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How old is too old? Challenges faced by clinicians concerning age cutoffs for patients undergoing in vitro fertilization

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Objective: To study how IVF providers view and make decisions concerning age cutoffs and futility (e.g., whether they establish clear cutoffs, and if so, where).
Design: In-depth interviews of approximately 1 hour.
Setting: Not applicable.
Patient(s): Interviewees: 27 ART providers (17 physicians, 10 other providers) and 10 patients.
Intervention(s): Not applicable.
Main Outcome Measure(s): Attitudes and decisions concerning age cutoffs were assessed.
Result(s): Providers face several challenges and dilemmas concerning both the content and the process of decision-making about age cutoffs—what age cutoff to use for potential parents (women both using and not using their own eggs) and potential fathers (whether to consider the father's age, and if so, separately or only with the mother's age); what criteria to use in these decisions (how much to consider and weigh the mother's autonomy vs. the future child's well-being); how to make these decisions (e.g., "gut feelings" or perceptions of public opinion); who makes these decisions (e.g., physicians on their own vs. a formal ethics or Quality Assurance committee); and how to present/frame these issues to patients (e.g., how much to discourage older women). Patients' responses to age limitations vary (e.g., minimizing or feeling exceptions to the risks; or lying about their age).
Conclusion(s): These data, the first to explore how providers make decisions about age cutoffs for patients, raise several critical issues. Although the American Society for Reproductive Medicine has addressed several concerns, the present data suggest additional questions and challenges, including inherent uncertainties and ethical conflicts, and have important implications for practice, policy, research, and education. (Fertil Steril® 2016;106:216–24. ©2016 by American Society for Reproductive Medicine.)
Key Words: Age, ethics, risk/benefit, medical decision-making, provider–patient communication

Discuss: You can discuss this article with its authors and with other ASRM members at http://fertstertforum.com/klitzmanr-age-cutoffs-ivf/

Older patients are increasingly seeking and obtaining IVF (1), but have higher rates of complications, posing medical, ethical, and psychological challenges. Women more than age 40 years who use IVF have elevated rates of preeclampsia, gestational diabetes, preterm and very preterm delivery (2). Yet many older women are delaying childbearing to pursue careers and the population as a whole is aging. Nationally, from 2000–2010, most donor egg recipients were ≥41 years of age, and 24.7% were ≥45 years. Among women using their own eggs, 13.7% were ≥41 years (9.1% 41–42 years, 3.7% 43–44 years, and 0.9% ≥45 years) (3). The success rate of IVF has recently been increasing overall, but still decreases markedly with age (1). For women 44 and 45 years using their own eggs, Gleicher et al. (1) report that live birth rates were of 1.4% and 2.7%, respectively. Despite these low odds, some investigators argue that patient autonomy dictates that such a patient nonetheless should receive treatment if she wishes. Recent research also suggests possible associations between a father's age and the number of genetic mutations in his children, although these rates of mutations appear low overall (1).

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Given the risks involved, the American Society for Reproductive Medicine (ASRM) stated in 2004 that, "postmenopausal pregnancy should be discouraged," but that physicians should "carefully consider the specifics of each case" (4). In 2013, ASRM expanded and clarified its guidelines concerning egg donation to say that providers should implant embryos in women >50 years only after medical evaluation; and should discourage women >55 years from doing so; and that prospective parents should be counseled about these issues (5). The ASRM has not recommended upper-age limits for women using their own eggs, but has issued guidelines concerning treatment that has a poor prognosis or is futile, defining "futility" as interventions with less than a 1% likelihood of a live birth, and "very poor prognosis" as odds of >1% but ≤5% (6). The ASRM states that in these instances, physicians should develop "explicit," "evidence-based" policies and "may refuse to initiate a treatment option they regard as futile or having a very poor prognosis" (6). The ASRM adds that in these cases, "[r]eferral information should be offered, if appropriate," and that "[c]are should not be provided solely for the financial benefit of the provider or center." Providers "may treat" such patients after assessment of risks and benefits, and "fully inform[ing]" (6) patients of these low odds of success. But key questions emerge concerning how providers view and approach these issues—whether and when each of these scenarios occur, and whether these relatively general and flexible guidelines should instead be stronger, fuller, or more specific or robust.

Other countries vary in whether they have age limits, and if so what. In the United Kingdom, the Human Fertilisation and Embryology Authority and laws do not specify an upper age limit for treatment. Rather, clinics make their own determinations about patients (7). Australia bars IVF after the average age of natural menopause, "usually interpreted at 52 years of age" (8). Jurisdictions that publicly cover IVF costs also differ concerning maximum age limits. In 2010, Quebec decided to cover up to three IVF cycles, but did not specify a maximum age. Older women with very poor prognoses consequently received treatment, prompting plans to alter the legislation to cap the age at 42 years, yet allowing older women to receive treatment if they pay out-of-pocket (9).

