



The Bell Tolls for Homeopathy: Time for Change in the Training and Practice of North American Naturopathic Physicians

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Abstract

North American naturopathic medicine is a distinct form of practice that is woven into the larger fabric of integrative medicine; in a number of US states and Canadian provinces, naturopathic doctors enjoy a wide scope of practice, including the ability to make diagnoses, order tests, use medical technology, write prescription drugs, and perform minor surgeries. However, the basic premise of naturopathic medicine and its guiding principles—considering the whole person and supporting healthy lifestyle behaviors—is the unifying approach in clinical practice. In the 1970s, homeopathy—considered in many circles to be a hypothesis-driven, fringe form of alternative medicine—became embedded into the training and practice of North American naturopathic doctors. Since the earliest days of its theory (circa 1800), homeopathy has escaped, and continues to escape, biological plausibility; however, the persistence of this modality (and the insistence by both its consumers and practitioners that it provides benefit) speaks to the role of expectations, beliefs, values, agency, context effects, and the placebo-at-large. It is our contention that the progression of professional naturopathic medicine in the 21st century requires a major transition in how it approaches the subject of homeopathy. We propose that students should be encouraged to critically analyze the tenets of homeopathy, its lesser known history, and the idea of homeopathy as a biomedicine that simply awaits untold chemico-physical mechanisms. Furthermore, the modality of homeopathy should be incorporated into the larger context of placebo studies, narrative medicine, ethics, and psychotherapeutic techniques.

Keywords

placebo, homeopathy, naturopathic medicine, medical education, critical analysis

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The World Health Organization (WHO) strategy for global health includes a culturally sensitive blending of Western biomedicine with traditional forms of healing; this mandate is part of a broad vision of improved health and patient autonomy.¹ In the United States, the National Institutes of Health (NIH) describes this blending in practical clinical care as “integrative health.”² There are signs that this WHO strategy is being honored by North American physicians, particularly those engaged in primary or family practice. For example, in June 2017, the journal *Primary Care* devoted its entire issue to integrative medicine, as did *Medical Clinics of North America* in September 2017.^{3,4} Integrative medicine embraces science and is distinct from the dogmatism that plagues the verge of “alternative” medicine; rather, it is defined as a philosophy that neither rejects conventional medicine nor accepts alternative therapies uncritically.⁵ Naturopathic medicine, with its focus

on the whole person, their total lived experience and lifestyle, is one part of the rubric of North American integrative medicine.

The transition from global health care dominated by the prevention and treatment of infectious disease—to the one that is overburdened by complex noncommunicable diseases—has

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necessitated a deeper discourse concerning the role of the placebo (and more broadly, patient expectations, beliefs, and therapeutic agency) in 21st-century medicine; at the same time, rapid advances in science and technology have allowed researchers to gain unprecedented knowledge concerning the ways in which the psychosocial aspects of the biopsychosocial model manifest in human physiology.⁶ Volumes of international studies using objective physiological markers demonstrate that levels of expectancy concerning chemical agents dressed up as biomedicine—even if those agents happen to be drops of water or pellets of sugar—possess biological underpinnings⁷; labeling descriptors on products, even carrots, can influence consumption,⁸ and there is little doubt that branding, packaging, and labeling of placebos is intertwined with psychobiological outcomes.^{9,10} Labeling effects are further magnified by social influences, including individuals who endorse the expectations of placebos.¹¹

Homeopathy—a theoretical proposal, which suggests that an imprint of a specific agent remains inside water or sugar globules even after it is diluted to the level of seas and oceans, represents a fringe form of alternative medicine; the reported benefits by users and those who prescribe such remedies are of high-level relevance to the burgeoning growth of placebo studies. Here in our commentary, we will discuss the waxing and waning of this culture-driven intervention and place it into the context of a shifting zeitgeist concerning the role of the placebo in clinical medicine. Furthermore, we discuss these changes as they relate to the growing profession of naturopathic medicine. Homeopathy permeated North American naturopathic medical education in the latter part of the 20th century at a time when it was a small group of several hundred practitioners. Today, naturopathic medicine (with some 7000 practitioners) is enjoying an expanding role in the systems of North American health care; however, the emerging research (and cultural winds) concerning homeopathy—and the placebo—forces difficult questions on how this modality should be approached.

