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Survey of Recent Halakhic Literature - Coronavirus Queries (3): Priorities in Allocation of Medical Resources

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Survey of Recent Halakhic Literature

Coronavirus Queries (3): Priorities in Allocation of Medical Resources

I. The Problem

Advances in medicine and medical technology leading to preservation of countless human lives are certainly more than welcome. But modern medicine has also brought in its wake heretofore virtually unknown moral quandaries, namely, how to allocate machinery, medicine and medical services when they are not sufficient to save every life that might be saved. The dilemma was dramatized decades ago with the establishment of so-called "God committees" to assign use of the then newly-invented dialysis machine to otherwise end-stage renal patients. Less dramatic, but equally vexing, are regularly made decisions regarding assignment of I.C.U. beds. Other such dilemmas arise as well.

The most recent came to the fore during the course of the coronavirus pandemic. Coronavirus is most dangerous when it attacks the lungs and compromises respiration. At the height of the pandemic there was cogent fear that a shortage of ventilators would require grave moral decisions with regard to which patients would be placed on ventilators and which would be denied such life-saving assistance. Although in less-developed countries many afflicted patients died for lack of ventilators, that fear was largely unrealized in the United States. However, even more serious dilemmas did arise with regard to another form of treatment of which the general public heretofore had scant knowledge. The issues associated with regard to instituting such treatment arose long before Covid-19 and will continue long after. However, the dilemma became exacerbated during the pandemic and hence became the subject of a

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heretofore virtually ignored topic of discussion among pulmonary specialists and medical ethicists.[1]

ECMO (extracorporeal membrane oxygenation) provides prolonged pulmonary and/or circulatory support for compromised lung and/or heart activity by removing venous blood, pumping it across an artificial lung, i.e., an oxygenator or membrane lung, in order to remove carbon dioxide, provide for absorption of oxygen and return of the blood to the body. There are two separate ECMO configurations: 1) VV (venovenous) ECMO is a configuration in which artificially oxygenated venous blood is returned to the right atrium of the heart. In its effect, VV ECMO serves as an artificial lung. VV ECMO functions in series with a patient's own lung and provides no circulatory support; 2) VA (venoarterial) ECMO is a configuration in which artificially oxygenated venous blood is returned to the aorta and functions in parallel with a patient's natural lung. Thus, VA ECMO is a temporary heart-lung machine. Both forms provide respiratory support but only VA ECMO provides hemodynamic support.

The original form of ECMO is VA ECMO, which is employed to facilitate cardiac surgery, provide acute support as a type of heart-lung machine for patients in severe cardiogenic shock, cardiac arrest or failure to wean from cardio-pulmonary bypass following cardiac surgery. It is sometimes used as a temporary device until the patient receives a ventricular assist device in anticipation of cardiac transplantation. VV ECMO is used primarily in cases of lung injury. During the course of the pandemic it became evident that VV ECMO is effective as a means of support for some patients whose pulmonary function has deteriorated as a result of the viral infection and for whom ventilator support is insufficient.[2]

ECMO is a suitable substitute treatment only in the case of patients for whom no other treatment is effective but, happily, the indicators are that it is relatively successful in those patients. One researcher has estimated that 60-70% of patients who require ECMO treatment will survive.[3] Unfortunately, ECMO is available in only approximately 10% of

[1] For a nontechnical summary see Sheri Fink, "The Rationing of a Last-Resort Covid Treatment," *New York Times*, July 12, 2021, pp. A1 and 14-15.

[2] See Robert Bartlett, "Extracorporeal Membrane Oxygenation (ECMO) in Adults," *UpToDate* (March 24, 2021), accessible at www.uptodate.com/contents/extracorporeal-membrane-oxygenation-ecmo-in-adults [https://perma.cc/DF5T-2JF7].

[3] *Ibid*. The authors of the major study of ECMO outcomes for Covid report a 61% survival rate. See Ryan P. Barbaro, Graeme MacLaren, Philip S. Boonstra *et al*., "Extracorporeal Membrane Oxygenation Support in Covid-19: An International Cohort Study of the Extracorporeal Life Support Organization Registry," *Lancet* vol. 396, no. 10257 (October 10, 2020), pp. 1071-1078.

medical centers, virtually none of which are community hospitals.[4] Quite obviously the first quandary is determination of who should be treated and who should not be treated.[5] The problem is not simply limited availability of ECMO equipment and insufficient capacity in ECMO capable centers. Utilization of the requisite equipment requires highly trained, physicians, technicians, respiratory therapists and nurses. Increasing the number of patients provided with ECMO may result in substandard provision of care for all ECMO patients. The administration of ECMO also requires virtually constant nursing care and inordinately high expenditure of time by medical personnel. The impact upon the quality of treatment for non-ECMO patients must also be considered.[6]

Under the best of circumstances emergency responders will be confronted with triage issues in instances of major disaster. Many, if not most, of those dilemmas would not arise in a society governed by moral principles. "An entire community is never impoverished" (Jerusalem Talmud, *Gittin* 3:7). A community will never consist of only people of meager resources. Our society is blessed with more than ample resources to meet all reasonably anticipated medical needs. What is necessary is the social consciousness and political will to effect a reallocation of societal resources.[7]

Reordering of priorities in such a manner apparently requires a uniquely Jewish moral insight. *Midrash Rabbah*[8] relates that R. Joshua ben Levi went on a journey to Rome and ventured forth on a tour of the city. He saw marble pillars that were erected in the squares and parks of the metropolis. He saw that those masterpieces of art were covered with expensive drapes and tapestries to protect them from the ravages of the elements. But at the same time he also saw abject penury. He also beheld a poverty-stricken man dressed in rags and tatters standing virtually at

[4] *New York Times*, July 12, 2021, p. A14.

[5] See Alexander Supady, Daniel Duerschmied, Christoph Bode *et al.*, "Extracorporeal Cytokine Adsorption as an Alternative to Pharmacological Inhibition of IL-6 in COVID-19," *Critical Care*, vol. 24, no. 1 (August, 2020), p. 514; and Ryan M. Antiel, Farr A. Curlin, Govind Persad *et al.*, "Should Pediatric Patients Be Prioritized When Rationing Life-Saving Treatments During the COVID-19 Pandemic?" *Pediatrics*, vol. 146, no. 3 (September, 2020), pp. 1-7.

[6] See Darryl Abrams, Roberto Lorusso, Jean-Louis Vincent *et al.*, "ECMO During the COVID-19 Pandemic: When Is It Unjustified?" *Critical Care*, vol. 24, no. 1 (August 2020), p. 507.

[7] For this writer's earlier discussion of this point as well as of Judaism's unique perspective regarding prolongation of life when recovery is not medically possible see "The Jewish Entailments of Valuing Life," *Sh'ma*, November 16, 1990, pp. 1-3.