Reproductive-aged men and women generally overestimate the likelihood of becoming pregnant at all ages, have low awareness of the rapid decrease in fertility with age (10), and overestimate the age when women's fertility decreases, and the odds of success of IVF treatments (11).

Extensive literature searches have revealed no studies examining how providers view these issues—what challenges, if any, they confront, and how they respond to these. Although the ASRM has recommended that assisted reproductive technology (ART) providers develop policies concerning age cutoffs and treatment futility, critical questions arise of how clinicians in fact view and make decisions about upper-age limits, and weigh the age of patients—whether they establish clear cutoffs, and if so, when, where, and how, and what challenges they confront in doing so.

Thus, these issues were examined as part of a study of how providers and patients view and make decisions about several critical aspects of ART. Consistent with ASRM's recommendation for provider policy development, the present article examines clinicians' attitudes and practices regarding age cutoffs and determinations of treatment futility through a qualitative study design. At present, no data exist regarding how providers view these issues, and a qualitative study can provide important preliminary information to guide further inquiry.

MATERIALS AND METHODS

A qualitative method was chosen because it can best elicit the full range and typologies of attitudes, interactions, and practices involved, and can inform subsequent quantitative studies. Qualitative methods have been used successfully to reveal critical aspects of patient attitudes and practices concerning ART (12).

In brief, as summarized on Table 1 and described fully in the Supplemental Material, available online, 37 in-depth semistructured interviews of approximately 1 hour each were conducted with 27 ART providers (17 physicians and 10 other providers [7 mental health providers, 2 nurses, and 1 other]) and 10 patients. One physician and three other providers were also themselves patients. Patients and providers were recruited through listservs, e-mails, and word-of-mouth. Providers were also recruited through national ASRM meetings (e.g., preimplantation genetic diagnosis and mental health provider interest group meetings). The Principal Investigator approached these meeting attendees to ascertain whether they might be interested in participating in an interview study, and if so, the Principal Investigator subsequently e-mailed them information about it. Most of those asked agreed to participate, and did so. A mental health listserv was also used, which is received by approximately 60 members (not all of whom are active), of whom 15 responded, and the first 8 respondents were then interviewed. Additional interviews were conducted as background, for informational purposes, with 8 physicians, 9 mental health providers, and 14 patients; and informed, but were not included in the final

TABLE 1

Characteristics of sample.

Characteristic	Male	Female	Total
Physicians	14	3	17
Physicians who are also patients	0	1	1
Type of practice			
University affiliated	5	1	6
Private practice	9	2	11
Other ART providers (e.g., mental health providers, nurses)	1	9	10
Other providers who are also patients	0	3	3
Patients	1	9	10
Total	16	21	37

Klitzman. Age cutoffs in IVF. Fertil Steril 2016.

formal data analysis. Interviews for the formal data analyses were conducted with each group until "saturation" was reached (i.e., "the point at which no new information or themes are observed in the data") (13). Interviewees were from across the United States.

Interviews (see Supplemental Appendix, available online, for sample questions) explored participants' views and decisions regarding ethical issues concerning age cutoffs and other aspects of ART, and were systematically analyzed to obtain detailed descriptions of these issues. Providers described multiple patients they had treated, and interactions with colleagues; and patients often described interactions with multiple providers and other patients. Text from the interviews is presented to allow readers to judge these data for themselves and to appreciate the richness of the data obtained.

Interviews were conducted by phone. The Columbia University Department of Psychiatry Institutional Review Board approved the study, and all participants gave informed consent.