Homeopathy: Theory and Research

Hope, like an angel, can concentrate her healing virtue in a homeopathic globule

—*The Lancet*, Editors (1845)¹²

Homeopathy is not a form of medicine in the sense that medicines contain bioactive substances used to prevent and treat disease, and it is not steeped in a rich cultural history (unlike, eg, acupuncture and traditional Asian herbal medicine). Rather, homeopathy is a Westernized theoretic approach first proposed by Samuel Hahnemann (1755-1843); he and his followers maintained that ultradiluted substances (the sort which could cause specific symptoms if administered to a healthy individual) may correct the physiologic imbalance of an unwell individual. In other words, if a patient had muscle ache, a cure could be achieved by giving small amounts of a substance, which, if given to a healthy person, would otherwise

provoke muscle aches in the well person, albeit to a lesser degree. Given Edward Jenner's success with immunization against smallpox (via small amounts of matter from cowpox lesions; published in 1798), and the grotesque use of high-dose (side-effect-heavy) medications at the time, this portion of the theory had widespread appeal. However, it was the level of dilution proposed by Hahnemann that negated any remote similarity to medicines or vaccines.

Homeopathy was developed from Hahnemann's principle of infinitesimal doses; that is, the greater the dilution of the original substance, the more potent was the remedy. Even a minimum level of homeopathic dilution (fourth dilution)—a process known as titration and succussion—would equate to 1 part active substance to 100 million parts liquid (visualized as a single drop of active substance in more than 1500 gallons of water). However, remedies that are commonly diluted 15 or 30 times over (labeled as 15C or 30C) are said to be even more potent. The level of dilution at this point cannot be visualized at the gallon level; it is literally—not figuratively—at the levels of a drop in seas and oceans.¹³ Even if the mass of the entire Earth was composed of water, it would still not be enough to dilute the original particle in a 30C homeopathic preparation.¹⁴ The notion that water has a “memory” or enduring imprint derived from the original substance (and through the dilutions and succussion, a robust shaking at each point of dilution) has been disproven.¹⁵ In short, the theory of homeopathy is not biologically plausible (ie, it does not follow the known laws of chemistry and physics). The theory is, however, dressed up and marketed—with both on-label and associated marketing—as a form of biomedicine.

While homeopathy escaped (and continues to escape) biological plausibility, the widespread anecdotal reports of benefit in the early 1800s were of interest to medical scientists; it is perhaps a little known fact that investigations concerning homeopathic remedies represented some of the earliest known controlled clinical trials.^{16,17} By the mid-1800s, the accumulated evidence demonstrated that homeopathy was no better than placebo¹³; almost 200 years on, with untold volumes of rigorous investigation added to the scientific annals, the scientific and medical consensus remains the same—there are “no good-quality, well-designed studies with enough participants for a meaningful result reported either that homeopathy caused greater health improvements than placebo.”¹⁸ When an intervention of any sort is studied enough, it is expected that there will be select studies that will look favorable (ie, beyond the placebo)—so-called false positives¹⁹; collectively, however, the pooled evidence for homeopathy—as well as that for its most popular remedies and/or treatment of common conditions—is plagued by low-quality research and does not allow for any convincing argument of benefit beyond placebo.²⁰⁻²⁴

While homeopathy has had its detractors since its earliest days, it has also had many who have pledged allegiance to its efficacy, including affluent, sociopolitically powerful individuals.^{25,26} Despite its intellectual absurdities, it has been resilient in its political durability and remains commercially lucrative; Hahnemann once told Dr Schubert of Dramburg that

his plan was “to demand a good round sum in the shape of a fee—one half to be paid down—unlimited confidence in his treatment—doses of sugar or milk—and a particular diet. We must not attend patients for nothing, the greater the sum paid for physic and physician, the greater is the confidence placed in both.”¹³ His plan succeeded—moving from city to city throughout his career, Hahnemann died in Paris (1843) a very wealthy man.²⁷ Today, the US homeopathic market (including use in pet care) is estimated at US\$3 billion.

