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Medicalizing Reproduction: The Pill and Home Pregnancy Tests

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This article explores one chapter in the history of medicalization through a focused study of oral contraceptives and home pregnancy tests. Each commercially successful in developed nations and both decades old (the Food and Drug Administration approved oral contraceptives in 1960 and home pregnancy tests in 1977), these reproductive technologies created the first pharmaceutical mega-market comprised of young, healthy, sexually active, heterosexual women. Examining the discrete, but interconnected, histories of both products, this article explores how the Pill's popularity and profitability medicalized and feminized contraception, encouraging pharmaceutical companies to invest in the development of patented variants of hormonal contraception and creating a means by which the under-used Pap smear could be introduced to a population that had previously resisted it. Home pregnancy tests, too, had unintended consequences. Designed to shield the detection of a pregnancy from a "medical gaze," the test's widespread use encouraged women to become medical patients at an earlier stage of their pregnancy.

The Problems and Polemics of Medicalization

Since the 1970s, scholars have debated the multiple meanings of *medicalization*—that nebulous but dynamic process by which aspects of everyday life come to be pushed and pulled into a medical domain. Critics have questioned the authority doctors wield as purveyors of medical knowledge and prescribers of potent pharmaceuticals, they have analyzed the therapeutic necessity of costly and sometimes risky diagnostic tests, and they have evaluated the machinations of pharmaceutical companies to recode what might once have been considered the ordinary vicissitudes of life into medical problems that require drugs and a doctor's care.

The debate's duration and contentious character can partly be explained by the perception that the stakes are high (are populations under-diagnosed or excessively medicated?), but also by the realization that the questions scholars raise eschew simple answers. For instance, health activists have blamed the direct-to-consumer advertising (DTCA) of prescription drugs for encouraging patients to reframe quotidian miseries as medical mishaps and to demand advertised medications by name (Metzl, 2003, 2007; Moynihan & Cassels, 2005). Although scholars have linked DTCA to higher drug costs and sales, they have yet to enumerate the role DTCA singularly plays as a causal agent in an individual's perception of her or his distress (Moynihan & Cassels, 2005). Equally significant, studies cannot account for the panoply of variations: why, for example, some advertised drugs become blockbusters while others do not. Clearly, advertising is not the only, and not always the most important, variable explaining how diagnostic categories become expanded and how medical markets are formed.

Equally contested is where the line separating the pathological from the normal resides and when, therefore, medication is therapeutically indicated. Few would contest the value of antibiotics for a child with bacterial pneumonia. More controversial is the use of so-called lifestyle drugs for conditions that are not life-threatening, such as baldness, erectile dysfunction, or the absence of long and lush eyelashes. Drug therapy for underachieving eyelashes may seem like a good example of unnecessary medicalization. The problem with such examples is that the complexities of medicalization are ignored if we define it through extremes.

Such conundrums underscore the importance of viewing medicalization not as "something that happens," but as a fluid and mutable dynamic whose causes and effects must be analyzed rather than assumed. As sociologist Nikolas Rose (2007) argued, medicalization has no intrinsic explanatory value; the term is neither "a description [nor] an explanation, let alone a critique" (p. 701). Today, the challenge for scholars is to take stock of the myriad actors and agendas implicated in changes

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in the past, analyzing how connections among patients, prescribers, expectations, and a drug's perceived capacities are made and remade in specific historical contexts.

This article explores one chapter in the anatomy of medicalization through a focused study of oral contraceptives and home pregnancy tests—two reproductive technologies, both widely used, and each decades-old. Both are concerned with conception: Women use oral contraceptives to prevent it, whereas pregnancy tests help women detect it. Each seemingly has a different relationship to the medical profession. The Pill is prescribed by health practitioners and necessitates long-term medical monitoring. Home pregnancy tests were designed to demedicalize knowledge of pregnancy, allowing a woman's moment of "discovery" to be shielded from the clinical gaze and judgment of medical professionals. Both products became blockbusters soon after they were marketed, and have remained so over time. My objective here is to intertwine their discrete, but interconnected, histories so as to contribute to scholars' ongoing conversations about medicalization. The cultural ubiquity, medical popularity, and commercial viability of both technologies provide an unusual opportunity to explore the dynamics of medicalization and pharmaceuticalization in the mainstream rather than at the margins. As we shall see, the meanings of the medicalization of pregnancy, its prevention, and its detection have changed dramatically and unpredictably over time.