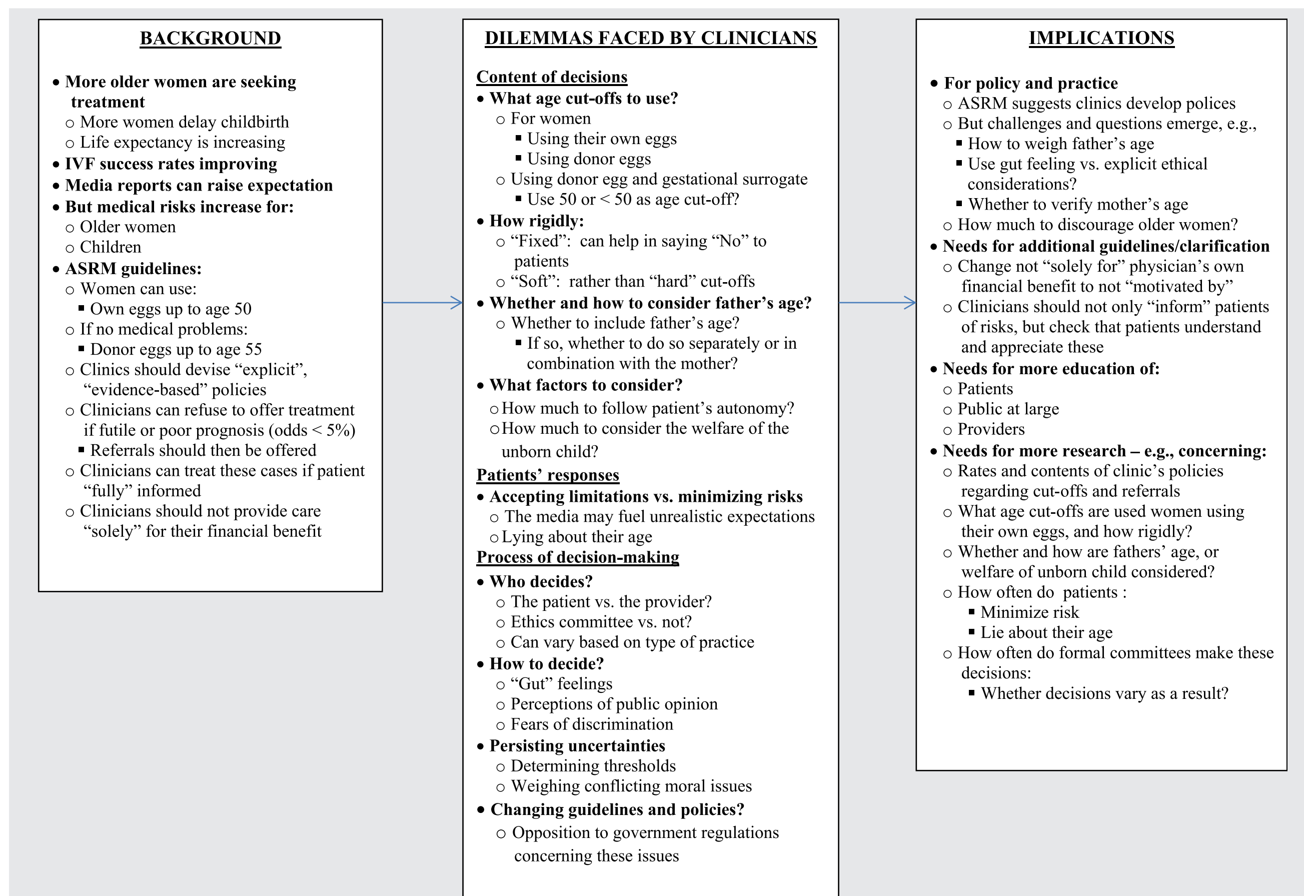
RESULTS

In brief, as seen in Figure 1, providers face several challenges and dilemmas concerning how rigidly to set limits; how to weigh the patients' autonomy versus the well-being of the future child; who exactly should decide, and how (e.g., whether to rely on "gut feelings"), especially as many women may not fully appreciate the decreased odds of success. Providers considered, but rejected, needs for governmental policy concerning these issues.

Contents of Decisions

Cutoffs for women using their own eggs. In part given various uncertainties involved, providers vary in the cutoffs they use in different clinical situations, particularly for women using their own versus other women's eggs. "Providers clearly differ" [Physician #7]. Some providers follow clear age cutoffs, although these can range. For women using their own eggs, physicians may "treat up to age 42 years, and then in rare circumstances 43 years, if the patient meets certain criteria that make us think she has a reasonable chance of pregnancy" [Physician #1]. Other providers set cutoffs higher. ("We stop at age 45 years for a woman's eggs—essentially it goes to zero after that. The number of live births after age 45 years is so low that it's hard to accept" [Physician #12].) Still, other doctors may consider women >45 years, but review the cases carefully. "We discuss any patient over age

FIGURE 1



Providers face several challenges and dilemmas concerning both the content and the process of decision-making about age cutoffs.

Klitzman. Age cutoffs in IVF. Fertil Steril 2016.

45 years" [Physician #13]. Yet questions occur as to what specific criteria they use, and what they decide—how often they treat these patients.

Doctors may also instead refer older women who insist on using their own eggs to other clinics. "A few patients will insist that they really want to go beyond that, and we give them a list of other clinics that might be willing to consider that" [Physician #12].

Cutoffs for women using other women's eggs. Clinicians also differ in the age limits they use for women using donors' eggs. Although some doctors follow the ASRM's guidelines, accepting women until age 55 years, other physicians may set lower or higher ceilings.

