

declaration. As an internist, I have also treated numerous individuals with late-stage cancer, hospice patients and others who are suffering from the long-term effects of malnutrition, underlying organ or digestive disorder, or other factors that frequently present as serious medical cases requiring acute – and sensitive – medical intervention. (My curriculum vitae is attached as Exhibit 1 and a list of authorities I consulted in preparing this Declaration appears below.)

2. I received a Master’s of Science, Health and Medical Education at the University of California, Berkeley, Medical School (with advanced coursework in epidemiology and public health), and received my M.D. from the University of California, San Francisco (“UCSF”) in 2010, followed by a three year residency at the UCSF Department of Internal Medicine, with a focus on epidemiology.

3. I submit this declaration in support of the relief requested by Tariq Ba Odah, an individual detained in Guantánamo Bay.

4. In arriving at my opinion expressed in this declaration, I have spoken with counsel for Mr. Ba Odah, and reviewed summaries of his attorney notes and correspondence with Mr. Ba Odah that described symptoms Mr. Ba Odah is experiencing. I offer my conclusions based on these symptoms and other relevant analysis below, and detail the appropriate clinical diagnosis and rehabilitative interventions that would ordinarily be required for someone in Mr. Ba Odah’s condition.

5. Naturally, my ability to offer a concrete diagnosis or precise prognosis is hampered by a lack of access to results of blood tests or other customary medical records, and my inability to perform a physical exam and other diagnostic processes. Nevertheless, there is one dispositive fact that leads me to conclude that Mr. Ba Odah’s

medical condition is critical: the U.S. government has represented that his weight is 74.5 pounds as of April 20, 2015, and that he is approximately 56% of his ideal body weight.

6. This is a shocking medical fact that alone indicates the presence of a crisis-level medical condition presaging organ failure, neurological damage and, inevitably, death. Such diminished body weight – and the underlying caloric and micronutrient deprivation surely underlying it – is not sustainable, nor is it stable in a clinical sense. This is true not only because his persistent caloric malabsorption will lead to his inevitable death – possibly in a period of months – but also because his metabolic and micronutrient deficiencies must be so severe given his body weight that *any* additional stress on his body from infection or injury could overwhelm his diminished organ functioning and precipitate the onset of total body collapse. His condition requires immediate medical intervention, sophisticated diagnostic analysis, and a period of long-term rehabilitation and recuperation. It is possible that Mr. Ba Odah has already suffered or is suffering from medical and neurological injuries that will produce permanent impairment or disability.

Diagnostic Facts Underlying My Opinion

7. In the absence of a medical history, records, or ability to perform my own examination, I have received the following – albeit limited – additional information about Mr. Ba Odah from his counsel, which also helps to inform my opinion.

a. Mr. Ba Odah is a 36 year-old male, whose height Mr. Ba Odah's counsel roughly estimates as between 5'3-5'5. For purposes of some analytical judgments I make below, I will operate on the conservative assumption that Mr. Ba Odah's height is 5'3'.

b. Mr. Ba Odah currently weighs 74.5 pounds, which is the weight the government represents he weighed on April 20, 2015 and which he has maintained since September 2014. According to Mr. Farah, Mr. Ba Odah's weight has fluctuated at times, but overall has been in decline throughout the duration of his hunger strike. Mr. Ba Odah says he was 140 pounds at one point in 2007. He says his weight declined to 105 pounds late in 2012 and declined still further to approximately 90 pounds in April 2013. I further accept the government's April 20, 2015 assessment that he is 56% of his ideal body weight, but note that there are different methodologies for calculating ideal body weight that could suggest an even lower percent of his ideal weight. (Ultimately, marginal differences in actual body weight or ideal body weight percentage are immaterial to my analysis. A patient hovering anywhere in the vicinity of half of his ideal body weight is manifestly in a highly vulnerable medical state, where death is a pronounced, ever-present risk.)

c. He has been held in solitary conditions, with very limited access to activity outside his confinement cell, limited activity within his cell due to his weakened physical and neurological condition, and limited communication and interaction with other human beings, for a period of years.

d. He has not eaten solid food for more than 8 years. For that 8-year period, the only source of nutritional or caloric intake has been through enteral feeding of a commercial nutritional formula by nasal-gastrointestinal (NG) tube, which delivers the formula by a tube from his nasal cavity, through his esophagus, and into his stomach.

e. His last reported lab tests were conducted in 2013, which consisted of a Metabolic Panel and a complete blood count work-up (CBC). The government has reported to counsel that the results of those tests were “normal,” but information about those specific results is unavailable to me.