The Pill Ascendent

The Pill, and the kinds of medicalization it engendered, is an instructive starting point. Approved by the Food and Drug Administration (FDA) for sale in May 1960, women were quick to accept prescription-only oral contraceptives into their lives. Two years after FDA approval, 1.2 million were taking oral contraceptives; within five years, over six million were. Whereas many feminists embraced the Pill, echoing birth control activist Margaret Sanger's belief that effective, female-controlled contraception was a precondition of female emancipation, others legitimately questioned its safety. However, no matter how contemporaries felt about it, the object in question needed no special introduction. By the late 1960s, people referred to the wonder drug of the decade simply as "the Pill" (May, 2010; Tone, 2001). In the annals of pharmacology, no drug before or since has been honored with such a generic moniker.

The drug's success has had an enviably long shelf-life. More than 50 years after the Pill's introduction, an estimated 100 million women of reproductive age—defined by demographers as between the ages of 15 and 49—take the drug daily (Gibbs, 2010). In developed nations, the Pill is the most widely used reversible contraceptive, and has been for decades (Guttmacher Institute, 2011). Women have remained loyal users despite cautionary reports in the 1960s and 1970s that linked the drug's use to a higher incidence of blood clots, strokes, and cardiovascular disease and, decades later, the findings of the National Institutes of Health (NIH)-funded Women's Health Initiative, which found that hormone replacement therapy increased a woman's risk of breast cancer, heart attacks, and strokes (Watkins, 2007). Because healthy young women can be expected to take the drug daily for years, even decades, the scale and scope of the Pill's market is atypical and phenomenal.

The Pill's popularity delivered huge profits to its manufacturers and, to scholars, a fascinating case study of medicalization at work. The drug's appeal created, for the first time in history, a pharmaceutical mega-market comprised of millions of healthy, young, heterosexual women. Because no one considers pregnancy a disease, the drug's enduring popularity evinces a willingness among women to use a drug that neither prevents nor treats an illness for a significant portion of their lives. In this sense, the Pill was not only the first but also the most successful lifestyle drug in history.

Before 1960, birth control was not a mainstream medical matter. The most medicalized sphere of reproductive health was childbirth. In the late 18th century, coincident with the rise of formal medical training and the professionalization of medicine, male physicians (first family doctors, then specialists) began to claim a larger role in middle- and upper-class women's births. The medicalization of childbirth spawned fundamental shifts in how and where birthing occurred, who participated in the process, and cultural perceptions of labor and delivery (Leavitt, 1986). By 1955, at the height of the baby boom, childbirth had migrated from home to hospital, where fully 95% of women in the United States gave birth in an institutional setting where physicians could control deliveries with an expanding arsenal of personnel, technologies (including anesthetics and analgesics) and other interventions (Leavitt, 1986). Yet the reproductive technologies we associate with reproductive medicine today were, as yet, nonexistent. Physician and contraceptive expert Felicia H. Stewart aptly put it this way: "[R]eproductive health care available before 1960 would seem remarkably limited to us today" (as cited in Hatcher et al., 2009, p. 1).

Before the Pill, the most medicalized form of birth control was the diaphragm. Acquiring one required a fitting and a prescription. However, the method's unpopularity, coupled with the fact that many users obtained diaphragms from freestanding contraceptive clinics, meant that before 1960, only a minority of women—about one in five—talked to doctors about what was then called "family planning" (Marks, 2001; Tone, 2001). More popular than diaphragms were non-medical methods: condoms, the rhythm method, and *coitus interruptus.* While each of these methods had varying rates of efficacy, fertility rates had begun to drop sharply in 1957—three years before oral contraceptives arrived

(Coontz, 1993). Put differently, effective birth control was already available before the Pill, and couples were successfully using it to limit family size.