[8] *Genesis Rabbah* 33:1 and *Leviticus Rabbah* 27:1. See also *Pesikta de-Rav Kahana* 9:1.

the very feet of the magnificent pillars bedecked in luxurious finery. R. Joshua ben Levi marveled at the stark contrast.

The narrative may serve to demonstrate an existential insight. At that time, during the first half of the third century, Rome was the capital of the civilized world but would rapidly fade into insignificance; a city in which statues wear robes and human beings wear rags cannot long endure.

The phenomenon of a society wrestling with triage questions in allocating public funds while continuing to provide funding for statues and their cultural equivalents—significant as they may be—is a telling sign of a flawed moral order. The views of the Sages regarding alleviation of human suffering were not adopted by the Romans of their day. But the contemporary reader of that midrashic narrative should recognize the acuity of R. Joshua ben Levi's insight. Judaism's answer to today's perceived dilemmas may seem utopian to our contemporaries. Yet setting forth the ideals to which a just and moral society should aspire is the eternal mission of Judaism.

Unfortunately, calamities that cannot be reasonably anticipated—and society's dereliction in preparing for those that should be anticipated—require establishment of priorities for treatment in the form of triage protocols. Triage principles can be summed up in a single proposition: Treat first the most seriously affected who require immediate treatment with the goal of preserving the greatest possible number of lives. However, that principle, standing alone, is of little help in determining priorities in prophylactic treatment of persons in no immediate danger. Criteria for prioritization must be established. The claim that there are sufficient resources to defray the cost of treatment for all and sundry cannot be applied to pharmaceutical products such as the coronavirus vaccine that was not, and could not have been, developed and deployed until hundreds of thousands of afflicted individuals had actually died of the effects of the virus.

II. Future Danger and Present Duty

To many, the principle to be applied would seem obvious. Maximization of human survival is undoubtedly a moral imperative. Immediate response surmounting any tendency to procrastinate is also a moral imperative and, moreover, a quite obvious means of assuring success in attaining the moral desideratum, *viz.*, preservation of life. Those imperatives give rise to a duty of rescue. But what is the moral agent to do when those two principles come into conflict?

During the course of the coronavirus pandemic we became acutely aware that some pharmaceutical products must be stored at subfreezing

temperatures and quickly degenerate when allowed to reach normal temperature. To remain effective, the two major vaccines, Pfizer and Moderna, require storage at subfreezing temperatures between –80°C and –60°C (–112°F and –76°F) or –50°C and –15°C (–15°F and 5°F) respectively. The Pfizer vaccine is available in vials containing 10 or 15 doses per vial and the Moderna vaccine in 5 doses per vial. Upon defrosting and opening, the entire contents of each vial must be used within either 6 or 12 hours, depending on the vaccine. Any vaccine not administered during that period of time can no longer be used and must be destroyed. There are a number of therapeutic pharmaceutical products which also must be used within a short period of time or discarded. The problem in those cases is not temperature but destabilization of the drug in the medium in which it is diluted.

Consider the following unlikely but entirely possible hypothetical: Drugs such as insulin and epinephrine hydrochloride are packaged in single doses, e.g., the EpiPen, for individual administration and in much larger quantities for institutional use. Once the seal of any vial of those drugs is punctured the entire contents must be used within a relatively short period of time or thrown away. Assume that there is a hospital somewhere in the Arctic that has only a single remaining vial of epinephrine. It is now the middle of the winter. Given shipping logistics and weather conditions it is impossible to secure replenishment until six months hence. The literature states that epinephrine, even when refrigerated, cannot be regarded as stable upon expiration of a sixty-day period after opening.[9] The annual arrival of cruise ships in the spring also brings large groups of passengers. Those cruise ships have already embarked and barring some unforeseeable calamity will arrive on schedule. Invariably, a number of those passengers suffer from a life-threatening allergy to peanuts. The local health authorities have succeeded in convincing the Inuit to replace cholesterol-rich whale blubber, that heretofore was ubiquitous in their diet, with relatively inexpensive peanut oil in frying and baking. Despite repeated warnings some visitors persist in sampling the local cuisine, which is now contaminated by an ingredient derived from peanuts. Experience has shown that in each of the past ten years a handful of those visitors—but always more than one—become deathly ill during their visit as a result of contact with peanuts. The only way to avert a lethal result

[9] See Edward T. Van Matre, Kang C. Ho, Clark Lyda *et al.*, "Extended Stability of Epinephrine Hydrochloride Injection in Polyvinyl Chloride Bags Stored in Amber Ultraviolet Light-Blocking Bags," *Hospital Pharmacy*, vol. 52, no. 8 (September, 2017), pp. 570-573.

is administration of epinephrine. During the early part of the winter one of the year-round residents, a member of a scientific expedition, received a care package from home that included a cake. Unknown to the sender or the recipient, who is allergic to peanuts, the cake contained a trace amount of peanuts sufficient to trigger an allergic reaction. Upon eating the cake, the recipient experienced a severe allergic reaction.

Should the doctor break the seal on the last remaining package and administer the antidote, knowing full well that a predictably larger number of summer visitors will succumb as the result of the same allergic reaction because no antidote will be available for them, or should he treat the presently-endangered patient? Is the physician's obligation to respond triggered immediately by the appearance of the lone patient or does he also have a present obligation to future patients?[10] If the former, the physician's duty is clear: He must treat the first patient who appears with symptoms of the disease and rely upon the defense of *force majeure* in failing to treat future patients for whom he has no medication. If there is a present duty to future patients, then the obvious, and perhaps even intuitive, rules of triage apply.

If there does exist a present duty to future patients, what are the parameters of that duty? The emergency room's supply of antibiotics has been entirely exhausted. The shift of the sole physician on duty ends at 5:00 PM Friday afternoon, after which time he will be on call from home. The pharmacy closes for the weekend at 6:00 PM. It is now 5:00 PM. Does the physician have an obligation to remain on duty in the hospital until he manages to restock the antibiotics in the emergency room even though, at present, there is no patient in need of medication? But, then, if there is a present duty to future patients, does every member of society have an obligation to enroll in a first aid course in order to acquire

[10] There may indeed not be a halakhic dilemma. The scientific literature does not demonstrate that epinephrine hydrochloride becomes unstable after sixty days. The studies demonstrate only that, when properly stored, there is close to ten percent degradation beyond sixty days when refrigerated or beyond forty-five days at room temperature. It is entirely possible that the drug may be efficacious beyond sixty days despite the significant degree of degradation. If so, it would seem that failure to administer epinephrine to the patient who presents himself here and now will result in the certainty of loss of life whereas if the balance of the drug is retained and administered beyond the sixty-day period the results are a matter of doubt. If so, the rule to be applied would be the principle formulated by the Gemara, *Pesaḥim* 9a and *Yevamot* 19b, *Ein safek mozi midei vadai*, i.e., rescue from certain death must take priority over rescue from death that is doubtful. See *Pri Megadim*, *Oraḥ Ḥayyim*, *Mishbezot Zahav* 328. Cf., however, R. Naphtali Hertz Landau, *Ḥeker Halakhah*, *Ot ḥet*, sec. 2.

the knowledge and skill necessary to administer CPR to future victims of cardiac arrest? Definition of moral obligation in those and countless related situations requires a proper understanding of a number of principles governing moral duties. We must be mindful that, all matters being equal, Jewish law treats possible or doubtful danger as no different from clear and certain danger.[11] *Safek*, or doubtful *pikuaḥ nefesh* (preservation of life), is tantamount to certain *pikuaḥ nefesh* giving rise to a duty of rescue.

