

## 2019 Gap Analysis and Educational Needs

Developed by the ASRM Continuing Medical Education Committee

<b>TOPIC</b>	<b>GAP(S) IDENTIFIED</b>	<b>EDUCATIONAL NEED(S)</b>
<b>Access to care</b>	Insurance coverage for PGT-A and genetic carrier screening	Determine best practices and cost-effective care to gain coverage for implementation of new technologies.
	Communication between clinicians and insurance companies	Strategies to advocate for expansion of services.
	Insurance carriers and community initiatives which can limit access to care	Education regarding eliminating barriers to care including social/cultural and financial limitations
<b>Andrology / Male Infertility</b>	Young men undergoing cytotoxic chemotherapy are clearly at risk	Oncofertility education: Consultation regarding long-term fertility preservation strategies is a message that needs to be conveyed prior to chemotherapeutic treatment
	Role of advanced sperm testing in male fertility practice	The scientific data, clinical utility, and cost of testing such as DNA fragmentation
	Males present with low testosterone levels and symptoms	Endocrine issues: Replacement therapies is harmful to spermatogenesis, yet this is a common clinical occurrence. Implementation strategies that do not compromise spermatogenesis
	Interactions between reproductive urologists and REIs	Male fertility from viewpoints of REI and Urologist
	When to use ejaculated sperm or testicular sperm for IVF.	Evidence based education on using testicular vs. ejaculated sperm in the absence of azoospermia for IVF
	Sperm retrieval techniques	Instruction on best practices both within the OR and for post-op recovery with minimization of complications
	Physiologically selected intracytoplasmic sperm injection (PICSI) versus conventional intracytoplasmic sperm injection (ICSI)	Analysis of patient outcomes comparing PICSI and ICSI.
	Status of PIEZO ICSI in ART	Analysis of patient outcomes using PIEZO ICSI in ART
<b>ART</b>	Optimizing patient outcomes in ART	Evidence based session on protocols and methods by which to improve outcomes
	Communication between clinicians and the laboratory	Educate on clinical regimens and laboratory strategies treating various types of patients
	Embryo transfer optimization	Discuss technique and how to improve difficult embryo transfers; simulator use with hands on course
	Maximum age for both men and women for ART treatment of infertility	Develop practice guidelines for the maximum age for men and women
	Role of progesterone to determine fresh or frozen embryo transfers	Education on the value of progesterone to determine use of fresh or frozen embryo transfers.

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	Natural or mild stimulation protocols for older or poor prognosis patients	Develop natural and or mild stimulation protocols for poor responders and will they improve egg quality
	Natural cycle for frozen embryo transfer	Education on the usefulness of a natural cycle for frozen embryo transfer
	Endometrial testing after failed euploid frozen embryo transfer	Discussion about the clinical data on the effectiveness of endometrial testing after failed euploid frozen embryo transfer
	Cultural and religious diversity of ART patients	Education on how ART is received in patients of different cultures and religious backgrounds
<b>ART Laboratory</b>	Choice of incubators, sequential versus global media	Educate on specifications and trade offs of different types of incubators and blastocyst culture conditions
	Ovarian stimulation protocols and ART lab personnel	Exchange between REs and lab personnel to foster better understanding of how the egg gets to the lab
	Lab design, technology adoption, and implementation	Discuss best practices choosing new laboratory technologies and revising current protocols. Education on how to design a laboratory and identify key criteria to assess potential lab purchases
	Embryo biopsy techniques	Education and simulation on embryo biopsy techniques
	Optimization of the laboratory environment	Review of all available solutions to optimize laboratory operations. Air quality, toxicity detection, external and internal environment of ART laboratory
	Risk and disaster management	Review history of disasters, public relations management education, laboratory safety, monitoring and alarm systems, contingency plans, and patient material rescue.
	Training new generations of clinical laboratory technologists	Discuss current status, paradigm shift, available educational tools, and new learning technologies and trends
	Laboratory quality management	Educate on QC/QA, key performance indicators, staff evaluation, and how to implement these into the lab in a practical way without overdoing it
	Embryo quality assessment	Examine tools, other than morphology and PGT, to reduce number of embryos cryopreserved and genetically tested.
	Embryo disposition	Discuss with a multidisciplinary team, psychologists, embryologists, REIs, genetic counselors, and legal experts, on embryo disposition research versus destroying. Liability if patient changes their mind post consent.