Climates of Doubt

It may be tempting, from the vantage point of the 21st century, to look back and to see the Pill's meteoric rise as inevitable. Today's oral contraceptive market generates billions of dollars in sales; in 2010, sales of just one oral contraceptive, Bayer's Yaz, exceeded $360 million. However, such a view is ahistorical and misleading. The Pill's rapid uptake was neither pre-ordained nor obvious to pharmaceutical executives in the late 1950s. There was no preexisting market for a birth control pill, and the unpopularity of the diaphragm did little to stoke commercial optimism. Many physicians, for their part, were reluctant to discuss contraception. A 1957 study of specialists and family practitioners in six communities in the United States showed that one-half were unwilling to initiate contraceptive counseling and that most viewed birth control as beyond their professional domain (Tone, 2001, p. 241). In 1962, a British doctor captured the stance of many colleagues when he stated that the "provision of contraceptives is not the function of a doctor" (as cited in Marks, 2001, p. 116). Medical hesitance compounded commercial doubts. Some pharmaceutical executives feared that healthy women would reject the (still radical) idea of taking a daily pill. One financial analyst recalled that the main

> issue among drug people was whether any woman would take a pill every day for twenty-one days to prevent the chance she might get pregnant. They believed nobody's going to do that, not when they're not sick—and they're not sick! This was a prevention drug—prevention as a social activity as opposed to prevention of cancer or something. (as cited in Tone, 2001, p. 228)

In this environment, U.S. pharmaceutical firms, including Upjohn, Pfizer, Parke–Davis, Ortho, and Merck, turned down the opportunity to bring the first oral contraceptive to market. Only G. D. Searle, a small, family-run company best known for its anti-emetic drug Dramamine, was willing to assume the risk, which it did without fanfare and only *after* it had gingerly introduced the drug as a treatment for menstrual disorders.

The climate of uncertainty that surrounded the Pill's introduction provides an important reminder about the importance of historicizing the contexts in which specific medical and pharmaceutical markets are made. The consumption of lifestyle drugs and daily pill popping—familiar features of our current pharmaceutical regime—were foreign to the very businesspeople who, in a post-Pill world, would help normalize these practices and routines.

The Pill's astonishing uptake—in 1967, the Population Council estimated that almost 13 million women were taking it—proved pundits wrong. Although oral contraceptives initially found a following among non-Catholic, married, White women, by the late 1960s, they were being used by a wider demographic that included singles, Catholics, and women of color. Significantly, the drug's best-selling status was achieved without the slick, multimillion-dollar campaigns manufacturers use to court the financial fidelity and brand loyalty of young women. Indeed, contemporary debates about the adverse effects of DTCA on prescription practices may have encouraged scholars to overlook how information about drugs circulated more informally, but no less powerfully, in the past.

The Pill's unrivaled efficacy was part of the drug's allure. Taken as directed, the Pill was almost 100% effective (Hatcher et al., 2009; Marks, 2001; May, 2010; Watkins, 1998). This efficacy represented a radical departure from contraceptive technologies of the past. Only abstinence, something not always within a woman's control, had offered comparable protection. In addition to mainstreaming the use of lifestyle drugs, the Pill raised expectations about what contraceptives could and should do, setting a standard of efficacy against which other contraceptives would be measured and, increasingly, rejected. In addition, a woman's decision to take a pill to prevent pregnancy in the early 1960s must be understood in a historical frame when millions of adults were enamored by the new-found availability of prescription-only medications—first life-saving antibiotics, then others: corticosteroids, drugs for hypertension, the Salk polio vaccine, and more. Illnesses that had previously been managed with invasive measures (such as lobotomies for schizophrenia or iron lungs for polio) could now be controlled, prevented, and sometimes even cured with something as "simple" as a pill.

Prescription pills were anything but chemically innocuous, but their appeal—especially when compared to a condom or diaphragm—was intertwined with this perception. Oral contraceptives were small, discreet, and convenient to use. The Pill promised a contraceptive sexual intimacy in which the tempo of intercourse would no longer be disrupted by intrusive devices or the pre- and post-coital rituals associated with their use. The Pill, hence, permitted a spontaneity and sexual aesthetic other methods did not. One woman credited the Pill with saving her sex life and her marriage. Before the Pill arrived, she had used the diaphragm—a method she found so time-consuming and cumbersome that she reserved its insertion for nights when intercourse with her husband was certain. Her husband, pining for greater spontaneity, asked her to insert it nightly instead. "When you brush your teeth, put in the diaphragm," he suggested. "If we don't make love that night, so what? And if we do, we don't have to be bothered." The wife heeded her husband's request only to feel rejected when, after she had gone through "the messy business of putting it in . . . he'd just turn over and go to sleep." Their sex life ground to a

halt until the Pill became available. Her husband was jubilant, calling the Pill ''the greatest.'' Although the wife had reservations about its side effects, five years after starting, she was still on it (as cited in Tone, 2001, p. 235).