Duties are the moral response to human needs that give rise to such duties. Not every need gives rise to a corresponding duty. That is particularly true of future needs. Certainly, the anticipated level of probability of the appearance of a future need has a significant bearing upon generation of a present duty.

The seminal discussions of such issues in halakhic literature deals, not with defining such duties *per se*, but with the flip side of those duties, *viz.*, delineation of the circumstances warranting suspension of religious prohibitions in fulfillment of those duties. The *locus classicus* is the responsum of R. Ezekiel Landau regarding autopsies, *Teshuvot Noda bi-Yehudah*, *Mahadura Tinyana*, *Yoreh De'ah*, no. 210.

Defilement of a corpse is sanctioned in order to preserve life. In London, during the early part of the nineteenth century, in the wake of an unsuccessful surgical procedure to remove a "stone," presumably a gallstone or a kidney stone, a question was submitted to *Noda bi-Yehudah*. The physicians wished to conduct a post-mortem examination in order to learn how properly to perform the surgical procedure in the future. Precisely what they sought to learn at autopsy is not spelled out but the clear impression is that they understood that limiting the extent of the incision and invasion of the abdomen would curtail the risk of mortality. More precise knowledge of the location of the organ to be excised relative to other organs would enable them to limit the extent of the abdominal incision. *Noda bi-Yehudah*'s response was affirmative but with one proviso. He ruled the procedure to be permissible only if there already was another identified patient in need of the same surgical procedure whose treatment would benefit from the knowledge gained as a result of the post-mortem examination. *Noda bi-Yehudah* did not himself employ the phrase but some decades later R. Moshe Sofer, *Teshuvot Ḥatam Sofer*, *Yoreh De'ah*, no. 336, coined the term "*ḥoleh le-faneinu*—a patient before

[11] Of course, when appropriate, the principle *ein safek mozi midei vadai* is applicable. See *supra*, note 10.

us" to describe the limited circumstances in which an otherwise prohibited act might be carried out in order to preserve life.

In effect, *Noda bi-Yehudah* limits the scope of present recognition of future danger and restricts application of that concept quite narrowly. His objection may be formulated as a *reductio ad absurdum*: At the time, the accepted therapy for fever and the like when experienced by pediatric patients was drinking warm milk. If a child took ill on *Shabbat*, boiling milk on his or her behalf was regarded not only as permissible but mandatory and the remedy was to be administered without delay. On any given day, somewhere, sometime, some child will undoubtedly become ill and require a therapeutic dose of warm milk. A mother wakes on *Shabbat* morning. The children all appear to be in the pink of health but the onset of infant illness can be quite rapid. Preparing the stove, kindling a fire and placing a pot on the flame is time-consuming. Once a child becomes ill, any delay in performing those tasks can only increase danger to the child. May the mother carry out those tasks immediately upon arising because of the possibility that in the course of the day a child's life might thereby be saved? Such a conclusion, argues *Noda bi-Yehudah*, would be absurd because, were it correct, no act of labor would ever be proscribed on *Shabbat*. Every human act has the potential for saving a life at some time and at some place. Despite the truth of that assessment, it must be the case that the Torah does not regard such a future contingency with the gravitas required for suspension of prohibitions. The point of demarcation between the mandatory and the forbidden, as later expressed by *Ḥatam Sofer*, is the existence of a "*ḥoleh le-faneinu*—a patient in our presence." Taken literally, the distinction lies in the presence of a presently applicable causal nexus between the present act and its potential beneficial lifesaving effect. The act is permitted only if the question of whether there exists such a causal relationship can be answered in the affirmative.

The question of the existence of a present duty to satisfy future ethical demands has become an increasingly pressing issue and encompasses not only potential needs of existing beneficiaries but also of the unborn and even of future generations as well. The issue was not really anticipated by classical philosophers. To the extent that contemporary ethicists have grappled with the problem, their advocacy is in the nature of heuristic pronouncements rather than of ethical imperatives. C.L. Stevenson categorized every affirmative ethical proposition as no more substantive than the declaration "I approve of X; you do so as well."[12] In contrast,

[12] Charles L. Stevenson, *Ethics and Language* (New Haven, 1944), pp. 25-26.

for Judaism, the propositions of ethics are really a subset of halakhic imperatives. Hence, one must abjure establishing subjective ethical prescriptions as formulated by secular ethicists based upon what R. Ovadiah of Bartenura, *Ethics of the Fathers* 1:1, describes as "*devarim asher badu me-libam*—matters that they have conjured in their minds" and investigate the halakhic axioms upon which such determinations must be made. Moral imperatives are not expressions of subjective emotive feelings; they are objective and normative principles of conduct.

III. The Definition of *Ḥoleh le-Faneinu*— A "Presently Ill" Patient

As is often the case with newly-arising halakhic problems, the process of halakhic dialectic must begin with identifying the halakhic categories that must be brought to bear upon the problem or, to use the law school idiom, "issue spotting." The halakhist would probably phrase the issue somewhat differently, but to the ethicist the first issue to be addressed is the question of whether there exists a present duty to a future beneficiary.

1. The Vilna *Yom Kippur* Controversy

If obligations of halakhic intervention are coextensive with a duty of rescue narrowly construed, *Noda bi-Yehudah*'s ruling confirms only an obligation that can be discharged "here and now." However, more extensive applications are not difficult to find. In 1848, one of a series of cholera epidemics was in the process of ravaging the European continent. The accepted medical wisdom of the day assumed that a person in a weakened condition was more susceptible to that disease.[13] Fasting causes dehydration and debilitation. The details of the incident are rather murky, but it is reported that on *Yom Kippur* of that year R. Israel Salanter publicly broke his fast by standing at the front of one of the main synagogues of Vilna, reciting *kiddush* and eating a piece of cake. He directed the assembled congregants to do so as well. None of the worshippers had contracted the disease nor did any of them manifest any sign of illness. They required neither medication nor immediate nourishment. Assuming the most serious of possibly attendant circumstances, fellow towns-

[13] Thus, during the cholera epidemic of 1830-31, R. Akiva Eger directed that people should not go outdoors "on an empty stomach." See *Iggerot Soferim*, Part I, no. 29, reprinted in *Iggerot R. Akiva Eger*, 2d ed. (Jerusalem 5750), no. 71 and in *Ḥiddushei R. Akiva Eger*, *Nedarim* 39b, no. 1. A translation by R. Mordechai Torczyner is available at www.yutorah.org/lectures/lecture.cfm/948593.

