Editorial

Can Homeopathy Ameliorate Ongoing Sickness?

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THE PROBLEMS OF REPRODUCIBILITY in experiments with homeopathic potencies have been around for a long, long while. Weingartner in the March issue of this *Journal*[1] investigated the general concept of experimental reproducibility from a mathematical standpoint. He distinguished three experimental systems involving homeopathy, all of which are characterized by reproducibility problems:

1. Clinical studies involving the direct comparison of verum and placebo.
2. Studies involving biological systems as detectors of possible effects.
3. Studies involving changes in some physical parameter.

The mathematical procedure that he adopts is to derive equations with which to compare experimental outcomes with the mathematical characteristics of random numbers in an attempt to see whether there is a convergence to some constant difference between verum and placebo if the number of trials is increased sufficiently.

This method goes back to the work of the Swiss mathematician, Jacob Bernouilli, who, in 1713, after 20 years of effort, published a theorem later named by Poisson as "The Law of Large Numbers." The theorem relates to an event observed repeatedly during independent repetitions when the ratio of the observed frequency* of an event to the total number of repetitions converges toward the expected value as the number of repetitions becomes larger. There is a Weak Law and Strong Law: Both state that the sample average converges to the expected value as the number of repetitions tends to infinity. The difference is in how strong that convergence is.

Weingartner[1] used the coin-tossing experiment as an example and noted that it deals with experiments that are deterministic, whereas, in homeopathy, he considers the primary concern is whether a given trial will show any difference between verum and placebo.

One can demonstrate this by iterating the surprisingly simple expression $(x^2 - 1)$. Assume that all control experiments yield a zero response. In Weingartner's notation: W_G (C) $= 0$ and W_R (C) $= 0$ and the first experiment W_G (V)

produces a unit effect. In the equation, the first repeat W_R (V) produces zero effect and subsequent repeats alternate between 0 and –1 (heads and tails). After 100 repetitions the mean is –0.50 and the standard deviation is 0.50. This is of significance for experiments involving cells that are not in synchronous division where there may be no effect on the mean because the statistical distribution has split in two so that half the cells show an increased effect, and the other half show an equal decrease. The real effect appears as an increase in the standard deviation.

Table 1 lists the results of evaluating another simple bT1 equation:

$$x_{n+1} = k.x_n(1 - x_n)$$

This is zero for $x_0 = 0$ or 1 and would represent stable conditions of health or disease. For $k = 1$ and a patient who is 90% healthy, there is a slow but steady decline to a disease state. For a $k = 2$ patient, there is the equivalent of a homeopathic aggravation quickly followed by stabilization to 0.5. A $k = 3$ patient is on the verge of instability and alternates between values in the range of 0.55–0.75. A $k = 4$ patient, has become unstable and a slight change in the initial conditions from 90% to 89% health produces a completely different result. This sequence represents the transition from stability into chaos. Stewart[2] has produced a very readable paperback describing these equations and the features of chaos that are more widespread than might be suspected.

The thesis of this Editorial is that, between the states of health and disease, a patient passes through a state of mathematical chaos (as hidden in the title). Chaos has been demonstrated with respect to the cardiac signal of a healthy human[3] as well as in electroencephalograms, epidemics, fluid flow, weather, and oscillatory chemical reactions.[4] A chaotic system eventually settles down to what is called its "attractor," which is a stable condition that may be a point focus or a limit-cycle oscillation. From the clinical and homeopathic point of view, any experiment involving the chaotic domain is *nonrepeatable* from any given initial condition, even if the underlying theory is deterministic.

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*Note that frequency in this context is the number of times an event happens. It is not necessarily the number of times a cycle of an oscillation occurs per second, which is Hertz.

TABLE 1. REPEATED EVALUATION OF THE EQUATION
$x_{N+1} = k.x_N (1-x_N)$

	$k=1$	$k=2$	$k=3$	$k=4$	$k=4$
x_0	0.90	0.90	0.90	0.90	0.89
x_1	0.09	0.18	0.27	0.36	0.39
x_2	0.09	0.30	0.59	0.92	0.95
x_3	0.09	0.41	0.48	0.29	0.19
x_4	0.08	0.48	0.75	0.82	0.62
x_5	0.08	0.50	0.56	0.59	0.94
x_6	0.07	0.50	0.74	0.97	0.23
x_7	0.06	0.50	0.58	0.12	0.71
x_8	0.06	0.50	0.73	0.42	0.82
x_9	0.05	0.50	0.59	0.97	0.59
x_{10}	0.05	0.50	0.72	0.12	0.96

TABLE 2. FREQUENCIES MEASURED IN A PATIENT WITH
A LONG MEDICAL HISTORY AND SYMPTOMS CONSISTENT
WITH STRESS ON THE MERIDIANS SHOWN

Frequencies (Hz)	Meridians etc.	Resonance width (%)	Signal-to-noise ratio
2.413×10^{-3}	Sympathetic ANS	17	0.58
3.004×10^{-2}	Small Intestine	55	0.10
2.212×10^{-1}	Pericardium	8.3	1.18
5.212×10^{0}	Urinary Bladder	3.9	2.51
7.812×10^{0}	Heart	0.6	16.33

Electromagnetic hypersensitivity has been elicited under environmentally controlled double-blinded conditions by Rea and coworkers.[5] Starting with 100 subjects, it was found that 50% were not electrically sensitive. Of the rest, 34% had false-positives or false-negatives on testing and were eliminated from the trial. In the final stage, the remaining 16% of subjects were tested at a frequency (Hz) to which each subject was sensitive and all had 100% reactions to an active frequency (Hz) and 0% responses to the placebos. The 34% of subjects who had false-positives or false-negatives must have been in a chaotic state between the stable health and disease states of the other subjects.