Endorsements such as these gave G. D. Searle the enviable profits that came from being the sole manufacturer of oral contraceptives for the two years it took before another firm, Ortho, brought its own oral contraceptive to market. The Pill's unexpected, but undeniable, profitability, predicated on women's willingness to take a daily drug to prevent pregnancy in exchange for the promise of higher efficacy and a different sexual aesthetic, encouraged other pharmaceutical firms to develop proprietary modifications of Searle's original elixir. By 1970, at least one dozen trans- or multinational companies were manufacturing and selling their own variations, hoping to claim a share of the profitable ''pill pie'' (Marks, 2001).

Women now have more than 40 different brands of oral contraceptives from which to choose (all containing a fraction of the hormonal content of the original Enovid)—some combining synthetic estrogen and progestin, some containing progestin only, some monophasic, others biphasic, and so on (Beck, 2010; Boston Women's Health Book Collective & Norsigian, 2008; Eldridge, 2010; Hatcher et al., 2009). There are also oral contraceptives that reduce the frequency of menstruation to once a season—four times per year—or less, and multitasking pills advertised to deliver non-contraceptive benefits such as clearer skin, lighter periods, and less premenstrual bloating (Beck, 2010; Eldridge, 2010; Hatcher et al., 2009). The plethora of pills gives sexually active women more options. Yet, the innovation each new oral contraceptive adds to the existent market is relatively small, despite million-dollar marketing campaigns that emphasize novelty and celebrate difference. This pattern of pharmaceutical one-upmanship, characterized by enough biochemical tinkering to enable a company to lay claim to a patent-worthy innovation, has created more choices, but also more confusion. We can ask: With so many brands on the market, is it even meaningful to discuss ''the Pill'' as a singular entity in the 21st century? If not, how should women or health practitioners navigate the maze of oral contraceptive choices, mindful that even the smallest molecular modification of a drug that works systemically can generate serious side effects in a way that modifying, say, the color or texture of a diaphragm does not? The Pill's success has also encouraged pharmaceutical companies to develop more hormone-based contraceptives—a trans-dermal patch, implants, a vaginal ring, a progestin-releasing intrauterine device, injections, and more—that capitalize on the Pill's proven profitability while offering consumers different methods of drug delivery (Hatcher et al., 2009; Tone, 2001).

Ironically, the popularity of hormonal contraception in the last one-half century has changed what gets counted as useful contraceptive knowledge for practitioners, making it harder for a woman today to acquire ''old-fashioned'' methods. In the history of the medicalization of reproductive technology, it is not only the interpretation of information that is culturally mediated; ''knowledge,'' itself, is historically contingent and subject to changes in time and place. The diaphragm and cervical cap are available for prescription, but getting close to one outside a museum may take determination, perseverance, and luck. Health activist and journalist Laura Eldridge (2010) described her own battles for barrier birth control. Dissatisfied with the side effects of her oral contraceptive, Eldridge spent years trying different brands, and her physician was confident that Eldridge's complaints would subside once they found the right hormonal match. Unfortunately for Eldridge, each ''new'' Pill introduced only new problems. When she discussed these problems with her doctor, ''her answer was always the same: try another Pill.'' Eldridge wrote: ''It wasn't just that doctors had only one answer to the birth control problem; it was that they didn't even like the question'' (p. 3). When women today complain about the absence of new contraceptives, they are responding to a medical market in which the boundaries of innovation have been circumscribed by this hormonal imperative.

The feminization and medicalization of contraceptives had other drawbacks too. The Pill's efficacy inaugurated a pattern of homogeneous contraceptive use that left women less vulnerable to pregnancy but more susceptible to infection. In 1960, HIV/AIDS was not yet part of the medical lexicon. The availability of antibiotics to treat syphilis and gonorrhea—historically the two most dreaded sexually transmitted infections (STIs)—meant that heterosex without condoms was not yet tarnished by fears of infection (Tone, 2001, 2002; Watkins, 1998). In a milieu where women worried more about pregnancy than about acquiring an STI, married and single women welcomed oral contraceptives and said goodbye to condoms (Marks, 2001; Tone, 2002; Watkins, 1998). Even after AIDS became a household word and activists and health practitioners had sounded the alarm that other STIs, such as chlamydia, were reaching epidemic proportions, sexually active women clung to the freedoms of one-method use, hoping for the best (Guttmacher Institute, 2009). Scholars studying women's sexually risky behaviors learned that the reasons for women's discomforts with condoms are multifaceted. Sociologists involved in the U.K.-based Women Risk and AIDS Project, for instance, found that the cultural construction of female heterosexuality and concomitant peer pressures to maintain a specific sexual persona encourages many young women, aware of the risks of unprotected sex, to allow other concerns (such as the embarrassment of discussing condoms with new sexual partners or the fear that having condoms on hand will make men think that they are sexually ''promiscuous'') to forego safe sex (Holland, Ramazanoglu, Scott, Sharpe, & Thomson, 1992; Holland, Ramazanoglu,