The controversy enters with donor egg, because it could be extended to almost any age. The answer relates more to the health of the baby, and the mother and her life expectancy. The ethical guidelines used to stop at the natural age of menopause, but that is now been omitted from the ethical statement. Some data suggest you can go further. We have extended our age cutoff to 55 years, using donor eggs. Other clinics go beyond that. [Physician #12.]

Other doctors establish lower ceilings than the ASRM guidelines. "With donor eggs, we'll treat up through 47 years" [Physician #1]. Still, other physicians do not have clearly established cutoffs, but instead remain "uncomfortable" treating patients beyond a certain age.

If the woman does carry the pregnancy, should there be some age limit? She can use donor eggs until she is 102 years, but it's a little hard for her to carry a pregnancy. We do not have an absolute age limit, but are more comfortable with somewhere around age 50 years. Obviously, anybody who is going to carry a pregnancy at that age needs medical clearance. [Physician #7.]

Additional questions of cutoffs occur for women using both donor eggs and gestational surrogates. Although not carrying the fetus, these prospective parents will nonetheless, as older parents, be raising the child.

The kid should have parents. Ideally, if the mother is 55 years and does not actually carry the pregnancy, she has to have a young husband—just as when an old man has a young baby. The age combination is to make sure the kid has a parent. [Physician #7.]

How Rigidly to Set Limits?

Providers vary, too, in how rigid and fixed to make these thresholds. One group of providers holds these limits as absolute, and inflexible.

We have an upper age limit for women. We want them to deliver before they are 55 years. So, they must be no older than 54 years. If they are >50 years, they cannot have any medical problems. Therefore, you can have medical problems and be 49 years, we will still do the transfer, but if you have any medical problems then you are ruled out at 50 years [Physician #2].

Other clinicians do not use a rigid threshold, but instead discuss cases of relatively older women with other providers in their practice, and decide case-by-case. Given advances in technical processes and abilities, clinicians are also increasing cutoffs dates over time, but may vary in how fast or slowly they do so based partly on several subjective issues and uncertainties they confront.

A few years ago, doctors at major medical centers transferred eggs when the woman was more than age 50 years. Most places will to go 50 years. Some major medical centers would go up to 55 years. It is hard to say. It is arbitrary. 50 years? 45 years? 55 years? Where do you stop? I do not know. [Other provider-patient #9.]

Whether and How to Consider the Father's Age

Providers faced questions of whether to consider and limit the father's age, too, and if so, how. Clinicians varied in whether a healthy father's age should matter at all, either by itself or in combination with the mother's age. Clinicians often had policies concerning his age not separately, but rather only in combination with the mother's.

A few clinicians do not consider the father's age. "We don't have an upper age limit for men yet" [Physician #2]. Many providers justified not restricting the fathers' age, arguing that such men could potentially have children on their own, if their female partner were fertile. "The ratio of the 30-year-old woman with the 75-year-old-man has existed throughout history, for thousands of years" [Physician #9].

The only cases in which providers rejected a man because of age was when the female partner was also too old. In some cases we said, "No." One couple came in: the woman was 64, and the guy was 78. The guy came in in a wheelchair and had cancer and was dying, for Christ's sake! They wanted to use a donor egg. We did not treat them. [Physician #13.] This example highlights the degree to which patients may want children and make requests without fully thinking through the long-term implications.

Clinicians thus tended to consider the father's age only in combination with the mother's age. By including the father's age in the decision and establishing a maximum cutoff, providers increased the odds that at least one parent would be alive to raise the child. "Generally, their ages have to add up to less than 100. We came up with 100 because we don't want gender bias, but want a parent around to raise the kid" [Other provider #6].

Yet the thresholds for these combinations ranged. "Some clinics won't treat you if your combined age is more than 80. Or 90. Or 110. Increasing life expectancies can also raise the cutoff over time. Every couple of years, it goes up by a couple of years" [Physician #11].

Providers confront questions, too, of whether this cutoff (like that for women) should be rigid or not, and if so, how much. Providers may establish soft, rather than hard lines.

How old is too old? A guideline of a combined age of 105 is not a hard line, but if you go over that line, you need a compelling reason. If it is within the guidelines, you have to find a compelling reason not to do it. That is how we approach everything. We're often very unsure of what decision to make, so we do the best we can. [Physician #13.]

Uncertainties can thus Persist

Questions surface of whether doctors should set an absolute upper-age limit for fathers, as medical problems may impede

elderly people in raising a child. It may not be clear what to do, for example, "if a guy is over age 70 and his wife is 40" [Physician #13].

Considering the father's age might also help avoid perceptions of gender bias. "I used to believe that having a definitive age cutoff for parents was discriminatory to the woman, and that you should just add the couple's age together" [Physician #7].