people of Vilna had already succumbed to the disease and the possibility of contagion was already present and "before us." Consumption of food was a preventative measure designed to mitigate the effects of the disease when and if contracted. It requires no great leap of reason to equate those circumstances with the situation addressed by *Noda bi-Yehudah*. If this is an accurate description of the situation in Vilna, the sole difference is that *Noda bi-Yehudah* describes a *ḥoleh le-faneinu* while in Vilna there was a *ḥoli le-faneinu*—an *illness* "before us," rather than an *ill person* "before us."[14] In both sets of circumstances there is a direct nexus between the required act and avoidance of an imminent, albeit doubtful, danger. In an analogous matter, R. Israel Lipschutz, *Tiferet Yisra'el*, *Yoma*, *Bo'az* 8:3, encouraged exposure to what was, at the time, very real self-endangerment entailed in immunization against smallpox.[15]

But there is more to be gleaned from that narrative. The story of R. Israel Salanter's dramatic act is well known in scholarly circles. Less well known is what some might term Rabbi Salanter's heroic defiance of an already publicized proclamation of the *bet din* of Vilna directing that only those already actually ill were to refrain from fasting. The members of that *bet din* included R. Shlomoh ha-Kohen, celebrated as the author of

[14] Some writers have categorized the situation in Vilna as that of a *ḥoleh le-faneinu*. Those sources are cited by Hillel Goldberg, *Between Berlin and Slobodka: Jewish Transition Figures from Eastern Europe* (Hoboken, 1989), p. 163, note 28. If that is correct, the ruling of the Vilna *bet din* to the contrary is more than puzzling.

For a fuller discussion of that controversy see R. Yechiel Ya'akov Weinberg, *Seridei Esh*, IV (Jerusalem, 5729), 289; R. Dov Katz, *Tenu'at ha-Mussar*, 3rd edition (Tel Aviv, 5718), I, 159-161; R. Jacob Kaminetsky, *Emet le-Ya'akov al Arba'ah Ḥelkei Shulḥan Arukh*, *Oraḥ Ḥayyim* 554:6; and R. Nathan Kaminetsky, *Making of a Gadol* (Jerusalem, 2002), I, 1104-1105; as well as J. David Bleich, *Contemporary Halakhic Problems*, VII (New Milford and Jerusalem, 2016), 455-456. Cf., however, R. Eliyahu Lopian cited by R. Shlomoh Zalman Auerbach, *Halikhot Shlomoh al Mo'adei ha-Shanah*: *Tishri-Adar* (Jerusalem, 5763), chap. 5, sec. 11, note 58 as well as R. Shimon Strashun cited in *Tenu'at ha-Mussar*, *ibid*., p.160, note 8. See here also the comments of R. Asher Weiss, *Kuntres Minhat Asher: Teshuvot be-Inyanei Yamim ha-Nora'im be-Idan ha-Koronah* (*Erev Rosh ha-Shanah*, 5781), pp. 24-26.

[15] Much earlier, a disciple of *Noda bi-Yehudah*, R. Eleazar Fleckles, *Teshuvah me-Ahavah*, I, no. 135, permitted violation of *Shabbat* prohibitions in order to administer an otherwise unavailable vaccine on *Shabbat*. *Teshuvah me-Ahavah* did, however, note that "Even if [one who disagrees] will be stubborn and say that this is not in the category of a dangerously ill person, nevertheless [the person requiring an inoculation] is in the category of a sick person who is not presently in danger but may become endangered at a later date" and therefore may have the injection administered by a non-Jew. See also R. Joseph Zechariah Stern, *Teshuvot Zekher Yehosef*, *Oraḥ Ḥayyim*, no. 104. Cf., however, R. Menasheh Klein, *Mishneh Halakhot*, III, no. 42, as well as R. Moshe Soloveitchik of Zurich, *Ve-ha-Ish Mosheh*, II, no. 4, p. 129. See also *infra*, note 21 and accompanying text.

Ḥeshek Shlomoh, incorporated in the Vilna *Shas* and in virtually every subsequently published edition of the Gemara, and *Teshuvot Binyan Shlomoh*. His brother, R. Betzalel ha-Kohen, author of *Ḥokhmat Beẓalel*, also published in the same and subsequent editions of the Gemara, was another member of that *bet din*. Presumably, were the circumstances clear-cut and unequivocal there would have been no room for controversy.[16] As will be shown, the nature of that controversy has far-reaching ramifications.

2. Present Cause of Future Danger

It is more likely that the danger in Vilna could not be categorized as a danger "here and now." In all likelihood there was no reason to suspect that the worshippers in the Vilna synagogue had already been exposed, or were in danger of imminent exposure, to the disease. Nevertheless, given the nature of cholera, there was reason to fear that the epidemic would travel quickly enough to infect some of the worshippers who would be in a debilitated state as a result of the fast. If so, the danger can best be described as a future danger rather than as an imminent danger.[17] To harness the connotation of the idiom "*ḥoleh le-faneinu*," the situation should be described neither as that of a *ḥoleh le-faneinu* nor of a *ḥoli le-faneinu* but as an instance of "*sibbat ha-ḥoli le-faneinu—the cause* of the sickness is before us."

[16] *Ḥazon Ish*, *Ohalot* 22:32 and *Yoreh De'ah* 208:7, states clearly that the presence of contagious disease is comparable to "a border city" and considered to be a *ḥoleh le-faneinu*. See also R. Shlomoh Zalman Auerbach as quoted by Abraham S. Abraham, *Nishmat Avraham*, *Yoreh De'ah* 349:2, sec. 2.

The example of "a border city" is a reference to the discussion of war in the Gemara, *Eruvin* 45a. Self-defense is unequivocally permitted on *Shabbat* but self-defense is limited to defense against a threat to life, not a threat to property. Self-defense is permitted on *Shabbat* against an enemy who attacks on *Shabbat* with intent to kill but not against an enemy who seeks only to pillage. However, if the threatened city is situated "close to the border" such defense is permissible even if the enemy's present motive is only economic. The Sages permitted defense against an economic threat solely because, if a border city falls, the marauding army might penetrate further and become emboldened to engage in wanton killing. The Gemara regards enemy occupation of a border city to be a matter of life-threatening danger because such occupation facilitates further conquest. Lives will not be endangered until the city has been captured and the adversary's army has advanced beyond. The Gemara's hypothetical presumes that seizure of additional territory and the resultant danger would not occur until after *Shabbat*.

[17] *Emet le-Ya'akov al Arba'ah Ḥelkei Shulḥan Arukh*, *Oraḥ Ḥayyim* 554:6, asserts that the controversy between R. Israel Salanter and the Vilna *bet din* was precisely with regard to whether a possible future danger constitutes danger for purposes of Halakhah. Cf. R. Moshe Sternbuch, *Oraita*, no. 16 (Elul 5748), p. 177 and *Contemporary Halakhic Problems*, IV (New York, 1995), 373, note 4.