8. He has complained to Mr. Farah about a wide range of neurological and physiological conditions that are individually – and more so collectively – indicative of severe malnutrition. Those symptoms I have been informed of include:

- a. Persistent numbness in his extremities;
- b. Gastric intestinal complaints: vomiting, painfully raw throat, chronic constipation, and blood in his stool;
- c. Swelling in his feet;
- d. Severe back pain, persistent exhaustion, difficulty walking or even sitting for prolonged periods of time.
- e. Neurological symptoms including periodic confusion, short-term memory loss, inability to maintain concentration, intermittent “vacant” look in his eyes when communicating with his counsel, dizziness, severe headaches, and overall symptoms associated with severe peripheral neuropathy (i.e., tingling, “muscles and nerves shivering,” and “needles feeling” caused by peripheral nerve damage).

9. I can confidently state, just based on Mr. Ba Odah’s severely depleted weight, that he is suffering from severe malnutrition, which if not immediately and appropriately treated could lead to his death, possibly within a period of months. The signs of mental and physical decompensation he presents are grave and associated with the severity of starvation one might observe in a late-stage cancer or AIDS patient.

Clinically speaking, it is simply not possible for an adult man roughly of Mr. Ba Odah's presumed height to remain stable at 74.5 pounds for the long-term – the associated protein, caloric and nutritional deficiencies are so severely compromised that human life cannot be sustained without appropriate medical intervention. In addition, given the serious depletion of vital organ mass associated with this form of human wasting, his body could not respond appropriately to the elevated stress and caloric needs associated with common infection. Put more directly, a strong fever, infection or serious physical injury could kill him in a period of days.

10. Even though I am confident, based on his weight, that Mr. Ba Odah is currently facing a medical and neurological crisis that jeopardizes his life, I do not have certain important information that would assist me in a more precise prognosis for Mr. Ba Odah. That missing information includes:

- a. A physical exam and results from a recent metabolic blood panel that would account for proteins, electrolyte levels, thiamine and other essential vitamin levels;
- b. Information on the specific formula being used in Mr. Odah's enteral feeding (i.e. caloric and vitamin contents) and information on the amount and frequency of daily enteral feeding through this formula;
- c. Whether Mr. Ba Odah has received any medical or nutritional supplementation (e.g. thiamine or folate) of any sort, via parenteral (intestinal), intravenous, or intramuscular injection.

11. In light of this missing data, I am basing the subsequent opinion on the aforementioned critical fact of his severely depleted weight, plus these other assumptions:

a. I reviewed the nutritional content of a variety of commercially available feeding formulas. For my analysis, I have assumed Mr. Ba Odah is being fed through a feeding formula that is both the most optimal (i.e. greatest caloric content) and most comprehensive (greatest nutritional and amino acid content). As a result, my assessment would not change were it the case that the government is feeding Mr. Ba Odah the best formula in the “Ensure” line of commercial liquid supplements.

b. I am assuming that Mr. Ba Odah has not received any parenteral or intermuscular supplements in the past twelve months.

c. I am assuming that while Mr. Ba Odah has had intermittent symptoms over the past 2 years, in recent months his feet swelling, gastrointestinal, and neurological symptoms have become progressively worse.

Caloric Intake and Survival Analysis

12. In the field of nutritional medicine, there are a number of analytic tools that are premised on an understanding of the metabolic, caloric, and nutritional needs of individuals to support vital organs and elementary bodily functions. These tools are used by physicians and dieticians to make assessments about an individual’s physical condition and make prognoses about an individual’s chance of survival. For example, there are a series of standard formulas physicians employ to predict the length of survival of hospice patients or other critical-care patients whose organs ultimately fail due to malnutrition and starvation, which results from an inability to absorb sufficient calories and nutrients. There are also well-established global survey data that correlate malnutrition with morbidity rates. I use these well-established diagnostic tools, based on the information and assumptions stated above (which merely complement elementary

diagnostic and prognostic principles), to conclude that Mr. Ba Odah's condition is not stable in a clinical sense; due to severe malnutrition, his body is on a trajectory of persistent and inevitable decline that could lead to death in a period of months – barring infection or injury which would only hasten that outcome.

13. To begin, one must appreciate a distinction of critical importance in the field of nutrition between caloric *intake* or *ingestion* and caloric *absorption*. One can ingest a certain amount of calories through enteral feeding but, because of diminished intestinal function at a cellular level and dysfunctional gut mechanics—all of which I detail below—be unable to absorb the calories and micronutrients necessary to sustain activity and healing. This phenomenon is commonly observed in malnourished patients. It is further consistent with the fact that, according to Mr. Ba Odah, the government has attempted to increase the volume of liquid nutritional supplement he is made to ingest, but Mr. Ba Odah has not gained any weight in nearly six months.