However, the cultural bell appears to be tolling for homeopathy. In 2017, the United Kingdom’s National Health Service stopped funding homeopathy,²⁸ recent consensus statements from Australia, Italy, and the European Academies Science Advisory Council concerning lack of evidence (beyond placebo) have been highly publicized,^{18,29,30} and federal authorities in the United States are scrutinizing its place among over-the-counter health products.³¹ Once soft on homeopathy, major North American media outlets are now serving up harsh op-ed material³² and celebrating professionals who take a stand against its marketing as an “alternative” to appropriate public health and medical advice.³³ Reporting on homeopathy is no longer being tempered by quotes from advocates who maintain its effects are beyond the placebo³⁴; indeed, the ombudsman for the Canadian Broadcasting Corporation (owned by Canadian society) has recently ruled that its journalists are not obligated to provide dissenting views in their reporting on homeopathy because they

have a responsibility to avoid giving weight to ideas that are generally held to be untrue, or unproven. There is a strong consensus in the medical and scientific community that the claims of homeopathy, and its basic assumptions, have not passed the scrutiny of rigorous science.³⁵

Moreover, providing a homeopathic viewpoint that runs counter to vast scientific consensus, the ombudsman ruled, would be akin to providing airtime to climate change deniers (something that the media is no longer obligated to do under the auspices of journalistic balance, because to “provide equal weight to information generally held to be incorrect as a balance to the views of most scientists, physicians, and regulatory bodies would create false equivalence”).

These cultural changes are generally side-stepping whether or not homeopathy, as a placebo, has value. In Europe, many medical doctors continue to prescribe homeopathy *pro re nata*, quite often as a placebo; for example, about one-fourth of Swiss medical doctors prescribe homeopathy at least once in a given year. Importantly, the vast majority of Swiss prescribers were not in agreement with the statement that the evidence for homeopathy is based on proven, specific effects.³⁶ About 10% of the French population is prescribed a homeopathic remedy by a physician each year.³⁷ In North America, about 2% of adults report using homeopathy, of which 80% are self-directed—that is, they do so without guidance from a health care practitioner. However, those who used homeopathy at the direction of a practitioner are more likely to report that it is

“very important in maintaining health and well-being” and that it helped their health condition “a great deal.”³⁸

In sum, the enduring legacy of a theory that has no biological plausibility—and little in the way of scientific support (beyond placebo)—speaks very loudly about the role of expectations, values, agency, and beliefs in the healing process. In the clinical setting, these factors may be magnified even further. Indeed, the homeopathic consultation—extended time spent with patients, provider empathy, narrative competence, and the setting itself, which contains the trappings of trust and authority—appears to be central to the clinical benefits, rather than the chosen remedy.³⁹ In the context of chronic, complex noncommunicable diseases, the question of homeopathy is now one concerning ethics and the clinical relevancy of placebos in the 21st century. Homeopathy certainly “works” insofar as belief systems, values, and expectations—or the placebo-at-large—permeates all aspects of clinical medicine; next we will address the evolving place of placebos in contemporary medicine.

Placebo Studies

Now, there is nothing dishonorable in the prescribing of a placebo . . . [if the medical] profession would prescribe placebos freely, and at the same time inspire their patients with a reasonable hope of recovery, from the medicines they are receiving, a vast number of unfortunates would be saved the pain of being bled to syncope—financially as well as vitally—by that set of public leeches better known as quacks.”

—Willmott Bowes, MD (1875)⁴⁰

Derived from the Latin *placeo* (to please, or give content), placebo entered the medical lexicon in the late 1700s as “a commonplace method or medicine, calculated to amuse for a time, rather than for any other purpose.”⁴¹ Placebos refer to substances, interventions, and/or procedures that are presumed to be neutral in regard to *specific* effects on illness, and without any specific physiologic properties induced by the treatment. The utility of placebo-controlled studies in the progress of scientific medicine is obvious, and despite the challenges—especially with complex noncommunicable diseases—society has reaped many pharmacological rewards from its investment in well-designed, placebo-controlled research.

Perhaps because of this intense global research dedicated toward finding medical substances, and the lucrative nature of the end products, the placebo in research settings is approached with disdain—something that must be overcome in the battle for progress. Moreover, the role of the placebo in postindustrial clinical medicine has been contentious; the quote above from the valedictory address of Willmott Bowes, MD, could be matched with many other editorials of the era, only with an entirely different viewpoint. For example, JB Murdoch, MD, writing in the *Journal of the American Medical Association* (1885) stated that “when we give up the use of the placebo . . . when we are honest with the public, we will secure the

confidence we deserve, and then and not till then, will we rise above the charlatan.”⁴² An editorial in the *Medical Record* (1885) stated that the problem with incorporating the placebo into routine medical practice is that it “must relax the moral fiber, and inculcate a distrust in the resources of medical art . . . placebos are the handmaids generally of indecision and therapeutic and diagnostic ignorance.”⁴³