Sharpe, & Thomson, 2004). The public health results of these dilemmas have been catastrophic. The medicalization of contraception the Pill achieved has given rise to an onslaught of infections that necessitates prescription drugs and a physician's care. One form of medicalization begets another.

The Pill and the Pap

The Pill's popularity transformed medical practice as much as it did women's lives. Suddenly, physicians who had no training in hormonal contraception specifically, and minimal training in endocrinology and contraception generally, became the chief agents of the drug's diffusion. The learning curve associated with responsible prescribing was steep. A doctor could fit a patient for a diaphragm at one appointment and not worry about the device's impact—short of a typical 15% failure rate—on a patient's health. The Pill was different. The first oral contraceptive, Enovid in the United States and Enavid in Britain, contained 150 micrograms of estrogen and 10 of synthetic progesterone (today's oral contraceptives contain a fraction of the original dose; Beck, 2010; Marks, 2001; Rubin, 2010). Unlike the diaphragm, its effects were systemic. This was not a medication to dispense breezily, especially when one considered its potency, possible side effects, and its novelty for patient and practitioner alike. Medical guidelines issued by family planning organizations, the FDA, and the World Health Organization urged physicians to conduct a gynecological exam before they prescribed it and regular checkups for the duration of a patient's use (''Agency Calls,'' 1968). As such, the prescription-only Pill made gynecological checkups routine for millions of women who had previously eluded medical surveillance. In so doing, it established a new patient population: healthy women of reproductive age. Over time, the annual gynecological checkup, which typically includes a manual breast exam, the Pap smear, and discussions of family planning, has become a rite of passage for millions of sexually active women.

The medicalization of healthy, young women brought a less discussed, but significant, health benefit into their lives: the Pap smear. Although the Pap smear is now the most widely used cancer-screening technology in the world, its acceptance was neither immediate nor obvious (Casper & Clarke, 1998; Clarke & Casper, 1996). In 1928, George Papanicolaou, for whom the test is named, first presented his finding that exfoliated cells, obtained from a vaginal smear and examined for signs of malignancy, could detect pre-cancerous abnormalities. However, faith in the smear's diagnostic value spread unevenly within the medical profession. The idea of a relatively simple screening test to detect malignancies at an ''early'' stage, when the cancer could be eliminated by conventional surgical therapy, represented a paradigmatic shift in how physicians conceptualized preventive medicine, screening technologies, and cancer. In 1945, when the American Cancer Society (ACS) officially endorsed the Pap smear, medical screening had focused on targeted populations, such as the psychiatric and intelligence tests performed on army recruits or pre-marital blood tests for syphilis (Han, 1997; Morabia & Zhang, 2004; Van Dellen, 1965). In a pre-Pill world, annual medical examinations of healthy adult women were not yet routine. There was no screening tradition into which Pap smears could be readily imported. Faced with unassailably high mortality rates associated with uterine and cervical cancer—in the 1930s, more women in the United States and Western Europe died from it than any other cancer—mounting evidence of the Pap smear's diagnostic efficacy, and few improvements in how advanced cervical cancer could be successfully treated, the ACS inaugurated a series of awareness campaigns to encourage otherwise healthy women to get tested (Blakeslee, 1965; Gibbons, 1964). Because the benefits of screening depended on the early detection of a cancer that typically took years to advance to an invasive state, women in their 20s and 30s—that is, women young enough to benefit from early treatment—became the primary targets for screening. Characterized as quick, painless, accurate, and relatively inexpensive—costing ''no more than a shampoo and a set'' according to one source—the Pap smear, women were told, could save thousands of lives (Height, 1963; Nelson, 1968; Van Dellen, 1965).