Expansion of the category of circumstances warranting suspension of halakhic restrictions so as to avoid potential life-threatening danger to include what should be categorized as "the *cause* of sickness (*sibbat ha-ḥoli*) is before us" as well seems unexceptionable. It is quite certain that, had a white powder containing anthrax been released in the Vilna synagogue, the *bet din* would have joined in declaring an emergency and demanded violation of *Yom Kippur* restrictions in summoning a clean-up squad although, as yet, no worshipper had manifested symptoms of anthrax poisoning. Assuredly, elimination of a potential cause of an otherwise avoidable life-threatening illness warrants suspension of halakhic strictures.

The controversy must have been with regard to the requisite likelihood that an identifiable present cause would naturally entail an untoward effect that, in turn, would call for suspension of halakhic restrictions. Put somewhat differently, the controversy must have been with regard to the threshold level of probability required to justify suspension of halakhic restrictions. How certain must the causal nexus be, or how often must the potential cause-effect sequence actually take place, to establish that there exists a halakhic *ḥoleh le-faneinu*?[18]

In more recent times, the late R. Isser Yehudah Unterman was consulted with regard to necessary preparations on *Shabbat* in anticipation of hostilities,[19] e.g., erection of a field hospital. No soldier had been wounded; as yet, no soldier was subject to danger. There was no *ḥoli le-faneinu*. No bullet had been shot; no rifle had been cocked. There was no *sibbat ha-ḥoli le-faneinu*. Nevertheless, although the specific question he addressed was somewhat different, Rabbi Unterman's ruling would permit transporting materials and equipment for erection of a field hospital on *Shabbat* even before the first shot was fired. War by its very nature is no less a cause of danger than anthrax or a virulent disease-causing microbe. War is definitely a *sibbat ha-sakkanah*. The sole novel factor in Rabbi Unterman's ruling is that he regarded the *decision* to go to battle as itself a *sibbat ha-sakkanah* (cause of danger), as it assuredly is. The novelty of his ruling lies in the fact that the decision to go to battle is an antecedent, rather than a proximate, cause of danger and, moreover, the decision is a mental, rather than physical, act. The novelty of his position lies in a ruling to the effect that a remote

[18] See this author's earlier discussion of that issue with regard to a related problem in *Bioethical Dilemmas*, I (Hoboken, New Jersey, 1998), 150-159.

[19] See *Torah She-be-al Peh*, XI (5729), 14.

decisional act also qualifies as a *sibbat ha-sakkanah le-faneinu* (the cause of the danger is before us).

3. Statistical Danger

A further expansion of the same concept: An outlying *moshav* at some distance from the nearest medical facility employs a nurse to provide immediate medical care when necessary. When the situation warrants more extensive treatment, she summons an ambulance and, when medically indicated, accompanies the patient to the hospital and then returns to the *moshav*. Question: If such an event occurs on *Shabbat*, may she return by motor vehicle in order to be available for other potential patients? Once emergency responders have successfully cared for the patient's needs, may they return their ambulance to base in order to minimize response time in case of a future emergency? On first impression, those situations might seem comparable to the earlier-given hypothetical of a mother desirous of boiling milk in anticipation of a potentially feverish child.

However, that analogy is far from clear. In any given household it is unlikely that a child will become ill over the course of a single day. In a highly populated metropolis it is a virtual certainty at least one child will become ill in the course of a *Shabbat*. That likelihood is a matter of statistical probability. A number of authorities have ruled that in such a situation the nurse must be guided by the degree of likelihood of another seriously ill patient requiring her ministration during the course of *Shabbat*.[20] If that is judged to be a rare event, the situation is comparable to that of a mother contemplating boiling milk on *Shabbat*. If past experience teaches that the likelihood that multiple patients will require medical attention during the course of a single *Shabbat* is not remote, the situation should be treated as that of a *ḥoleh le-faneinu*.[21]

The sole medical officer in an Israeli army unit was confronted with an even graver dilemma. The doctor performed emergency surgery to extract a bullet from a soldier's chest. The patient remained in serious condition requiring ventilator support and continuous monitoring while

[20] See *Minḥat Shlomoh*, *Tinyana*, no. 37; R. Zevi Pesach Frank, *Teshuvot Har Ẓevi*, *Oraḥ Ḥayyim*, II, no. 10; R. Joshua Neuwirth, *Shemirat Shabbat ke-Hilkhatah*, I, 40:67 and *ibid*., note 159; as well as R. Israel Aryeh Zalmanowitz, *No'am*, IV (5761), 167.

[21] Cf., *Teshuvot Mishneh Halakhot*, III, no. 42, who adopts a contradictory position, as well as *Ve-ha-Ish Mosheh*, II, no. 4, p. 129. See *infra*, note 24 and accompanying text. *Mishneh Halakhot* asserts that *Noda bi-Yehudah*'s position does not admit of a distinction between an unlikely future occurrence and a likely future event. Cf., *supra*, note 17. See also *supra*, note 15.

being evacuated by helicopter for hospital treatment. Battle was still raging and hence the physician's dilemma: A medic was available to accompany and monitor the patient. However, in the physician's judgment, the soldier's chances of survival would be greater if he, himself, were to accompany the patient. His problem was that in battle "The sword consumes these and those" (II Samuel 11:25), i.e., in time of war casualties must be anticipated both by the vanquished and the victor. Thus the physician cogently feared that there would be further casualties requiring his life-saving medical attention on the battlefield.

Rabbi Yitzchak Zilberstein, *Ve-Ha'arev Na*, III, 343-345, reports that his father-in-law, R. Joseph Shalom Eliashiv, ruled that the doctor should remain in the field because of the strong likelihood that there will be additional casualties. Rabbi Eliashiv's primary consideration is reported to have been that, when troops are under fire, the situation is tantamount to a *ḥoleh le-faneinu*. An additional consideration advanced by Rabbi Eliashiv focuses upon the morale of the troops. Knowing that, should one of them be wounded, there would be no physician available to treat him, contended Rabbi Eliashiv, would create a state of fear that itself should be recognized as enhancing the danger—and that danger was certainly a present, rather than a future, danger.[22]

It has already been demonstrated that the identity of the potential victim need not be established; the presence of the malady is sufficient. Similarly, it has already been established that the likelihood of future occurrences of danger constitutes halakhically recognized danger. The novelty of the halakhic rulings regarding return of a nurse or an ambulance driver on *Shabbat* is that there can exist a halakhic status of *ḥoleh le-faneinu* even if neither the identity of a potential victim nor the nature of the potential danger—the *sibbat ha-ḥoli*—has been established. What has been established is the statistical probability of a future victim. Thus, permitting the nurse to return to the *moshav* involves recognition that statistically predictable future danger is to be equated with a *ḥoleh le-faneinu*. If there exists a statistically predictable future danger, return on

[22] It is not clear whether the evacuated soldier already required constant ongoing medical attention or whether accompaniment was necessary because of a concern that such a need might arise in the course of the helicopter trip. If, as is not unlikely, the soldier required ongoing monitoring, the issue is not only that of a possible future danger versus an imminent danger but a question of whether, once he has begun to treat a patient, a doctor, applying principles of triage, may abandon that patient either in order to treat another patient in greater medical need or in order to treat a greater number of patients. That issue will be discussed in a forthcoming contribution.