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	Disposition of PGT abnormal embryos for practice personnel.	Session with clinicians, infertility psychologists, experts in well-being and job-related stress, ethical experts, and genetic counselors. Program interpretation of normal, abnormal, mosaic and reporting.
	Embryo abandonment and disposition.	Review guidelines for disposition and discuss best practices for handling cryopreserved embryos
	Humid versus dry incubators for embryo culture	Discuss best practices and change depending on laboratory protocols
<b>Biology of Reproduction</b>	Lack of knowledge of the cellular pathways of early human development	Educate on the mitochondrial effects during preconception, conception, and gestation
	Lack of understanding of the early human development of the cellular pathways	Identify the clinical implications of the cellular pathways and educate on how this knowledge transfers to patient care
	Uterine factors important for fertility	Session on the uterine component of reproduction and ways in which to improve implantation
	Extended embryo culture	Review cutting edge research and experimental technologies in culturing embryos beyond Day 7, as well as technical and ethical concerns.
	Emerging technology in embryo implantation and uterine receptivity	Applicable and experimental methods in improving embryo implantation and embryo-uterine interaction
	Lack of knowledge of inner cell mass (ICM) and trophectoderm (TE)	Explain mechanisms of differentiated ICM and TE lineages, to explore technologies, to examine and potentially repair defects during embryo implantation and the earliest stage of pregnancy initiation. Present research information.
	Impact of ART on the epigenetics of the embryo and implications for long term offspring health	Current state of the art, hear from experts doing cutting edge research
	Lack of knowledge of early trophoblast differentiation and implantation	Lecture from scientists reviewing our current knowledge in this area, and emerging concepts
<b>Coding</b>	Billing and coding	Session on understanding billing codes and how to apply them in all aspects of an REI practice
<b>Complementary/ Alternative Medicine</b>	Lifestyle and skill training	Course on improving reproductive health in the transition from adolescence to adulthood
	Nutrition and its impact on fertility	Integrated course examining nutrition and its effect on fertility potential
<b>Cost Effectiveness</b>	PGT-A cost is a barrier to uptake	Discuss cost effectiveness of PGT-A

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	Cost of IVF versus best practices	Educate on financial barriers practices face when implementing best practice solutions. Evidence based best practices to overcome barriers.
<b>Contraception</b>	Contraception in medically complex patients	Contraception in medically complex patients
<b>Counseling</b>	Lack of knowledge on how to counsel couples on mosaic embryos	Develop guidelines for transfer of mosaic embryos to improve counseling to patients
	Counsel regarding the use of mosaic embryos	Education on the outcomes of mosaic embryos and forum for discussion on how to counsel patients.
	Stress Management	Counseling techniques for stress management to deal with disposition of embryos ethically, morally, and psychologically.
<b>Embryo Donation</b>	Implementation, embryo selection, and differences from egg donation	Educate on the clinical (genetic), legal, psychological, and practical considerations of embryo donation.
<b>Endometriosis</b>	Management options for endometriosis beyond standard therapy.	Session on newer medical therapies and surgical treatments for endometriosis. Pros/cons of both treatments
<b>Ethics/ Legal</b>	Knowledge around consent forms and HIPAA	Expert discussion on practice patterns with HIPAA and consenting in the setting of an REI patient population
	Ethical decision making and policy making	Discuss strategies to address ethical decisions and conflict with policies
	Incorporation of clinical decision-making in ethically difficult cases	Case-based discussions of ethically difficult cases and effects on clinical decision-making (e.g., posthumous reproduction, third party, embryo disposition)
	Ethical issues with the use of CRISPR	Education on the ethical issues associated with the use of CRISPR
<b>Environmental</b>	Nutritional supplements' impact on male factor infertility	Education on up to date evidence for nutritional supplements in the treatment of infertility
<b>Fertility Preservation</b>	Fertility preservation options for cancer and elective preservation due to age	Education on fertility preservation techniques and education to expand beyond oncofertiity in regard to elective fertility preservation
	Fertility preservation and stem cells	Discuss prospects for stem cells pro/cons in fertility preservation
	Safety and effectiveness of therapeutics and devices for reproductive dysfunction	Evidence based session on therapeutics and devices such as infertility, vaginal incubators for in vitro fertilization and fertility preservation
<b>Leiomyomas</b>	Knowledge of uterine leiomyomas	Up to date course on current thoughts and counseling re: leiomyomas management
<b>Genetics/PGT</b>	Lack of knowledge of the genetic and environmental impact on gametes,	Discussions about the genetic and environmental impact on each