Notwithstanding this promise, only a minority of women in the 1940s and 1950s got tested—a reluctance that has been understudied by scholars. Despite one physician's recent assertion that ''women readily accepted [the Pap] test,'' surviving evidence paints a picture of widespread indifference and unawareness (as cited in Rushing & Joste, 2008, p. 11). A Gallup poll conducted on behalf of the ACS in 1961 found that 23 out of 56 million women had never heard of the test. Of the 33 million who had, only about one-half had been tested. Contemporary studies undertaken to solve the puzzle of women's ''irrational'' reluctance to get tested revealed several explanations. Many women failed to see the point of consulting a doctor when they felt healthy and well. Others were too embarrassed by the prospect of a gynecological exam to make an appointment. Other women had no doctor or were too poor to pay for a visit and a test (Nelson, 1961; Schmeck, 1961).

Indeed, women's ambivalence about Pap smears was so entrenched that in 1962, medical researchers at John Hopkins invented a do-it-yourself mail order kit, sanctioned by the ACS. The kit's purpose was to bypass women's reluctance to consult doctors by demedicalizing the first phase of the test, allowing women to collect specimens in the privacy of their own homes—specimens that would then be sent to and analyzed at a designated cytology lab. ''We have found,'' the lead researcher explained, ''that too many women fail to undergo regular

gynecological examinations to have the Pap test done but are quite willing to test themselves'' (as cited in Fenton, 1962, p. 27). By the late 1960s, as greater numbers of healthy women began having checkups, the momentum behind such screening campaigns had dissipated while the jeremiads of earlier years, imploring asymptomatic women to get tested and chastising those who did not, had declined.

The Pill's popularity was important in this transformation. Women who had resisted seeing a doctor for a Pap smear alone found little cause for complaint when the screening was administered during an exam whose primary objective, at least in the patient's mind, was contraception. For doctors, the integration of the smear into a gynecological examination was equally unproblematic. In practical terms, once a woman was prepped and in stirrups, it did not require significantly more time for a practitioner to scrape her cervix for cells. In private offices and in family planning clinics, a physical exam and a ''Pap smear test to detect possible cancer of the womb'' became normative (White, Tayback, & Hetherington, 1966, p. 1230; see also Marko, 1972). Indeed, the link between the Pill and the Pap smear became so strongly forged that a study published in the *American Journal of Public Health* in 1966 warned of a different public health challenge—that is, disassociating the two: ''Personnel should attempt to divorce the Pap smear from the pill method of birth control,'' the authors cautioned, ''and emphasize it as a routine test for all women'' (White et al., 1966, p. 1228). To extend the benefits of early detection to a greater number of women, family planning and maternity centers offered the Pap test at a sliding scale rate, and many states passed laws to defray the costs of testing the poor (''Counseling Is First Step,'' 1964). Today, about 95% of women of reproductive age have been tested at least once in the United States. The Pap smear's ability to detect pre-malignant and early cervical cancer at a stage when most deaths can be prevented is one of the great success stories in 20th-century oncology. Deaths from cervical cancer have precipitously dropped—by some estimates, as much as 90%—in countries where screening programs have been adopted. Meanwhile, in poorer nations, where a woman's access to a Pap smear and oral contraceptives is curtailed by poverty, an underdeveloped medical infrastructure, and geography, deaths from cervical cancer remain high (Eldridge, 2010).

Home Pregnancy Tests: Demedicalization and (Re)medicalization

The history of home pregnancy tests, first sold in drugstores in 1977, adds another dimension to the medicalization of women's reproductive health. On the surface, these tests seem to have reversed the course of medicalization by transferring knowledge of a pregnancy from a doctor's office to a woman's hands. The reality was more complex.

When a woman becomes pregnant, she secretes a hormone called human chorionic gonadotropin (hCG), whose levels rise significantly during the early stages of pregnancy (Leavitt, 2006; Olsynko-Gryn, 2011; Tone, 2007). Before scientists in the 1920s identified the presence of hCG in a pregnant woman's urine and blood, the most reliable indicator of pregnancy was fetal movement and missed menses—markers whose meaning women could interpret for themselves. Between the late 1920s and 1950s, laboratories began to use *in vivo* bioassays for pregnancy detection, whereby animals were injected with a woman's urine and their physiological responses monitored over time (Leavitt, 2006; Olsynko-Gryn, 2011). Early television sitcoms in which a wife told her husband that ''the rabbit had died'' connoted pregnancy and the sacrificial enactment necessary for its detection (Tone, 2007; Woodburn, 2007). This testing was expensive, took time, and required a doctor's visit. Understandably, many women preferred conventional methods (Woodburn, 2007). The introduction of a streamlined immunoassay for pregnancy testing (in which a technician mixed a woman's urine with antibodies against hCG) was introduced in 1960, encouraging women to see doctors, who could administer the pregnancy test in their offices. Although this innovation mainstreamed medical testing, waiting for the results could take hours (Leavitt, 2006; Woodburn, 2007).