Shabbat is not only permitted; it is required.[23] That can be so only because there is a present obligation to future victims provided they are, at least statistically, in the category of a *ḥoleh le-faneinu*.

The situation of the nurse or of an ambulance driver is an outlier case that serves to demonstrate the cogency of the basic principle. But there is no dearth of hypothetical circumstances in which the application is appreciated more intuitively. Suppose that a person is known to be at high risk for Huntington's disease or Alzheimer's dementia. Suppose a prophylactic is available that will prevent the disease but its administration involves a halakhic infraction. True, the beneficiary has been identified but the benefit will occur only in the future. If there is no present duty to a future beneficiary, there should similarly be no present duty to a person who will derive benefit only in the distant future. Acknowledgment of a prophylactic duty to a future beneficiary entails recognition of a present duty *vis-à-vis* a person who is likely to become endangered in the future.

4. Halakhic Precedents for Defining Statistical Danger as Danger

The notion of statistical danger being regarded as a *ḥoleh le-faneinu* is not as novel as it might appear. As noted, in the early days of smallpox inoculation, *Tiferet Yisra'el* permitted vaccination despite what was then a very real danger of contracting the disease as a result of inoculation. The situation clearly involved a trade-off between a much greater, but somewhat more remote, risk as opposed to a lesser immediate risk. Statistically, the danger of exposure to smallpox was significantly higher than the danger of vaccination. Nevertheless, a disciple of *Noda bi-Yehudah*, R. Eleazar Fleckles, *Teshuvah me-Ahavah*, I, no. 135, ruled that if a physician would be available to administer the vaccine only on *Shabbat* it would be permitted to violate the *Shabbat* even by committing a biblical transgression in order to vaccinate a child but added that, since the child is presently healthy, a "stubborn" person might consider the matter as constituting only a future danger.[24]

There are many other situations in which halakhic decisors have regarded the probability of future danger as tantamount to a clear and imminent danger. In principle, when *Shabbat* violation is necessary to

[23] For even more remarkable extension of this principle reported in the name of R. Chaim Soloveitchik see R. Baruch Ber Leibowitz, *Birkat Shmu'el*, *Kiddushin*, no. 27, sec. 6 and R. Shlomoh Yosef Zevin, *Ishim ve-Shittot*, 2nd edition (Tel Aviv, 5718), p. 65. See also *Mishneh Halakhot*, XVII, no. 175, p. 328. Cf., however, *Ḥazon Ish*, *Oholot* 22:32 and *Yoreh De'ah* 208:7.

[24] See *supra*, note 21 but cf., *Teshuvot Mishneh Halakhot*, III, no. 42.

save a life, the services of a non-Jew should be employed for that purpose or, if that is not possible, the act should be carried out in an unusual manner (*shinnuy*) thereby reducing the act to a rabbinic infraction. Yet, *Shulḥan Arukh*, *Oraḥ Ḥayyim* 328:12, rules that no such attempt should be made. Many commentators explain that *Shulḥan Arukh* was concerned that procrastination in seeking a non-Jew or in attempting to employ an unusual mode of performing the act might cause delay and exacerbate the danger. However, *Taz*, *Oraḥ Ḥayyim* 328:5, advances an entirely different explanation. According to *Taz*, the concern is that an onlooker might assume that a non-Jew was sought or that the act was performed in an unusual manner because desecration of *Shabbat* is forbidden even for rescue of human life. Consequently, on some future occasion, faced with a comparable situation, a person might refrain from an act of rescue and a life would be forfeit. Given a period of millennia, it is virtually assured that such an egregious error will occur at least once. *Taz* regarded that future danger as clear and certain.

There is also a very clear talmudic precedent in support of that position. The Gemara, *Sanhedrin* 26a, reports that gentile authorities imposed a tax upon Jewish farmers. For some, payment of the tax was a severe hardship during the sabbatical year when there was no harvest. Wealthy farmers had resources upon which they could draw for payment of taxes; the poor farmers did not. Failure to pay the annual tax had dire consequences, including death. For the impoverished, planting and harvesting a crop during the sabbatical year was a matter of life and death. R. Yanai realized that the indigent would be too embarrassed to till the fields because to do so would be a public announcement of their impoverishment. As translated, the Yiddish saying, "People do not die of hunger; they die of shame," reflects R. Yanai's concern. Accordingly, the Sages ruled that everyone, including the wealthy, should engage in agricultural activity during the sabbatical year. Planting the fields certainly took place long before the assessed tax was due and owing. Not everyone faced danger. But the only way to spare the endangered was to sanction infraction by the general populace, and as such the situation is encompassed within the rubric of *ḥoleh le-faneinu*.[25]

The Sages were concerned not only with loss of life as a result of ignorant but well-intentioned failure to act but also with the possibility of dereliction of duty as a result of all too common laziness or commodiousness. Accordingly, they sanctioned various forms of conduct on the basis of "*sofan mishum teḥilatan*—their end, because of their beginning." For example,

[25] Cf., however, *Kesef Mishnah*, *Avodat Kokhavim* 11:3.

the life of a woman in labor is always regarded as endangered. Consequently, a midwife may travel on *Shabbat* without compunction in order to reach the expectant mother. But after successful delivery of the baby the services of the midwife are no longer required and hence there would seem to be no justification for her to violate the Sabbath in undertaking a return journey. Nevertheless, the Sages also permitted return journeys at "their end," i.e., after assistance of midwives in parturition has been completed, so that the midwives not refuse to make such trips at "their beginning." Despite her recognition that the "beginning" represents a situation of danger whereas the end does not, a midwife might avoid rendering assistance were she to be required to suffer the inconvenience and discomfort of dislocation until the conclusion of *Shabbat*. Human beings are fickle and the Sages were not prepared to allow a life to be lost because of nonfeasance. It is easy to find an excuse not to act. The only way to promote compliance with the halakhic duty of assisting in childbirth on *Shabbat* is to eliminate the ignoble motive, conscious or subconscious, for avoiding that duty by permitting the midwife's return journey as well.