Much like homeopathy itself, the idea of prescribing placebos—at least in academic debate—has remained contentious; however, in the real-world clinical settings, the prescribing of placebos appears to be commonplace. For example, the majority of physicians practicing Westernized medicine within the United States and Europe report using placebos at least once a year, with many doing so on a weekly basis.⁴⁴⁻⁴⁸ Physicians appear to prescribe placebos for reasons that may benefit themselves—including perceptions of time restrictions for more detailed conversations, and avoiding conflicts with patients.⁴⁷ In a recent Portuguese study, which also showed frequent use of the placebo in clinical practice (73% with varying frequency; 34% several times a month), researchers found that favorable attitudes toward placebo prescription are associated with higher physician empathy scores.⁴⁹ Placebos, as defined in these surveys, also include antibiotics where viral infection is suspected, vitamins without the rationale of deficiency, and sub-clinical doses of medication.

This acknowledgement of the commonality of placebo prescriptions in clinical medicine has been facilitated by the safety of anonymity in the research surveys; until recently, the use of the placebo was, as expert Oliver Pepper, MD (once the president of the American College of Physicians), stated in 1945, “a function of the physician, which, like certain functions of the body, is not to be mentioned in polite society.”⁵⁰ However, while the cultural bell may be tolling for homeopathy in North America, the sounds of liberty are simultaneously emerging in the form of open discourse concerning the underappreciated role of the placebo in clinical medicine. This is exemplified by a highly publicized opinion article on the placebo by Danielle Ofri, MD, PhD (professor of medicine at New York University and an award-winning author in the area of medical humanities); writing in the *New York Times* (2017), Dr Ofri states,

Frequently my patients ask if a multivitamin will give them more energy. In the past I would say no, because there are no significant scientific studies to demonstrate this, and also because in the absence of a vitamin deficiency there’s not much for a basic multivitamin pill to do. Now I take a different approach. I say something along the lines of “Many of my patients find that they have more energy when they take a multivitamin.” I’m not lying, because many have indeed said so. Without fail, there are always a few patients who come back at the next visit and swear they feel much better.

There are some who argue that it is unethical to promote placebos to patients. But increasingly, many say it would be unethical not to give placebos a try in situations where patients are not getting relief from traditional means—and where it would not cause harm or replace a necessary treatment.⁵¹

This honest discourse does not sit in isolation; rather, it is bolstered by the convergence of opinion of many leading medical-science academics, international experts who have been studying the placebo and its effects for the past several decades. Indeed, 2018 marked the publication of first Expert Consensus on the Implications of Placebo and Nocebo Effects for Clinical Practice⁵²; while acknowledging that there are many outstanding research questions, the authors maintain that the area of interdisciplinary placebo studies is robust enough to allow for clear recommendations for clinical practice. Placebos can provoke clinically relevant, biological effects—genuine biopsychosocial phenomena that cannot be dismissed (as they have been by some authors) as spontaneous remission, normal symptom fluctuations, and regression to the mean.⁵³⁻⁵⁵ Sophisticated brain imaging studies are demonstrating that placebo responses may be predetermined by brain biology.^{56,57} The emerging research on open-label placebos (where the recipient is explicitly informed that the pill is inert) indicates that benefits can be realized without deception⁵⁸⁻⁶³; such disclosure removes the most potent ethical objection to placebo, that of trickery. Remarkably, the first study of open-label placebos dates back to 1965 (with successful outcomes in anxiety symptoms),⁶⁴ yet only in the past decade has this area of research moved forward with vigor.⁶⁵

Further signs of changing attitudes toward the placebo and ethics (as well as the related topic of providing simple verbal assurances to patients⁶⁶) can be found in a recent editorial in the *American Journal of Psychiatry*. The editorial asked what could be learned from placebo research and how could it be translated to clinical practice. The answers were presented in 4 unambiguous points:

1. Do not leave the patient uncertain about treatment effects.
2. Induce hope and optimism. Tell the patient that the treatment will work and the future will be fine.
3. Help the patient look for improvement and recognize positive changes, whether they are treatment-related or not.
4. Use suggestion to convey the optimistic message. Tell the patient how he or she should feel.

