaluations of students on clinical rotations are more nuanced and typically include a discussion of interpersonal skills essential to the practice of medicine. Although all these instructor-based metrics are of indubitable value, the ultimate final end point is patient outcomes and satisfaction.⁸⁰ These metrics are very difficult to measure given concerns about patient privacy and the logistical complexity of enrolling patients in prospective clinical evaluations. However, some studies have managed to include feedback from patients (standardized and real) on learner performance after focused sexuality training experiences.^{15,85,92} Although technically difficult, these studies do provide a compelling degree of evidence.

Given real-world limitations, it is reasonable to continue to rely on standard testing procedures to assess knowledge during the preclinical years. There is great heterogeneity in the breakdown of how students are evaluated during the preclinical years, but it is outside the scope of this article to make recommendations beyond a statement that all the aforementioned facets of human sexuality be taught and assessed.

In most cases, this will involve traditional testing methods (eg, written or computer-based questions with answers provided in different formats). There is some evidence to support the use of open-ended questions, because this permits a more nuanced assessment of the student's perceptions and educational needs as they pertain to sexuality.⁹³ Although open-ended questions require greater commitment from faculty in the time to read and analyze responses, such questions are preferable for the assessment of attitudes and skills.⁹³ Multiple-choice or similar questions in which students choose from pre-presented options are more efficient but less nuanced⁹³; these might be more useful for assessment of knowledge. The committee believes that traditional testing methods are the most viable option for knowledge testing during the preclinical years.

We believe it is important to develop enhanced and nuanced evaluation methods for use during clinical training. Assessments must be based not solely on knowledge but also on skills, specifically the ability to evaluate and manage real-world patients. A simplified numeric grade or rating could be assigned based on student performance during a rotation or clerkship. However, narrative comments are essential because they add perspective and provide feedback that is more meaningful on areas of strength and areas in which improvement is required. Therefore, we strongly recommend that any evaluation method for acquisition of clinical knowledge and skills related to sexuality include narrative comments from faculty supervisors. Objective Structured Clinical Examinations with SPs or real patients are useful for teaching physicians to observe trainees in a clinical encounter and provide feedback.^{34,86} Structured feedback from an observed encounter between student and patient has been shown to exert significant and positive effects on communication skills.⁸¹

Particular mention should be made of patient perceptions of medical student participation in encounters involving sexual health issues. A 2005 study reported that a large proportion of patients expressed discomfort when talking about sexuality with a medical student. Discomfort was more prevalent in female patients asked about hypothetical situations involving male students in the absence of physician supervisors.⁹⁴ Medical educators must walk a fine line between respecting the autonomy of their patients and facilitating the essential learning that is required for medical students to become competent providers in their own right.

Fundamentally, the purpose of medical training is to produce skillful and knowledgeable providers who will carry out their duties according to the highest standards of professionalism. Attitudes are a critical determinant of behavior; this relationship is relevant to medical students and trainees. In the 1960s and 1970s, Lief²¹ developed a novel instrument to gauge attitudes and knowledge on sexual issues. Called the Sexual Knowledge and Attitudes Test, this validated tool was used for several publications in the 1970s. Unfortunately, the instrument is

many decades out of date and there is at the time of this writing no similar validated instrument to gauge medical student attitudes on sexuality. The development of a modern version of such an instrument would be very useful for point assessment of attitudes and knowledge on sexuality.²² Such an instrument also could be used for the prospective assessment of changes in medical student attitudes and knowledge over the course of medical school education or after a focused intervention.

FACULTY DEVELOPMENT

The fundamental importance of educators in championing sexual health education in medical schools underscores the essential role of faculty development. Unfortunately, many educators cite a lack of knowledge and personal discomfort with sexuality as personal barriers to sexual health education.^{19,22} It might be of particular benefit for institutions to conduct internal assessments of their faculty's knowledge on sexuality; this could serve the dual purpose of outlining areas in need of improvement and identifying persons who could serve as "faculty champions." Resources from institutional, governmental, and non-governmental organizations should be allocated to support faculty (financially and logistically) in developing sexual wellness curricula. Key components in effective faculty development programs include experiential learning, feedback, and diversity of instruction modalities.⁷⁵ Modalities useful for student education could be extended for faculty education, ideally in the setting of national and international meetings in which sexual health topics are discussed.^{75,95,96} Continuous evaluation and improvement of the faculty development are essential.⁹⁷

CONCLUSION AND A POTENTIAL ROLE FOR THE INTERNATIONAL SOCIETY FOR SEXUAL MEDICINE

The most direct way to support faculty development is by the provision of learning opportunities and materials to simplify the process of learning how to teach sexuality in medical schools. As a leading international organization dedicated to the promotion of sexual wellness, the International Society for Sexual Medicine (ISSM) is in a unique position of authority to disseminate quality sexuality education curriculum materials and to promote educational programs around the world.

To date, the ISSM has clearly articulated the basic structure and content of sexuality curricula in medical education.⁹¹ The next step would be to create a quality modular curriculum that could be adapted in whole or in part by medical educators anywhere.

This core curriculum:

- Would address the three central areas of knowledge, attitudes, and skills regarding sexuality³⁸

- Would include content relevant to the special populations and issues in sexuality addressed earlier
- Could involve written chapters and review documents designed for educators and learners, computer-based slide decks for use in didactic and small group sessions, suggestions for small group and roleplay topics with adjunctive materials for discussion, and video-recorded materials that demonstrate various aspects of patient evaluation in sexual medicine
- Would need to be adaptable and modular so that it could be used as a primary means of education or a supplement to existing curricula anywhere on the globe
- Would need to be flexible so that it could be adapted to regional or local norms regarding sexuality

Implementation of adjunctive materials or modifications to enhance efficacy in particular regions could be tasked to regional experts or affiliate societies of the ISSM. This would likely be best accomplished by the creation of standing committees that would adapt the global ISSM curricula to their particular region's mores and educational needs. It is essential that these regional standing committees keep in mind issues of fundamental human rights pertaining to sexuality as articulated by the World Health Organization.^{1,17}

The creation of a curriculum as proposed would represent a tremendous investment of time and financial resources. A dedicated consensus conference enlisting experts in multiple disciplines from around the world is essential to set goals and delegate the actual work of producing content. As articulated earlier in this article, a principal limitation in sexuality education thus far has been a lack of protected time and resources for faculty development. Given these very real constraints, it would behoove the ISSM (and any partnering organizations) to subsidize faculty for the time spent developing this important curricular innovation. This support carries the dual purpose of ensuring commitment on the part of participants and adequate time for faculty experts to produce materials of the highest quality. Although the investment might be substantial, the potential return is enormous in educational enhancement for students and positioning of the ISSM and its partners as pre-eminent global advocate(s) for sexual wellness.

The advancement of sexuality education in medical schools will fundamentally rely on a sound and viable implementation plan. Regardless of the quality of any curriculum generated, if it is not accessible and useful for educators, then it will be of little utility if not put into practice. Hence, it is essential that agencies and institutions with an interest in sexual wellness take steps to make educational materials available globally. Content could be hosted on the ISSM Web site and be freely downloadable to ISSM members. The content also could be advertised and made available to non-ISSM members with an interest in sexuality education. Promulgation of a high-quality and freely available curriculum outside the bounds of the society would serve to position the ISSM as a leader in global sexuality education but issues of access and intellectual property would need to be carefully considered.

The challenges are substantial but the potential for positive impact is tremendous. The ISSM has the potential to markedly enhance undergraduate medical school education in sexuality by a series of avenues articulated in this article. Despite the sizable investment required in time and resources, the potential global benefit is enormous.

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