True, the vast majority of halakhic authorities regard that dispensation as limited to rabbinic infractions such as travel beyond two thousand cubits of an inhabited area but not the violation of biblical law.[26] The Sages failed to declare that the prohibition against violation of biblical law also be suspended only because they regarded the likelihood that even a single Jew would actually ignore a duty of that nature because of selfish considerations to be so remote as not to constitute a cognizable danger. But the Sages had absolute discretion to suspend rabbinical prohibitions of their own enactment and so, they did indeed suspend their restrictions in the face of even an exceedingly remote concern. The few latter-day authorities who interpret the halakhic provision as extending even to biblical violations had a much less charitable view of human nature and regarded such occurrences as likely to be sufficiently frequent as to constitute a *ḥoleh le-faneinu*. The sole matter in dispute is the assessment of the degree of future likelihood. All would agree that, if the requisite threshold of future danger is met, the situation is tantamount to a *ḥoleh le-faneinu*.

5. Time as a Continuum

At least for the purpose of positing halakhic constructs, time must be viewed as no less real than mass and extension. We should think of time

[26] That disagreement finds very practical application in the question of whether a Hatzalah ambulance driven by a Jew may return from a mission of rescue on *Shabbat*. See *Contemporary Halakhic Problems*, IV (New York, 1995), 123–124.

as a fourth dimension. It is a continuum no less so than contiguous mass is a continuum. Certainly, the category of a *ḥoleh le-faneinu* is not limited to a person who collapses on my living room floor. If I am trained in CPR I must go to the rescue of a person who collapses down the block within running distance of my home even if such rescue requires transporting medical paraphernalia into and through a public thoroughfare on *Shabbat*. At the very least, "*le-faneinu*" means no less than a patient within the ambit of my effective intervention. If time is a continuum, the notion of "in my presence" encompasses within its ambit the full extent of the "chunk" of time over which I can exercise control, just as "in my presence" includes the entire geographic area within which I can perform effectively. If true with regard to suspension of halakhic prohibitions, it must be also true of the religious and moral duties of which halakhic manifestations are born.[27] I owe a duty of rescue to anyone within the geographic space over which I can exercise control; I also owe a duty of rescue to anyone within the fourth dimension, known as time, over which I can presently exercise control.[28]

This concept of time becomes even more striking if it is expanded to include a Cartesian notion of time as an aggregate of distinct and discrete fourth dimensional quanta analogous to the manner in which matter is an aggregate of molecules and, ultimately, of atoms. For Descartes, that notion was material to his formulation of the doctrine of constant conservation in demonstrating the existence of the Deity. Similarly, the notion of time as a continuum underlies Sa'adia Ga'on's classical resolution of the apparent contradiction between divine omniscience and human freedom.[29]

But halakhic theory or "metaphysical myth" goes beyond Descartes in positing not simply time atoms, or time-quanta modules, but measurable finite "time-blocks." There is an obligation to rend garments upon the death of a close relative. Tearing the garment is performed as an act of mourning. The mourner must not only know that a death has occurred, but must also be aware of the identity of the deceased. However, that duty

[27] See R. Chaim ha-Levi Soloveitchik, *Ḥiddushei R. Ḥayyim ha-Levi al ha-Rambam*, *Hilkhot Yesodei ha-Torah* 5:1.

[28] To sum up the matter in a pithy phrase: "I owe the same duty to a person 'down the clock' as I do to a person 'down the block.'"

[29] For a fuller discussion of the Cartesian notion of time, see *Contemporary Halakhic Problems*, VII, 373-378. These comments are a further elucidation of the notion that some halakhic provisions can best be understood within the framework of a Cartesian notion of time. See *ibid*., p. 374, note 10. See also J. David Bleich, *With Perfect Faith: The Foundations of Jewish Belief* (New York, 1983), p. 496.

is discharged even if the garment is torn when the specific identity of the deceased relative is as yet unknown provided that the mourner becomes aware of the relative's identity within a time-space of *kedei dibbur*, i.e., the time necessary to utter three (or four) words.[30] Rending of the garment and subsequent realization of the identity of the deceased are deemed to be simultaneous events if they occur within a single time unit of *kedei dibbur*. Any testimony, oaths, verbal declarations and the like can be rescinded within a timespan of *kedei dibbur*. Even a *kinyan*, i.e., an overt physical act required to consummate a contract or transfer of property, can be rescinded within that time period. That halakhic principle is best understood if an entire quantum of time is regarded as a single unitary entity. An oath can be withdrawn "*tokh kedei dibbur*." Such a withdrawal is not in the nature of an act *nunc pro tunc*, or "now for then"; it is not a form of retroactive nullification. Rather, it is in the nature of two simultaneous declarations. "I swear; I do not swear" does not rise to the level of a contradiction; it is gibberish, just as "X both exists and does not exist" is a meaningless proposition. Withdrawal of an oath "*tokh kedei dibbur*" is tantamount to vocalizing the oath and simultaneously retracting it. Each time-quantum measured as a *kedei dibbur* in duration is a single discrete time-block of which the infinite continuum of time is composed, just as each block of specific dimensions is a discrete portion of the continuum of clay or cement of which a wall is constructed.

Time is indeed different in the sense that the quanta constituting a time-block of the "magnitude" of a *kedei dibbur* are constantly reshuffled. A "rolling" periodic contract is a contract for a stipulated period of time; it is for a stated period of time that is constant but continuously begins anew. The effect of such an agreement is to create a contract for an unlimited, and hence infinite, period of time subject to cancellation within a constant period hence. Thus, a durable contract subject to revocation upon three years notice is, in form, in contract for no more than three years but each day on which notice fails to be given generates the inception of a new three-year contract beginning that day. Think of an exposed brick of cheese scored at the thickness of each slice. The cheese-cutter is poised atop the cheese at the thickness of a single slice. A second cutter is poised between the second and third scores of the block and pressed into place. The first cutter is allowed to cut through the first slice of cheese; the second cutter does not slice until the first cutter is retrieved and

[30] See *Shulḥan Arukh*, *Yoreh De'ah* 340:24. For a comparable principle governing nullification of the oath of a wife or minor daughter see *Yoreh De'ah* 234:31. See also *Taz*, *Yoreh De'ah* 234:31.

repositioned by shifting it one score lower between what was originally the third and fourth score. The process is continuously repeated until the cheese-cutter reaches the last remaining score on the continuum. Were the brick of cheese of infinite length the process would never end.

Such definition of time may be no more than a myth but many a truth is conveyed through the medium of a myth.[31] A person carries with himself a geographical domain measured by a shifting radius of four *amot*. Rabbinic legislation decreed that, in certain circumstances, such geographic areas may be used as a personal "courtyard" for the purpose of acquiring title to property.

A person exercises "control" over immediately surrounding personal space; a person "controls" the time—or "temporal space"—in which he performs an act. A person is granted present halakhic control of a quantum of time measured as *kedei dibbur* because that time-block is made subject to his jurisdiction. If this writer's hypothesis regarding the halakhic projection of the nature of time is entertained, the conclusion that halakhic considerations are suspended for present performance of acts of rescue that will be effective only in the future is virtually inescapable.