In 1972, scientists at the NIH in search of biomarkers for cancers associated with hCG identified a beta subunit unique to hCG that bore a distinct biochemical signature. This was significant. HCG is made up of subunits that are chemically indistinguishable from other hormones; before this breakthrough, *in vitro* tests failed to distinguish among them (Leavitt, 2006; Tone, 2007). The scientist's findings were published in the *American Journal of Obstetrics and Gynecology* in 1972 and became the basis for the home pregnancy test, first manufactured by Warner Chilcott (Vaitukaitis, Braunstein, & Ross, 1972). The company's test kit included droppers and a test tube, and required women to faithfully follow a nine-step procedure (Leavitt, 2006). Marketed in drugstores in 1977, the home testing kit was retailed in a small, discrete package, which was described by one journalist as ''brown and [as] homely as a monk's robe'' (Woodburn, 2007). It was called e.p.t., which is short for ''early pregnancy test.''

At about $20, the price of purchase was steep—prohibitively so for many women. More than 20 years after it was first marketed, a 1989 report in *Mademoiselle* found that the cost of a test kit remained high, ranging from $5 to $17 (Hacinli, 1989). However, for women who could afford it, the test was a hit. It combined scientific innovation with the convenience and privacy of discovering pregnancy in one's own home. Its ability to confirm or confer information directly to users coincided with the message of the women's health movement,

which encouraged women to place control of reproductive knowledge into their own hands (Kline, 2010; Morgen, 2002). The home pregnancy test embodied this message of empowerment through self-knowledge in a revelatory over-the-counter stick. Home testing would prove especially important for women who decided to terminate their pregnancies and who wanted to make that decision without the influence of doctors (Boston Women's Health Book Collective & Norsigian, 2008; Kline, 2010; Morgen, 2002). Over time, the test itself has became more streamlined, inexpensive (as little as $1.25 in Canada), and faster to use—a convergence of circumstances that allowed it to move, in the words of S. A. Leavitt (2006), "from novelty to norm" (p. 317). Next to the thermometer, the home pregnancy test has become the most widely used diagnostic device in North America and much of the Western world (Woodburn, 2007).

Rather than reversing the course of medicalization, however, home pregnancy tests have encouraged women who use them to seek medical attention once the results are known. Indeed, the word "early" in e.p.t. was and is subject to multiple interpretations, including the impression that the test provides only a tentative or preliminary reading that requires medical corroboration. For women who test *positive,* but choose to terminate their pregnancies, a medical abortion was and is the likely result. For women hoping to get pregnant, a *negative* test result could be the gateway to assisted fertilization, which was increasingly available in the late 1970s and 1980s in the wake of the much-publicized birth in 1978 of the world's first "test-tube baby" engineered using laparoscopic egg retrieval (Kirby, 2010).

For a woman who welcomes the positive result of a home pregnancy test, a visit to a health practitioner is the customary step. As we have seen, the medicalization of childbirth was already well established by the 1950s. One measure of its entrenchment was its forceful rejection by the women's health movement, who railed against unnecessary interventions, including routine enemas, pubic shaving, and episiotomies (Boston Women's Health Book Collective & Norsigian, 2008; Kline, 2010; Morgen, 2002). By the 1970s, however, the chronological ambit of medicalization extended backward in time to include a focus on comprehensive pre-natal care. Indeed, physicians encouraged women who were thinking about becoming pregnant to school themselves with "preconception education" and to follow guidelines to increase the likelihood of conception and a healthy pregnancy. Pre-pregnancy protocols included admonitions to quit smoking, limit caffeine, increase one's intake of certain vitamins such as folic acid, maintain a healthy weight (too light makes it harder to conceive; too heavy may cause pregnancy and delivery problems), and review one's immunization status and medication use with a physician (Boston Women's Health Book Collective & Norsigian, 2008; Hatcher et al., 2009).

