During the past century, extraordinary scientific breakthroughs have transformed the ways in which we control our fertility, harness energy, protect ourselves against disease and much more. In the United States especially, we have long depended upon science and technology to improve our lives. Yet, despite major scientific advances and our society’s strong reliance upon them, the integrity of science itself has taken a beating in recent years. Ideally, science should advance as new results call previously held assumptions into question; yet all too often, we have seen inconvenient data attacked, misinterpreted or even suppressed in the service of ideology or fatter profits [1]. Furthermore, in many or even most modern cases, individuals out to undermine established scientific findings speak in the language of “science,” citing unconfirmed studies and weak data to support their conclusions [1].

In the medical and especially the highly politicized reproductive health arena, one consequence of the frequent misappropriation of the mantle of science can be seen in a cacophony of news headlines, presenting bewildering and often conflicting information: “Rethinking Hormones, Again” [2], “What? Condoms Can Prevent AIDS? No Way!” [3], “Public Citizen Petitions FDA to Ban Birth Control Pills Containing Hormone Desogestrel” [4], “FDA To Reconsider Standards for Reviewing Low-Dose Oral Contraceptives” [5], “Contraceptive Patch May Raise Blood Clot Risk” [6] and “Delinking Abortion and Breast Cancer” [7]. Surveying this turmoil is a weary public, unclear what to think as research conclusions seem to change and contradict one another with disconcerting frequency.

In such an era of rivaling “scientific” claims and data sets, when special interests bend the ears of journalists who are all too inclined to give “equal time” to unequally substantiated viewpoints [8], it becomes more important than ever that health care providers have the skills to understand and interpret scientific studies, especially those with strong implications for patient health and public health policy. Providers are ideally positioned to make sense of the published literature, communicate its results to professional and lay audiences, and reaffirm the value of solid reproductive health research. But do they truly possess the requisite analytic skills — including the ability to critically interpret complex study designs and results, and make sense of them independent of both the authors’ and the media’s conclusions?

One of the best kept secrets among health care providers — especially medical doctors — is that many do not have the ability to understand and interpret the medical literature. Many clinicians view their critical analysis skills as being modest at best [9]. Traditionally, clinical decision making has been largely based upon dogma and traditions culled from pathophysiology, personal observation and intuition [10,11]. While evidence-based decision-making models continue to supplant more subjective approaches in medical education, many students receive little rigorous critical appraisal training [12] and have few opportunities post-training to acquire these technically challenging skills. This leaves providers at an embarrassing disadvantage when it comes to interpreting research with strong implications for clinical practice (and for public health policy). As Lancet editor Richard Horton has put it, “without that skill, a doctor is barely fit to practice” [9].

Clinicians who accurately interpret studies can quickly apply their findings in their practices while, Horton notes, more “ambiguous results are given pause for thought” [9]. At the same time, analytically skilled providers will know how to respond to patients who have been confused by sensationalized news reports calling into question common treatments, or promoting new and relatively untried modalities.

Alas, evidence suggests that such talented providers are far too rare. The Women’s Health Initiative (WHI), a study looking at the effects of hormone replacement therapy in menopausal women, provides a case in point. In the wake of the WHI results, one survey of physicians found that less than 30% correctly answered questions about the study results, while 67% overestimated study findings. Most disconcertingly, respondents were most often wrong about the value of coronary heart disease, the number one killer of women in the United States [13].

And not only may inadequately trained physicians misinform their patients (perhaps dangerously so). The risk of misunderstanding scientific research extends beyond the individual provider–patient relationship and can affect an entire population. In the United Kingdom in 1995, for
example, a warning was issued about a possible increased risk of venous thromboembolism among users of third-generation oral contraceptive pills (OCs). A media frenzy ensued, many women discontinued OC use, and provider prescribing patterns swiftly changed, resulting in an increased number of unintended pregnancies and abortions [14].

Whether or not these examples are fully representative of health care providers at large, they do beg the question: If health care providers are themselves struggling to interpret the latest scientific information, how can they counsel patients seeking information amid the maelstrom of newsworthy, yet often sensationalized, headlines? This difficulty in translating often hard-won scientific knowledge into effective practice and policy — while challenging widespread misinformation at the same time — is not unique to the medical or reproductive health arena. It can similarly be found in the fights over evolution, global climate change and many other high-profile scientific issues. Again and again, research scientists labor intensively to gain understanding, only to find their work misinterpreted by the media, attacked by special interests, and thus ultimately having far less impact than it merits. A misinterpreted or attacked work of David Grimes, MD, and Ken Shulz, PhD, MBA.

The long-term goal of this project is to ensure that students, postgraduate health care providers, advocates and journalists alike have ongoing opportunities to master the critical analytic skills key to the integrity of their work.

Hopefully, ARHP’s initiative signals a recognition and an admission that our work does not end at the research stage. That is only the beginning. It is not in the area of information generation, but rather in the realm of information dissemination and translation, that even the most talented scientists and medical professionals too often stumble. Or worse, they consciously limit their role to conducting research and leaving the descriptive work and outreach to others. Now more than ever, we must work to ensure that we are just as adept at understanding and speaking science as we are at actually creating it.

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