Suspension of halakhic restrictions for preservation of life and a duty of rescue, although, in the logical sense, not necessarily coextensive, are nevertheless governed by identical spatio-temporal parameters. Both are defined by potential for, and feasibility of, rescue. Both encompass any act that has life-saving potential. Both demand an act here and now, even though the effect may be physically or temporally remote. Accordingly, to this writer, it seems obvious that there is a present duty of rescue to a future victim.[32]

IV. Priorities in Vaccine Distribution

The need for vaccination against Covid-19 is self-evident. Absent one of a number of particular medical contraindications, which fortuitously are rare, vaccination against coronavirus should be advocated for all.[33] The only question that merits discussion is prioritization of recipients when there is an insufficient supply of the vaccination immediately available to all. Resolution of that question is a matter of triage.

[31] Cf., J. David Bleich, "The Metaphysics of Property Interests in Jewish Law: An Analysis of *Kinyan*," *The Philosophical Quest: Of Philosophy, Ethics, Law and Halakhah* (New Milford and Jerusalem, 2013), 325-348.

[32] The contradictory view of a number of eminent authorities will be discussed in a forthcoming contribution.

[33] A detailed discussion of Halakhah and inoculation against contagious disease appears in *Contemporary Halakhic Problems*, VII, 449-468.

In practice, triage involves an attempt to achieve two separate ends: 1) assignment of priority in treatment to those in greatest imminent danger; and 2) rescue of the greatest possible number of lives. It is not always possible to pursue both goals at once. Moral conflicts can and do arise when delay in treatment of those in greatest need will ultimately result in saving a greater number of lives.

The Centers for Disease Control and Prevention assigned the highest priority for receiving COVID-19 vaccines to health care workers and residents of nursing homes followed by elderly persons and those at risk due to particular medical conditions affecting the immune system. Within those categories it is difficult to determine precisely which group is subject to the greatest risk. Knowing that approximately one-third of all coronavirus deaths occurred among nursing home residents probably establishes that those persons were at greatest risk. Virtually identical risk factors for contagion, although not for mortality, were present in prisons as well. If so, both the inmate population and custodial personnel should have been included in high categories of prioritization. There is compelling reason to assign even higher priority to inoculation of health care personnel. Vaccination of those individuals serves not only to preserve them from infection and prevents them from infecting sick, vulnerable and elderly patients for whom they care,[34] but also ensures availability of medical personnel to treat those who will inevitably fall ill. Prevention of the death of a single health care worker, when there is a serious shortage of personnel, probably assures the rescue of multiple future patients. In light of that fact, plus the high risk of both exposure and contagion among caregivers, a strong argument can be advanced for giving health-care workers presently at risk priority at least as great, if not greater, than residents of nursing-care facilities. Most states adopted the recommendations of the Centers for Disease Control and Prevention.

However, a problem did arise from the fact that most presently available vaccines (and the only ones available at an earlier time) require administration of two doses. The second dose is administered three or four weeks after initial inoculation. The practice, at least in the early days of vaccine distribution, was to hold 50% of the allocated vaccine in reserve in order to assure that each vaccinated person would receive both inoculations.

[34] For a report of unvaccinated health care workers in a nursing home in Kentucky who contracted the virus and set off an outbreak that infected twenty-two residents and employees see Syra Madad, "How to Talk to Vaccine Holdouts," *New York Times*, May 29, 2021, p. A19, col. 5.

That policy was misguided for a number of reasons. The various vaccines were, and are, in ongoing production in various locations. A person vaccinated today does not require immediate access to the vaccine to be administered several weeks hence. In the ordinary course of events, the vaccine will be available to him when required even if all vaccines presently available are provided to other persons. Even if for some unforeseen reason a second dose cannot be provided at the place of original inoculation, the same vaccine will be available at other sites.

Moreover, even were it known as a matter of certainty that a second vaccine will not be available, a single inoculation should be administered to the greatest number of people. In the absence of a countervailing moral consideration, a policy leading to statistical probability of preserving the greatest number of lives would prevail. Approximately 95% of fully-vaccinated persons acquire long-term immunity against prevalent strains. A single dose is accompanied by a 75% likelihood of immunity. If only 200 doses are available and two doses are given to each of 100 people, 95 people will be protected. If 200 people are each given a single dose, 150 people will be protected. The latter procedure was adopted in Great Britain. Principles of triage—not to speak of logic—would dictate that protection be afforded to 150 persons rather than to 95.[35]

The Gemara, *Ketubot* 30a, explicitly counsels against reliance upon divine providence to avert maladies whose suppression is within human control. In support of their contention that "All is at the hands of Heaven with the exception of colds and heat stroke," the Sages invoked the verse "*Ẓinim paḥim be-derekh ikesh*; *shomer nafsho yirḥak mehem*" (Proverbs 22:5) which they rendered as "Colds and heat strokes are the path of the perverse; one who guards his life distances himself from them." The common cold and all forms of influenza are included within the talmudic definition of *ẓinim*.

There is no need to elaborate upon the highly contagious nature of the coronavirus or upon its debilitating and, at times, fatal effects. True, some inoculations have resulted in health-compromising complications but the safety of the vaccine has been shown to be similar to that of other viral vaccines.[36] Long-term complications of coronavirus for all too many

[35] These statistics do not apply to immunity in high risk individuals. The higher the risk, the less protective the vaccine will be. The extent of the difference between the effectiveness of a single dose and two doses for individuals in various high risk categories is not known.

[36] See Fernando P. Polack, Stephen J. Thomas, Nicholas Kitchin, *et al.*, "Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine," *New England Journal of Medicine*, vol. 383, no. 27 (December 31, 2020), pp. 2603-2615. That study, con-

individuals who successfully overcame the initial ravages of the disease have already become evident. The overwhelming consensus of medical authorities is that, statistically, failure to vaccinate is far more dangerous than any possible long-term side effects of inoculation. *Ḥokhmah be-goyim ta'amin*. As is reflected in a host of rabbinic dicta, Halakhah accords credibility to the empirical demonstrations of science.

That all should be vaccinated is obvious. Certainly germane is the statement of the Jerusalem Talmud, *Yoma* 8:5, "The person consulted merits disdain." The scholar is faulted for having failed to provide instruction proactively by addressing the question in public discourse. That ostrich-like avoidance of reality is prevalent in some sectors of our community is an embarrassing reflection upon rabbinic leadership.

This series will continue in our Winter 2022 issue with a column on "Coronavirus Queries (4): Assignment of Ventilators."

ducted more than two to three-and-a-half months after completion of inoculation, showed a total absence of significant adverse events. The isolated cases of thrombosis that have been reported in the media are far rarer than, for example, occurrence of blood clots in women who use hormonal contraceptives. There is no scientific evidence supporting the contention that vaccination may result in infertility or miscarriage. It is not possible to contract Covid-19 from the vaccine itself because it does not contain coronavirus in any form.