Other providers may set a maximum for only one partner—whichever is older. One partner must be less than 55 years. For carrying the pregnancy yourself, the age cutoff is 50 years because of obstetrical risks. At 55 years, you have a reasonable chance to see your child into adulthood, but that's discounting what somebody's health is going to be like. Just because you are alive does not mean you are going to be healthy to be an active parent. [Other provider #3.]

Which Factors to Consider

Patients' autonomy. Providers have to decide on what grounds to make these decisions, and are affected by several factors and considerations. Key questions concern how much providers should respect and follow the patients' autonomy alone. Many providers believe that the decision about whether older patients should become parents belonged solely to the patients themselves, not the provider. Clinicians may decide simply to treat these patients and not "judge" them, as respecting patients' autonomy is paramount. As one mental health provider working at an ART clinic said, "I'm always surprised by 47- or 48-year-old women wanting to have a child with their own eggs, and then moving to donor eggs. It's hard to imagine somebody that old having a child. I help that person move toward whatever decision she needs to move toward. I do not judge; I just question. Difficult decisions are just ones any therapist makes: do I push a little here, or let this go for now? Maybe we will talk about this down the road." [Other provider-patient #10]. Mental health providers, in particular, especially those in a private practice, may take such nonjudgmental positions, and be very nondirective, particularly in gray areas such as upper age limits.

Similarly, a clinician may inform older prospective parents about the odds of success and risks and benefits, and let the patients decide for themselves. "Other providers say, 'as long as patients are educated and understand the numbers, if they want to grab for the brass ring at age 45 years, let them'" [Other provider #3].

The welfare of the unborn child. Providers vary, too, in whether they consider not only the parents' ages, but the rights and well-being of the future child—the odds of one or both parents being able to raise the child through early adulthood. Physicians may set age limits around 50 years, specifically, to ensure that the parents will survive to see the child reach 21 years.

For age cutoffs for use of donor gametes, many clinics aim for around age 50 years. So the woman, if she got pregnant, would still be around until the kid reached age 21 years. [Other provider #4.]

Yet other clinicians consider, but tend to give relatively little weight to the child's welfare—essentially considering the mother's age alone. If the woman is 48 years and the guy is 78 years, we probably would treat her. If the woman is already 54 years, that is different. We have treated women at 51, 52 years. A 78-year-old guy could have started a relationship with a 50-year-old woman and leaves her money. You could make that argument. We are pretty liberal about most of these things. The child does not take precedence over the person, but we need to consider that. If a kid is coming into an abusive relationship, or mental or drug abuse is involved, we have to look at them. [Physician #13.]

Still, these decisions about age limits generally do not involve "abuse," but rather suboptimal future childhood experiences. In situations less extreme than clear abuse, more nuanced and difficult questions arise of how much and in what way to consider concerns about the future child.

Patients' Responses

Patients' minimizing the risks. Despite input about these issues from clinicians, patients may not fully or adequately grasp, appreciate, or accept how much their age may heighten their risks and lower their odds of success. Patients may maintain unrealistic hopes and expectations.

The big one is: *"Well, I'm 44, and run 100 miles every day, and do ovarian push-ups. I'm fine."* You say: "But your ovarian reserve is nil… look at the blood test." They say: *"I don't believe it. Look at me, I'm wonderful!"* "But age could make it difficult or impossible for you to get pregnant." Their understanding depends on education and geographic region. [Other provider #3.]

The media may fuel such unrealistic expectations. The popular press often presents stories about celebrities >40 years having children, fostering false impressions that fertility treatments are extremely successful.

Everybody keeps talking about Sarah Jessica Parker and Celine Dion getting pregnant at various ages. The message that gets absorbed is: If *they* can do it, *I* can. Then, half of Hollywood is using donor eggs, so we lose the message that you have to consider age as a factor in your family building. Social change has been huge, taking fertility out of the closet, but also creates some false impressions. [Other provider #3.]

Clinicians face questions of what to do if patients do not accept these cutoffs. Although providers may refer such patients to a colleague, how often clinicians do so, and whether these colleagues end up treating these patients remains unknown.

Patients who do not want and accept these lowered rates of success may also dissemble their year of birth. Patients get around the guidelines by lying about their age. One woman snookered the physicians—she got in and was years older than she claimed. She gave birth in her early sixties! Clearly, that's too old. [Other provider #6.] Unfortunately, clinicians may not detect such deceptions.

Process of Decision-making

Who decides? Providers varied, too, in who they thought should ultimately make the decision—the patient, the provider, or a committee. Many providers believed that, in the end, these decisions belonged to the patient.

Beyond assessing the husband's health (and that he can produce a specimen) and making sure that we speak to the husband. It is not our position to make that health care decision for them. [Physician #9.]