These are bold statements, especially the ideas of using suggestion and telling the patient that the medication *will* work. Regarding ethics, the editorial asks the reader to ponder a simple question: “whether it is allowed to let the patient suffer in the name of truth.”⁶⁷ Indeed, this may be a larger question for the authoritarian side of Westernized medicine, which has marginalized traditional forms of healing.⁶⁸ The *American Journal of Psychiatry* editorial pertained to antidepressant medications, and there is little doubt that in clinical practice, the role of patient expectancy in relation to antidepressants (and conditions of nonmalignant pain) is considerable.^{69,70} Indeed, within the vigorous discussions of overmedicalization, polypharmacy, and quaternary prevention (recently defined as, “the action taken to protect individuals (persons/patients) from medical

interventions that are likely to cause more harm than good”⁷¹), the placebo warrants detailed discussion.

The role of expectancy is finally receiving adequate scientific attention. For example, in one recent study, the information given to patients about antidepressant medication had a greater impact than the drugs themselves⁷²; specifically, 2 groups received exactly the same dose of escitalopram for the same duration, but an “overt” group was correctly informed about the SSRI (selective serotonin reuptake inhibitor) treatment and the expected improvement, while the separate “covert” group was (falsely) informed that they were receiving an “active placebo” (ie, a nonfunctioning neurokinin-1 antagonist (GW597599) likely to induce side effects similar to escitalopram but without expectancy of symptoms improvement). Remarkably, when examining the main clinical outcome—social anxiety—the overt surpassed covert SSRI treatment with doubled effect size and tripled response rate. In addition, the overt versus covert SSRI treatment yielded different neural changes in brain areas involved in emotion-cognition interactions, suggesting that expectations may improve symptoms via distinct pathways.⁶

In sum, fruitful scientific advances of postindustrial biomedicine have been coincident with the ability to separate active biomedicines from the “interference” of psychosocial effects via the placebo in clinical studies; this, combined with the facade of Westernized medicine, which historically painted the prescribing of placebos an unethical practice not worthy of mainstream discussion, has cast the placebo in a generally unfavorable light. However, the tide may be turning. Emerging research on open-label placebos, expert consensus, and high-profile media are combining to shift the perception of the placebo as something to be minimized, and toward something that might be maximized. Thus, there are 2 overlapping trends of relevance as we transition our discussion to naturopathic medicine; on one hand, homeopathy—a biologically inert placebo dressed up as a biomedicine—is increasingly viewed with hostility in academic and lay writing, and on the other hand, the placebo and its effects are increasingly embraced with clinical interest and openness.

North American Naturopathic Medicine and Homeopathy

Globally, the term *naturopathy* is defined in many different ways depending on culture, geography, and national or local laws governing professional health care practices. The Merriam-Webster dictionary defines naturopathy broadly as “a system of treatment of disease that avoids drugs and surgery and emphasizes the use of natural agents (such as air, water, and herbs) and physical means (such as tissue manipulation and electrotherapy).”⁷³ Such vague definitions highlight that naturopathy is difficult to categorize; by default, this definition allows for virtually any form of treatment to be considered “naturopathic,” as long as it be deemed nonsynthetic. It also infers that naturopathy opposes drugs and/or surgery; finally, the definition asserts that naturopathy is a system of treatment

as opposed to prevention. Hence, in the medical literature, international media, and within social media, the term “naturopathy” or “naturopath” has little specificity.

In North America, it is somewhat easier to define naturopathic medicine; many US states and Canadian provinces maintain structured laws governing its postgraduate educational requirements and terms of practice. Unlike the inference within the Merriam-Webster definition above, North American naturopathic doctors (NDs) do not avoid drugs, indeed many have prescription drug rights on par with medical doctors, can order medical tests, use ultrasound and other devices of medical technology, and are licensed to perform minor surgeries. Candidates entering the 4-year, full-time, naturopathic medical programs at 1 of 8 accredited schools are required to have standard premedicine undergraduate courses in biology, chemistry, organic chemistry, and so forth. Indeed, about half of enrollees have a university baccalaureate in biology or chemistry, while psychology, nutrition, or social science degrees make up another 25%.⁷⁴

Research has demonstrated that NDs may play an important role in the health of individuals and society; for example, North American NDs (graduates of the accredited doctoral-level schools) have been shown to lower the risk of noncommunicable diseases, provide health care in a cost-effective way, and reduce employee absenteeism.⁷⁵⁻⁷⁹ It has also been demonstrated that the care offered by licensed NDs is considered culturally competent by underrepresented minority groups.⁸⁰ With expanding scope of practice in North America, and additional states/provinces regulating the professional standards, society is entrusting NDs with significant privileges.^{81,82} However, these entitlements are based on a compact between the practitioner/profession and society, a bond that considers the ways in which ethics interface with evolving knowledge. Despite documented societal benefits provided by naturopathic care, there is also a concern that some North American NDs provide advice that runs counter to the principles of public health and demonstrate a lack of critical appraisal skills.⁸³