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	embryos, childhood, adolescence, and adulthood?	developmental stage from gamete to adulthood.
	Molecular and genetic basis of reproductive disorders	Education on the molecular and genetic origin of hypogonadism, PCOS, and other reproductive disorders
	Following miscarriage, whether and how to test POC (products of conception)	Education on platforms for testing products of conception
	PGT and carrier screening in women's health care	Evidence based session on PGT and how genetic carrier screening can be included in women's health care
	Use of expanded carrier screening	Balancing the benefits and costs of expanded carrier screening for the couple undergoing IVF
	Lack of knowledge of CRISPR	Update on evolution of CRISPR. What can it be used for and when is it not useful.
	Communication on PGT-A mosaic embryos	Discuss with researchers and clinicians on basic science and it's practical implications of mosaicism
	PGT and age	Review clinical data to determine what age is benefiting from PGT
<b>Infertility</b>	Carrier screening preconception	Education on carrier screening and implementation in infertility patients prior to pregnancy
	Minimal stimulation effectiveness	Review of up-to-date evidence of minimal stimulation, how and for which population
	Use of advanced testing and its role in diagnosing and treating recurrent implantation failure	Counseling on cost-effective use of genetic tests in recurrent implantation failure
	Lifestyle and fertility	Education on different stimulation and frozen embryo transfer protocols for obese patients and discuss ways to increase effectiveness of lifestyle change recommendations
<b>Lesbian, Gay, Bisexual, and Transgender</b>	Transgender patient care	Optimizing care of transgender patient, components and communication techniques on how to care for this population. Data on psychosocial and medical management of transgender patients.
	Lack of knowledge on assisting single male and gay male couples through the fertility journey	Management of the needs and challenges among single male and gay male couples
	Comprehensive care of transgender youth	Session on the special needs of transgender youth, particularly in regard to helping patients deal with parents, peers and society
	Care of the diverse family	Education on the issues associated with care of the diverse family and options for family building in LGBTQ patients
<b>Menopause/Ovarian</b>	Management of fertility with primary ovarian insufficiency	Update on the management of fertility with primary ovarian insufficiency