Thus, although a woman might learn she is pregnant in the privacy of her home, at the moment of discovery, she had already become a medical subject. Because today's tests can detect pregnancies earlier than those used in the 1970s, women become obstetric patients that much earlier. An unintended, but very real, psychological effect of the expanding checklist of pre-pregnancy "do's and dont's" is the guilt women may feel when they miscarry—an event of which home pregnancy tests make women more aware. (Many miscarriages happen so early in a pregnancy that a woman may not realize she has had one.) Despite the age-old adage that a miscarriage is nature's way of ending a non-viable pregnancy—an adage that most obstetricians espouse—women often blame themselves for the "failure" of an early pregnancy loss, as if "trying harder" or "doing better" might have "saved" the pregnancy and reversed the course of history.

As scholars of reproductive health have shown, the medicalization of pregnancy in the Western world has generated a seismic shift in the medical surveillance of women's bodies (Becker, 2000; Duden, 1993; Rapp, 2000; Reagan, 2010; Rothman, 1991). The technological transformation of pre-natal care makes pregnant women—as with women using hormonal contraceptives to prevent conception—patients in need of regular medical oversight. Prenatal visits include a barrage of tests, including those for anemia, HIV/AIDS, gestational diabetes, and infection with rubella, which can cause a range of illnesses for newborns (Boston Women's Health Book Collective & Norsigian, 2008; Hatcher et al., 2009).

These tests are neither medically misguided nor inherently wrong. Rather, what is striking is the extent to which pregnancy has increasingly come to be interpreted as a condition that is at once natural and teeming with risk. Since the 1960s (a decade marked by the introduction of new forms of prenatal testing (Rapp, 2000; Rothman, 1991), the German measles (i.e., a disease that could cause blindness, deafness, and other disabilities for babies if pregnant mothers contracted it; Reagan, 2010) epidemic, and the Thalidomide disaster (Tone, 2009), a pregnant woman's expanding knowledge and vocabulary about the risks of miscarriage, fetal aberrations, and genetic anomalies have understandably caused many women to view their pregnancies as a tentative state fraught with uncertainties (Rapp, 2000; Reagan, 2010; Rothman, 1991).

Underwriting the medicalization of pregnancy is an admirable goal: to safeguard the health of a mother and her developing fetus by protecting them from, or diagnosing them with, possible pathologies. In practice, expanded testing imparts information that is made meaningful only by how and in what contexts it is interpreted. Women confront reproductive technologies on their own terms mediated by class, race, location, religion, culture, age, and experience, and not as blank slates

on which technologies script neutral information and a roadmap for what to do and where to go next.

Conclusion

I began this article by asking this question: How might the intertwined histories of the medicalization of contraception and pregnancy detection inform contemporary debates about medicalization? As we have seen, the medicalization, demedicalization, and commercialization of pregnancy and its prevention have changed dramatically over time, moving backward and forward along an unpredictable and circuitous path, providing healthy, heterosexual young women with the freedom conferred by more reproductive choices and, in exchange, a growing dependence on the practitioners, medical institutions, and the pharmaceutical industry that provides them. I have argued that medicalization has differences of degree and kind (the medicalization of childbirth is clearly a different entity than the medicalization of lackluster eyelashes), and that, as a process, medicalization is not, *a priori,* good or bad, mainly because it is rarely that simple. Indeed, a seemingly straightforward home pregnancy test can simultaneously demedicalize and remedicalize a woman's body, providing pregnant women with "private" knowledge (a privilege for which women pay)—a privacy that is often a short-lived prelude to a barrage of tests (that can both reassure and complicate) that are employed, discussed, and interpreted in a medical domain. I have also argued that an examination of the popularity and commercial viability of oral contraceptives provides scholars with a case study of how a robust, billion-dollar market in lifestyle drugs gets made, even in the absence of today's slickly choreographed marketing campaigns. This case study is at once atypical—by virtue of the scale and scope of the oral contraceptive market—and also extraordinarily mainstream: No other drug has been taken for as long a time by so many otherwise healthy women. The medicalization of contraception normalized the idea of daily pill popping, paving a path for the development and diffusion of other hormonal contraceptives and other lifestyle drugs. However, it has also, through the institution of the annual gynecological exam, created a practical vehicle for mainstreaming the (once) under-used Pap smear, saving untold numbers of women from death by cancer. This unintended consequence of contraceptive medicalization reminds us of the complexities and unpredictability of medicalization's path.

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