Students entering naturopathic medical programs can expect homogenous training for the first 2 years at each of the 8 accredited colleges and universities; during this time, there is strong academic emphasis on basic medical sciences such as anatomy, physiology, biochemistry, differential diagnosis, pathology, and so on with training hours comparable to those of medical doctors (MD) and doctor of osteopathy (DO) programs. The early-curricula emphasis on basic sciences is accompanied by various courses, including nutritional medicine and those under the broad category of “lifestyle,” such as counseling and health promotion. As the first 2 years give way to the latter 2 years, there is an increasing academic emphasis on these and other core aspects of training; some of these modalities are far-removed from mainstream MD and DO programs—most notably, botanical medicine, acupuncture, physical medicine (techniques of massage, manipulation, hydrotherapy) and homeopathy. The latter modality can take up enormous portions of the total academic hours within the didactic curriculum—140 hours in total.⁸⁴

Interestingly, prior to enrollment in a naturopathic medical program, homeopathy (in comparison to other modalities and lifestyle prevention) is of little interest as a driving force in personal values concerning health. Specifically, more than 90% of new enrollees believe in the importance of nutrition in their personal values, 78% in the importance of dietary supplements, 70% in the importance of spirituality and the healing power of nature, and 55% believe in the importance of botanical remedies. Less than 19% consider homeopathy to be important. However, after admission and through training, approximately 75% of the students consider homeopathy to be important.⁷⁴ This work raises questions concerning the enculturation process during naturopathic medical training; there is a need to know how this transition takes place. Research does show that attitudes and values of ND students—including those that run counter to prevailing consensus—can be swayed by the opinions of a single educator or individual in authority.⁸⁵ It might also be worth learning more about the one-fourth of students, even after enrollment, who still do not value homeopathy.

Given the absence of evidence supporting homeopathy over placebo, the scientific implausibility of its tenets, and the lack of critical appraisal applied by its advocates (especially concerning founder Samuel Hahnemann and the origins of homeopathy^{86,87}), we wonder to what extent that change in values through naturopathic education rests on the aforementioned enculturation. To what extent are clinical success stories of homeopathy explained to students as a yet-to-be-discovered “bioactive” resonance with which they need not concern themselves too deeply? To what extent are the major clock hours within homeopathy devoted to a critical discourse and deeper understanding of human belief systems, expectations, placebo, mimicry of the packaging and appearance of biomedicine, therapeutic “agency” (the sense of control over health outcomes), and context effects that describe the entire healing environment and therapeutic process in which personal disclosures take place (often within settings of comfort, institutional trappings of trust, white coats, diplomas on the wall etc)?⁸⁸⁻⁹⁰ Even more important, how much of the academic time is devoted to the ethical conundrum of prescribing an agent known to be inert? Our own experience suggests little to none.

Indeed, ND students may be surprised to learn that Hahnemann dismissed the existence of *vis medicatrix naturae* in his writings.⁹¹ Moreover, he maintained that no cure had ever occurred but through homeopathy; thus as stated in the 1800s, he disparaged *Tollo Causa* (his words *Tolle Causam*) and those who sought the root environmental sources of illness.⁹² Not only do these homeopathic notions conflict with 2 of the basic naturopathic principles, they are at odds with the fundamentals of epidemiology—the science that should otherwise guide all 6 principles in practice. Public health research clearly demonstrates that most noncommunicable diseases are not randomly distributed throughout society; rather, they are slanted toward the disadvantaged. Put simply, the lack of critical analysis of homeopathy (not simply its lack of science, but its philosophies and tenets) stands to “dilute” the extent to

which NDs comprehend the complex drivers of chronic non-communicable diseases.

Interestingly, homeopathy was not always a part of naturopathic medicine in North America; indeed, Benedict Lust, who founded North American naturopathic medicine—and held the presidency of the American Naturopathic Association from the early 1900s until he died in 1945—avoided the word in his books, magazines (*Nature's Path*), and official journal of the organization (*Herald of Health and Naturopath*). After Lust died, homeopathy was still considered a distinct system of medicine—and for many, an actual drug—which was not part of the diet, stress reduction, connection to the natural environment, and healthy lifestyle basics of naturopathic medicine—as exemplified by the writings of the primary North American naturopathic textbooks of the era.⁹³ Over time, however, electives in homeopathy were introduced into the curriculum of naturopathic medical programs, and by 1978, the leading North American institution required a 40-hour minimum in homeopathy.^{94,95} As mentioned, that curriculum commitment has ballooned to 140 hours.