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<b>Insufficiency</b>		
<b>PCOS/ Androgen Excess</b>	Nutrition, alternative therapy, and weight loss counseling for PCOS patients	Multidisciplinary course on PCOS
	Individualized, multidisciplinary treatment plans to improve future fertility	Education regarding what resources are needed and how to implement a multidisciplinary program for patients with PCOS, focused on long-term health and reproductive outcomes
<b>Mental Health</b>	Mental health and support for PCOS patients	Lifestyle modification tips for PCOS
	Psychiatric needs of REI patients	Discussion on screening for psychiatric disease with evidence and application of how to engage in psychoeducation
	Risks associated with advanced age parenting	Multidisciplinary approach to counseling advanced age parents including the biology, psychosocial, managing expectations and perspectives on aging
	Interactions between medical and psychotherapy and reproductive outcomes for both males and females	Data on management of psychiatric disease in fertility treatment and pregnancy.
	Lack of understanding of psychosocial testing for gamete donors	Explain how and when to do more advanced psychosocial testing for third party reproduction
	Assessment of the psychosocial factors that affect evaluation and treatment of patients hoping to become parents	Education on how psychosocial factors affect the evaluation and decision for infertility treatment
	Effects of psychotropic medications on treatment	Education regarding known effects of psychotropic medications on infertility treatment and early pregnancy
	Strategies for patients with psychiatric disorders	Education regarding how psychiatric disorders affect the provider-patient relationship
<b>Practice/ Risk Management/ Team-based Care</b>	Lack of knowledge of setting up office hysteroscopy	Discuss how to develop a practice for office procedures
	Team building within the practice	Exchange of ideas regarding creative ways to foster better interoffice relations
	Effective hiring practices, how to best establish metrics for employee assessment of happiness	Course on best hiring/HR practices
	Best practices for patient retention and evaluation of practice dynamics	Session on best practices for patient retention and evaluation of office dynamics
	Management strategies for an engaged staff, efficient practice operations, and improved customer service	Workshop on management techniques that improve staff engagement and patient-centered approach to care
	Incorporating telemedicine into practice	Education regarding ways to use telemedicine in the practice of REI

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	Consent, standard operating procedures and policy update and optimization process	Education on how to make sure a practice's consents, SOPs and policies are current and efficient
	Use of proper coding to increase financial productivity	Education centered on best coding practices and ways to implement them practice-wide
	Difficulty incorporating staff of different generations into one highly functional team	Education regarding the generational differences and positive relationship building methods between different generations.
<b>Pregnancy/ Pregnancy Loss</b>	Optimal reproductive care of women	Overview of trophoblast and placenta in pregnancy and the role they play in lifelong wellness
	Role of oocyte health in recurrent pregnancy loss	Multi-disciplinary targeted session on recurrent pregnancy loss
	Lifestyle modifications and its potential impact on recurrent pregnancy loss	Evidenced based information on the impact of lifestyle modifications on recurrent pregnancy loss
	Genetic testing in couples with recurrent pregnancy loss	Discussion of the use and cost of genetic testing in couples with recurrent pregnancy loss and does it impact outcomes
	Lack of knowledge of alternative remedies to treat recurrent implantation failure	Evidence based guidelines on alternative therapies and whether or not they help with recurrent implantation failure
<b>Reproductive Surgery</b>	Flexible hysteroscopy for evaluation of infertile female	Equipment considerations in office hysteroscopy, financial reimbursement as justification for equipment
	Minimally invasive reproductive surgery technique/skill set	Hands-on course for laparoscopy and hysteroscopy
	Whether cesarean section scar separations need to be treated	Surgical approaches to cesarean section scar separation (isthmocele)
	Effect of adenomyosis on fertility	Overview of adenomyosis and its relationship to the biology of reproduction with a focus on current techniques for treatment
	Surgical management of Mullerian anomalies	Review technique and education on characterization of anomalies
	Surgical management of abnormal anatomy to improve outcomes	Discussion on how to manage hydrosalpinges, endometriosis, septate uterus to improve outcomes
	IVF versus reproductive surgery	Discussion on which process to use IVF or reproductive surgery, when and how they integrate and augment each other.
<b>Stem Cells</b>	Status of utilizing artificial gametes	Session on current progress, limitations, and potential timeline for utilization of artificial gametes. Emerging concepts of use of stem cells
	Therapeutic application of stem cells in reproduction	Status of various types of stem cells, major development of research groups worldwide, and promising directions on the horizon for use of stem cells in reproduction

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<b>Technology</b>	Status of endometrial receptivity assay	Discuss testing of the endometrium and new technology developments regarding endometrial receptivity
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