In contrast, other physicians believed that ultimately the clinic, rather than the patient should decide. But the doctors then confront questions of exactly who should do so. Practices vary in their decision-making processes—how much of a formal mechanism they use, and whether they bring these questions to a committee (e.g., their practice's Quality Assurance committee). Clinicians who work for hospitals may get input from formal ethics committees. "Our hospital committee deals with that. Decisions are not made by one person, but go to the ethics committee" [Other provider #6]. Age cutoffs, along with gender selection, can be "the major issues" that hospital ethics committees confront, and could be difficult to decide.

How to Decide

"Gut feelings". Providers often recognized that, in weighing the factors involved in these decisions, they were confronting underlying ethical tensions. Yet, in facing these complex moral dilemmas, they frequently lacked any formal ethical framework, and thus made these decisions based on their "comfort" [Physician #7], moral intuitions, or gut feelings.

Sometimes you have to follow your gut feeling. With extreme ages, just because we can do something, should we do it? I think of the little child going to kindergarten with a 75-year-old father and a 60-year-old mother. [Physician #11.]

Perceptions of public opinion. In seeking a standard for making these decisions, clinicians may also consider their perceptions of public opinion regarding these issues. Providers, in discussing a case with each other, might consider how the public would respond—whether the public would find it controversial.

If we think the general public will ask questions, then we think we should ask questions. Therefore we discuss it. We are reasonably liberal, but we discuss it and decide what kinds of consenting and management the patient is going to need—not medical management so much, but psychological management—the counseling and legal issues. [Physician #13.] Providers may thus proceed to treat older patients, but consider additional psychosocial concerns and support that may be needed.

Fears of Discrimination

In confronting these quandaries, providers also expressed concerns about possible charges of age discrimination. Several providers feared that adopting clear, explicit policies could lead to complaints of discrimination by patients older than the cutoff.

I do not have cutoffs because one clinic's front office received a phone call and the caller said she would like to come in for IVF treatment. The staff member said, "Well, you're passed our cutoff age—you're 48. The doctors won't treat you." The caller was a judge, and filed a federal lawsuit for age discrimination. [Physician #11.]

Therefore, clinicians may avoid making such firm policies. "It's hard to make policies, especially if it's considered an ADA [Americans with Disabilities Act] issue. We try to stay out of that as much as possible" [Physician #11].

To avoid such potential claims of bias, clinicians may try to give patients other, medically based reasons for not offering treatment, rather than age in and of itself. If a couple is 70 years and 50 years, we do not want to do it. But we are not going to tell them it is based on age. We find a way not to do it. We say, "You're not going to get pregnant." We counsel them, have them see a fetal medicine specialist and say, "Your only option is egg donation or a surrogate." We try to wiggle out of it as much as possible. [Physician #11.]

Yet given these legitimate medical reasons, accusations of age discrimination appear to be unjustified. Providers also encounter questions of what exactly to say to patients concerning age limits, especially when deciding not to offer treatment—how to present concerns.

Persisting uncertainties. Still, given these dilemmas, uncertainties persist about how to establish cutoffs, and weigh these concerns regarding prospective mothers, fathers, and combinations of these, and how to address these competing moral issues. "I'm not sure in my heart what the right answer is" [Physician #7].

Changing policies? Despite these persisting ambiguities, providers generally opposed any government regulation. "I wouldn't like to see it legislated" [Other provider #4]. Providers may have mixed feelings, recognizing the potential advantages of having a firm line, but remaining wary of fixed regulations. "I'm torn. I'm not big for regulating things, and it's hard to know how to educate people" [Other provider-patient #9].

In conclusion, these data, the first to explore how providers view and make decisions about age cutoffs for patients undergoing IVF, cause several critical challenges and questions. Specifically, these data suggest nine findings that have not been reported in the previous literature, concerning both the content and the process of decision-making about these issues. First, providers vary in what age cutoffs they use. Second, providers differ in how rigidly they apply to these cutoffs, partly as the health of patients of any given age varies. Third, clinicians vary in whether they consider the father's age, and if so, how—whether they weigh it separately or only in combination with the mother's age. Fourth, providers range in what criteria they use to make these decisions (e.g., how much they consider and weigh the autonomy of the mother vs. the well-being of the future child). Fifth, clinicians differ in how they weigh the factors—whether they rely on gut feelings or perceptions of how these issues would appear in the media. Sixth, providers vary in who makes these decisions—whether they do so their own versus after consulting with colleagues versus consulting with a formal ethics or Quality Assurance committee. Seventh, they differ in how they present and communicate about these issues to patients. Eighth, although the ASRM states that clinicians should develop "evidence-based" policies, the present data suggest that inherent ethical conflicts and uncertainties are involved, and that these decisions cannot always be based on empirical

evidence alone. Ninth, patients, when aware of the limitations of age on their fertility, vary in how they respond—whether they proceed to minimize, or believe that they are exceptions to the statistical risks, or lie to providers about their age. These data suggest that clinicians differ in their decisions about age cutoffs, and may do so because of these factors—what criteria providers use, who makes these decisions, and how.