Information concerning mandatory clock hours provide little specificity concerning the precise details of the homeopathic instruction; however, because it was decided that naturopathic national board exams will test basic knowledge of dozens of common homeopathic remedies, instruction radiates around the nucleus of remedies as a form of biomedicine (as if on par with the differences between fluoxetine and sertraline), and encourages rote memorization. This approach also discourages the application of critical appraisal pertaining to these common remedies and homeopathy as a theoretical system; students may be better served by entering naturopathic medical programs and critically challenging the central tenets of the theories, learning about the storied past of Hahnemann, and delving in deeply to the multitude of unsuccessful attempts to prove that homeopathy is something other than a placebo. More specifically, the 140 clock hours might be better directed at placebo studies, ethics and the art of the psychotherapeutic technique. In our final section we will explore such pathways to change.

Transforming Education and Practice

As mentioned above, the available evidence suggests that it is the process of homeopathic case taking—rather than a specific remedy—which is at the heart of the therapeutic value. Homeopathic case taking is a lengthy process of trying to build a picture of the total lived experience of an individual - stressors, likes and dislikes, sources of hope and happiness, psychosocial resources, and minute details of psychological and physical symptoms.^{96,97} Put simply, the patient engages in a practice that is central to the human experience—storytelling; this process, and attentive listening on the part of the practitioner, is the essence of psychotherapeutic techniques, and more specifically, what is now called narrative medicine. The importance of “the story,” and the benefits of narrative-based medicine in clinical practice, are built on effective communication,

empathy building, understanding, awareness, diminished fear, and opening up pathways to change.^{98,99}

Some researchers and clinicians refer to the benefits of this process as the placebo effect; however, it is probably better stated as context effects. That is, an authentic placebo such as drops of pure water or globules of sugar should, theoretically, have no biological healing effects at all. In reality, according to placebo expert Klaus Linde and colleagues, the administration of the blank remedy “completes a complex therapeutic situation and thus conveys meaning, influences expectations and possibly triggers conditioned responses or behaviour changes.”¹⁰⁰ This is evident because identical placebo interventions produce varying placebo effects depending on the context in which they are administered. The in-depth exchange in homeopathic case taking, and the skills of the individual listening to the story (along with the trappings of authority, knowledge, trust in the buildings, halls, and rooms of the therapeutic encounter—the healing environment at-large), will influence the outcome—even if 100 different practitioners prescribed 100 different remedies after engaging with the same individual. The extent to which the placebo (or context effects) are maximized may be predicated on subtle (and overt) persuasion effects, and perceptions of practitioner confidence or competence.¹⁰¹

Thus, the first step in the transformation of naturopathic education is to abandon any requirements to memorize lists of homeopathic remedies, and instead devote training hours and board exam questions to placebo studies, sense of agency, context effects, the process of narrative medicine, and the skills inherent in the psychotherapeutic process vis-à-vis homeopathy. The second step is to introduce mandatory disclosures to patients when a homeopathic remedy is recommended after case taking; these might be along the lines of the US Federal Trade Commission recommendations: “There is no scientific evidence that the product works—the product’s claims are based only on theories of homeopathy from the 1700s that are not accepted by most modern medical experts.”¹⁰² Such disclosures remove deception and any misleading inferences that the chosen remedy is a form of biomedicine. The third step is to devote training hours and board exam questions to the ethics surrounding the administration of the placebo in general, and homeopathic remedies in particular. In the 21st century, NDs should be well versed in all sides of the ethical arguments concerning homeopathy (described in detail elsewhere).¹⁰³⁻¹⁰⁷

Recently, the Chief Naturopathic Officer of the Canadian College of Naturopathic Medicine, writing in this journal, has opened the door to the maintenance of homeopathy in practice if the modality is repositioned as a psychotherapeutic technique.¹⁰⁸ We applaud this approach, arguing further that such a transition will demand a much deeper understanding of mind-body medicine and the neurobiology of the placebo. This target will only be achievable by a commitment to amend the 4-year academic curriculum.