My criticism[6] of homeopathic trials in general is that there is no quality control. A placebo can be potentized by proximity or by impact. If placed in a steel cupboard or filing cabinet shielding the Earth's magnetic field, a potency will be *erased* (i.e., will become a placebo).

There is no point in trying to do double-blinded trials of homeopathic potencies if the protocol cannot be made to work when the identity of the specimens is known.[7] For a set of 10 tubes of water alternately verum and placebo, the first measurement run was correct up to tube 6; then, tubes 7 and 8 were wrongly identified. Things got worse on repeat runs. The results became correct at distances greater than 39 cm, which is exactly a half-wavelength at the heart meridian frequency of 384 MHz that enclosed a zone of potentized air within which the measurements were anomalous. The zone was stable over 12 hours and it was possible to walk into and out of it without disturbance. Air turbulence from a fan or vacuum cleaner produced a temporary improvement. This zone also produced anomalous potentizations, replacing the potency with the frequencies of the *Sanjiao* and Heart meridians plus the Nerve Degeneration meridian, which is Voll's summation point for the entire autonomic nervous system (ANS).

The frequency to which a patient becomes hypersensitive often arises from chronic exposure to a frequency (e.g., 50Hz or 60Hz) or from any toxic chemical that can H-bond to trace water and so acquire a frequency pattern characteristic of the chemical. Where there is stress on a meridian, target organ, or the ANS, endogenous frequencies appear in the whole T2c body field. Table 2 (column 1), shows frequencies measured from a patient with a long medical history and symptoms consistent with stresses where shown in column 2. The %

bandwidth of the resonances is shown in column 3 and the calculated signal-to-noise ratio is given in column 4, where the endogenous frequency on the Small Intestine meridian is one tenth of the noise (chaos) level and that on the sympathetic ANS about half the noise (chaos) level.

A homeopathic potency is basically a pattern of coherent frequencies. Each potentization adds two more frequencies that follow a fractal power law. There is no discontinuity at the Avogadro's Number dilution[8] In the case of the patient with the frequency pattern shown in Table 2, *Arsenicum alb.* would stimulate the Pericardium meridian and the sympathetic ANS, and *Cadmium met.* would stimulate the Small Intestine meridian by providing resonances that had become lost in noise or chaos.

Weingartner[1] emphasized the need for a theoretical model of how homeopathy works. Fröhlich[8,9] showed the importance of *coherence* in biological systems. Preparata and Del Giudice[10] showed theoretically that water consists partly of *incoherent* water molecules oscillating at random (as in steam but more densely packed) and partly of water in *domains of coherence* where natural resonances of each water molecule is in-phase—like the laser but without need for "pumping." Predictions from their theory are in good agreement with experimentally determined values for physical constants of liquid water.[9]

A wave's constant velocity of propagation equals its frequency multiplied by its wavelength. Within a coherent system, such as water, the range of the coherence *(coherence length)* becomes the constant quantity instead of the velocity. This makes frequency proportional to velocity apparently without restriction as long as one remains within the coherence length. There can be many velocities, each with frequencies in proportion. Because these frequencies no longer have absolute values, the system has become *fractal in frequency*. Consequently, the same effects can occur in many different parts of the electromagnetic spectrum. It is this that links effects of frequencies characteristic of chemical, technical and biological systems and why environmental frequency patterns can mimic chemical exposure.

In 1983, we[11] showed that living systems can respond to magnetic resonance (NMR) conditions at geomagnetic field strengths. Later, this encouraged speculation that a frequency (Hz) might be retained in water if the magnetic resonance precession of the protons could be synchronized to an applied frequency and generate an internal magnetic field that exactly satisfied proton NMR conditions within the coherence domain.

This condition turns out to be independent of frequency (Hz) and only requires 6.3×10^{12} protons to precess coher-

ently. This memory should be stable unless the domain is broken up thermally or by removing the stabilizing geomagnetic field as in "*erasure*." The threshold field for *erasure* implies a domain 53-μm diameter.

The statistical fluctuation in the number of protons involved that determines the fractional bandwidth of a frequency imprint in water as 4.6×10^6 and corresponding to a signal-to-noise ratio of 25,000. The frequencies in homeopathic potencies are less coherent. This bandwidth corresponds to the statistical fluctuations in 1.9×10^{12} water molecules and is consistent with a change of 2 protons and 2 H-bonds per molecule. There is a reversible increase/decrease in pH on potentization/*erasure* corresponding to the number of H^+ ions becoming incorporated into the memory process.

The conclusion is that a chaotic state may exist between stable states of health and disease and this state is not susceptible to repeat trials but, within which homeopathy, acupuncture, and other modalities may be able to restore the patient to a stable condition of health.

Do you want to have to say to your patients: "Wait until your illness reaches a recognizable and stable disease state when I could use a remedy that can be successfully tested in double-blind trials"? Or, alternatively, might you wish to say: "I could use a "proven" homeopathic or other complementary and alternative medicine remedy immediately to help you recover health from chaos before a stable disease state takes hold."?

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