Although the ASRM has addressed several issues regarding age, these data cause additional specific concerns and questions, and provide key directions for future research, practice, provider and patient education, and guidelines.

Clinicians wrestle with conundrums of how much to consider the rights and well-being of the newborn child—whether to decide that one or both prospective parents will be too old to care for the child. The ASRM now states that clinicians may refuse to offer treatment if "they have a substantial, nonarbitrary basis" for thinking "that child-rearing will be inadequate," or "significant harm is unlikely" (5). The ASRM offers examples of "uncontrolled or untreated psychiatric illness, substance abuse, ongoing physical or emotional abuse…" But the present data suggest that providers wrestle with these issues in less extreme situations (e.g., when the probability is relatively high that a parent may die before the child is 18 year old). Advanced age itself can also negatively impact children (14). As Zweifel (14) points out, mothers and fathers who are 50 year old at the time of a child's birth have a 10% and 15% likelihood, respectively, of dying before the child is 15 years; and mothers and fathers who are 60 years have a 20% and 30% chance, respectively, of doing so. Chronic disease or death of a parent can stress individuals at any age, but especially adolescents, increasing risks of behavioral and mental health problems, including substance abuse (15). The child with an elderly parent may also have to assist with caregiving, which can be stressful (16). The surviving, grieving parent may also then be less available to the child (17), further increasing risks of mental health problems (14). Among 107 individuals who became parents using IVF after the age of 40 years, many perceived disadvantages are having less physical energy for child-rearing (38% and 26% of the women and men, respectively) and less of their total lifetime to spend with their offspring (31% and 19%, respectively) (18). Further consideration of these phenomena by the ASRM or other educators may aid many providers.

Some commentators argue that only imminent abuse and harm to the child should offset a patients' desire to have a child, because the child would still be better off than if he or she had not been born (19). Yet another critical set of considerations is that a physician, in helping, through his or her direct decisions and actions, to bring the child into the world, has certain professional obligations and responsibilities. Physicians may have some professional responsibility if they help create, and enable the birth of a child into a situation that they had reason to suspect would be suboptimal. Future legal and ethical scholarship need to examine these issues more fully—how exactly providers should weigh competing claims of autonomy, beneficence, and nonmaleficence. Physicians should at least consider these issues; and to say that doctors have no responsibility for these issues at all, whatsoever, would be wrong.

Physicians may fear accusations against them of age discrimination. The justification of such claims is by no means certain. The Age Discrimination Act of 1975 bans discrimination based on age in programs or activities receiving federal financial aid (20). Thus, an IVF center affiliated with a hospital that received federal assistance may not be able to discriminate based on age alone, in and of itself. Only approximately one-third of IVF clinics are affiliated with such academic medical centers (21). In addition, a physician's decision that treatment is clearly not indicated medically, because of a particular older patient's medical situation, based on evidence-based indicators of very lower likelihood of success, would presumably not constitute unfair age discrimination. Still, despite the ASRM recommendations that clinics develop "explicit" policies, anecdotally, some lawyers have advised ART programs that it may be most advantageous not to have clear written policies about age cutoffs, as providers are then legally obliged to follow them. Clarification of these issues by the ASRM or others can help providers in determining whether they should ever be concerned about potential accusations of age discrimination, and if so, when.

The present data also ask questions of whether providers develop explicit, evidence-based policies concerning these areas (as the ASRM recommends), and if so how, and with what frequency, and what these policies state. Many providers may rely on their own gut feelings and "comfort," which may not reflect objective data. Phenomena may feel unacceptable or distasteful because they are unfamiliar, yet be ethically sound. Marriage between individuals of different religions or races, or of the same sex, for instance, once commonly provoked feelings of "yuck," but are now widely accepted, reflecting logical extensions of equal rights. The "yuck response" can affect provider attitudes and decisions in other medical areas (22), and although some conservatives argue that it is a legitimate basis for ethical decision-making (23), it can merely reflect feelings of animal or social disgust that need to be carefully and explicitly examined and weighed in the context of explicit ethical principles (22).

Although providers who refuse to treat certain older patients may refer these individuals to colleagues, such referrals also raise concerns. Arguably, it might be best for providers simply to refer a patient whom they refuse to treat because of extremely low or futile prognoses due to advanced age. Colleagues, who then agree to treat these patients, may then be violating ASRM guidelines. It is important that a provider, who decides not to treat a patient because of age, explains carefully to the patient the relevant ASRM guidelines and the underlying rationale—the very poor prognosis or futility. Proceeding otherwise can promote misunderstandings and confusion among patients and the public, more broadly.