In our opinion, if the North American naturopathic profession is unwilling or unable to initiate the implementations we describe, the only other viable option is to state explicitly—to

prospective students and patients alike—that homeopathy is a form of commercially available metaphysical or celestial medicine. As stated in *The Homeopathic Examiner* (1846):

It is the spiritual or dynamic element of the medicinal substance which is set free by the processes of trituration and succussion adopted by Hahnemann . . . a cure is not affected by the body of the [original] medicinal substance but by the dynamic or spiritual agent which is contained within it.¹⁰⁹

Some may feel there is merit to arguing from this perspective, but the professional implications would be enormous—far larger than breaking an untenable status quo by taking the steps toward embracing disclosures and the study of the placebo.

Conclusion

These are exciting times for integrative medicine. Several leading scientists in stress physiology and immunology have underscored the place of integrative medicine in the future of healthcare and scientific discovery^{5,110}; experts in the field of psychological trauma have provided refreshing honesty about changing their once-dismissive views on the utility of integrative medicine.¹¹¹ In June 2017, the journal *Primary Care* devoted its entire issue to integrative medicine, as did *Medical Clinics of North America* in September 2017.³ This recent attention to integrative medicine sits within a modern health crisis—an epidemic of noncommunicable diseases driven largely by lifestyle factors.^{112,113}

In North America, NDs are now an important part of the growing integrative medicine movement; research has demonstrated that NDs can make a significant contribution to the health and well-being of individuals and groups in society. As licensed naturopathic medicine expands geographically—and in scope of practice—its responsibilities to society continue to increase. The trust and privileges bestowed on NDs are based on an assumption that the profession will adapt as scientific healthcare knowledge expands. As others have recognized, this forces NDs to reevaluate training and practice in the 21st century.

Medical historians and newspaper archives leave little doubt that the late 20th century persistence of homeopathy in North America was, in no small part, facilitated by naturopathic medical programs and NDs.^{95,114} Much has changed since homeopathy was introduced into naturopathic education and training in the 1970s. More than a decade has passed since the editorial board of *The Lancet* announced the “end of homeopathy” (2005)—that is, the end of any notion that it has benefit beyond the placebo.¹¹⁵ Since then, scientific consensus and research has strengthened that position. Maintaining the idea that homeopathy has yet-to-be-determined chemico-physical properties may provide cognitive comfort for the provider because it allows for a side-step around the discomfort of ethics, disclosures, and the requirement of a deeper knowledge of placebo studies. However, this notion is no longer tenable; for North American naturopathic medicine, continuing to stare at this

apple on the wagon—not attending to it—will likely disturb the entire cart.

Author Contributions

DHN and JMP developed commentary, project oversight, and research analysis. ACL provided research analysis and developed the manuscript draft. MAK provided commentary, oversight, research interpretation, research analysis, critical review of manuscript, and input concerning clinical perspectives vis-à-vis the placebo in behavioral medicine. All authors have read and agree to the content.

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The authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: ACL has received consultancy fees from Genuine Health, Toronto, Canada and speaker's fees from Health World Inc, Queensland, Australia. MAK has been a consultant or advisory board member of GlaxoSmithKline, Lundbeck, Eli Lilly, Boehringer Ingelheim, Organon, AstraZeneca, Janssen-Ortho, Solvay, Bristol-Myers Squibb, Shire, Sunovion, Pfizer, Purdue, Merck, Astellas, and Bedrocan; has undertaken research for GlaxoSmithKline, Lundbeck, Eli Lilly, Organon, AstraZeneca, Janssen-Ortho, Solvay, Genuine Health, Shire, Bristol-Myers Squibb, Takeda, Pfizer, Hoffman La Roche, Biotics, Purdue, Astellas, Janssen-Ortho, and Forest; has received honoraria from GlaxoSmithKline, Lundbeck, Eli Lilly, Boehringer Ingelheim, Organon, AstraZeneca, Janssen-Ortho, Solvay, Bristol-Myers Squibb, Shire, Sunovion, Pfizer, Purdue, Merck, Astellas, and Bedrocan; and has received research grants from CIHR, Sick Kids Foundation, Center for Addiction and Mental Health Foundation, Canadian Psychiatric Research Foundation, Canadian Foundation for Innovation, and the Lotte & John Hecht Memorial Foundation. DHN and JMP declare no conflicts of interest.

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Ethical Approval

This article did not require ethical approval.

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