The ASRM guidelines state that clinicians should not provide futile treatment "solely for" their own financial benefit (6), yet questions thus emerge about whether, how often providers in fact do so. The present data suggest that providers may not always fully convey, emphasize, or highlight to older patients the very low likelihood of a "take home a baby," and the full costs and risks involved. In addition, many women who believe they will be exceptions to the statistics, and/or minimize these odds, will want to undergo treatment. Given

critical needs for the field to maintain as high ethical standards as possible, physicians should carefully assess a patient's understandings and appreciation of these risks, and weigh a patient's autonomy and their own financial incentives against their professional commitments to beneficence, nonmaleficence, and justice—including the broader social costs (e.g., if newborns end up harmed and requiring expensive long-term care).

Further clarification and elaboration regarding these issues by the ASRM and/or others can be helpful. Although our providers all opposed possible formal government regulations concerning age cutoffs, the ASRM could, nonetheless, potentially, develop more precise and/or stronger recommendations that can aid clinicians. A continuum exists between current, very loose guidelines and formal government regulations. The ASRM could address, for instance, whether providers should not only be concerned about age discrimination, but also consider fathers' ages, and if so, how. The ASRM guidelines state that clinicians who treat older patients should "fully" inform them of the odds of success, but patients may not fully understand or appreciate and/or may minimize these odds. Hence, the ASRM could potentially add that providers should check that patients sufficiently understand and appreciate these limitations, or that providers should ensure as much as possible that such comprehension occurs.

The ASRM guidelines that clinicians should not provide futile treatment "solely for" their own benefit could also be strengthened—changed from "solely for" to "motivated by" their own economic benefit. The ASRM's statement that providers "may" refuse to provide futile treatment, but should then offer a referral, if appropriate, may foster or perpetuate other clinicians providing futile treatment to these patients. The ASRM could conceivably address when and why such referrals are appropriate or not, and under what conditions. Guidelines could instead state, for instance, that providers should discourage such treatment when providers believe that it will likely not offer clear benefit. The ASRM or other educators could also potentially address more fully how and to what degree providers should "discourage" older women and for what medical problems clinicians should not treat patients between the ages of, for example, 50 and 55 years.

These data have several potential limitations. The sample size is sufficient for qualitative research to elucidate the issues and themes that emerge, but not for statistically analyzing how different groups (e.g., male vs. female physicians or physicians vs. mental health providers) may vary. Future studies can investigate these issues with larger samples. These studies can also examine how providers may change their attitudes and practices over time. Although it is conceivable that providers with certain attitudes may have been more likely to participate for some reason, our interviewees demonstrated a full range of attitudes. Nonetheless, future studies using larger samples can explore such possibilities. Still clinicians are very busy, and recruiting larger numbers of them can pose challenges, no doubt accounting in part for the lack of any prior studies in these critical questions. Health care providers are increasingly difficult to recruit for surveys, as indicated by response rates declining significantly over time (24, 25). These data also arguably have a certain face validity, illuminating challenges that many providers confront.

Although some clinicians may be aware of some of these issues, incorporation of these phenomena into the published literature is critical, as many providers are newly entering the field, and/or no doubt remain unaware. These data can help clinicians, enhancing understandings of these issues, questions, and nuances and how best to make decisions, communicate, and interact with patients about these areas.

As outlined on Figure 1, these data suggest a research agenda for examining questions that have not previously been articulated, concerning the content and the process of decision-making about these issues—how often providers have explicit policies, and what these state; what age cutoffs providers follow for women using their own eggs, and how rigidly; whether providers consider the father's age, and if so, what and how; whether providers consider the welfare of the unborn child, and, if so, how; how often providers have found that patients lie about their age; how often clinicians refuse to treat patients because of age, what the ages of these patients are, how often providers refer these patients to colleagues, whether these colleagues end up treating these patients, and if so, which, and with what success; how often these decisions are made formally by a committee versus informally; how the various factors that emerged may account for differences in providers' decisions (e.g., how often and in what ways policies developed by a formal ethics committee differ from those made otherwise); whether providers would find additional guidance from ASRM helpful, and if so, what.

The fact that patients may misunderstand or minimize the complex statistical issues involved underscores the need for increasing public and patient education concerning the low odds of success, and the possible risks and disadvantages of older women seeking to become mothers through ART. Improved awareness and training of providers on how best to address these complexities with patients is vital. These data shed light on how clinicians make decisions about age cutoffs, and have important implications for enhancing practice, policy, research, and education.

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