14. In addition, basic nutritional predictions suggest that Mr. Ba Odah is necessarily and chronically calorie deficient. For someone of Mr. Ba Odah's weight and assumed height (5'3"), his resting metabolic rate is 1088 calories per day (according to the well accepted Mifflin-St Jeor equation). This represents the amount of energy someone would expend through only the most elementary biological processes – breathing, organ functioning – and without any additional physical activity whatsoever. We assign him additional caloric needs, however, based on even his limited physical activity – sitting up, limited walking, the forcible-feeding process – which we can conservatively estimate based on standard medical and nutritional tables to be approximately 270 calories. This makes his total caloric expenditure approximately 1350

calories per day. Because Mr. Ba Odah's weight has been stable, we also know that his caloric absorption is in equilibrium with his expenditure – 1350 calories – regardless of the amount of nutritional supplement he is being fed.

15. But there is an additional important part of the analysis. Mr. Ba Odah complains of some serious symptomology – numbness in his extremities, neurological compromise, extreme fatigue, nausea, periodic vomiting, abdominal pain, swelling in the feet – that all produce additional caloric expenditure on his body beyond the 1350 calories he is absorbing. This is the predictable byproduct of his body's effort to respond to the additional physical stress these symptoms generate. Those additional calories – calories Mr. Ba Odah is not getting – are necessary for his health and recovery. (The phenomenon I describe – that infection or symptomatology taxes caloric resources – is elementary and is why, for example, malnourished children are often prescribed antibiotics prophylactically, and why patients' calorie absorption should be adjusted if s/he comes down with a fever. Tragically, it is also why the elderly, who frequently do not efficiently absorb their caloric intake, fail to recover from otherwise necessary surgeries; their bodies often simply cannot manage the spike in caloric expenditure required for post-operation recovery.) At Mr. Ba Odah's compromised weight, even an absorption rate of 80-100 less than that necessary for the body to address symptoms would be dangerous over the long term.

16. In this scenario though, according to information from the government, Mr. Ba Odah has not lost more weight in many months. This is *not* reassuring. The likely reality is that he may not have any more weight to lose. The elementary mass of the human body – constituting skeletal mass and organ weight, even without any fat or

muscle – likely cannot decompose much further for Mr. Ba Odah. Thus, in a classic case of malnutrition such as this, where a patient is already at approximately 50% of his normal body weight, the caloric deficiency he is enduring may not manifest in continued weight loss; instead, it may manifest as further and progressively life-threatening symptomology.

17. This is why no responsible doctor would take comfort in the fact that his weight is unchanging especially when at least some of his reported symptoms have progressed. In Mr. Ba Odah's severe state of malnutrition, the effects of his systemic calorie deficiency will continue to manifest as additional injury to his body. This, in turn, creates a very dangerous spiral: symptomology caused by calorie deficiency in turn demands more calories from the body to combat their effects, but without those calories the body sustains greater injuries. Death is the inevitable long-term result, if infection or injury does not hasten it.

18. Indeed, people who die from malnutrition do not continue to lose weight so as to finally expire, for example, at 40% of their body weight. They die precisely at the level of lost body mass Mr. Ba Odah is at now – or even at a greater percentage body weight – from the effects of malnutrition on the body's functioning.

19. We see this phenomenon at play in the most comprehensive, global studies of malnutrition, which also set a relevant benchmark for Mr. Ba Odah's dire prognosis. For example, the Subjective Global Assessment (SGA) is the reference standard diagnostic tool for assessing the nutritional status of patients and helping to determine the best therapeutic intervention to malnutrition. It is widely used by hospital clinicians, and has been validated in a number of diverse populations, including cancer patients, AIDS

patients, dialysis patients, and hospice patients, and has likely been validated across millions of patients. Based on a combination of certain factors in a patient's medical history and physical manifestations, the SGA categorizes patients into three distinct classes of nutritional status: well nourished (SGA A), moderately malnourished (SGA B) and severely malnourished (SGA C). The SGA can thus provide a quick and reliable assessment of a patient's nutritional status without invasive testing such as diagnostic lab work, DEXA scans, and body composition analysis.

20. The Patient Generated Subjective Global Assessment (PG-SGA) is a widely-used derivative of the SGA, developed in 2000 by Dr. Faith Ottery. It has been accepted by the Oncology Nutrition Dietetic Practice Group of the American Dietetic Association as the standard for nutritional assessment of cancer patients. I use the PG-SGA because it accounts for a greater range of nutrition impact symptoms, and provides a higher degree of precision than the SGA alone. Instead of using three general classifications, the PG-SGA generates a numerical score based upon the impact of a symptom on nutritional status. A score of 9 or more indicates a critical need for nutrition intervention. In Mr. Ba Odah's case, his PG-SGA score is increased by the development of recent symptoms: painfully raw throat, abdominal pain, loss of physical sensation, extreme fatigue. Despite his unchanging weight, these symptoms are well known manifestations of severe malnutrition. Consequently, I can conservatively assign him a PG-SGA score of 12 – three units beyond the minimum threshold for critical medical intervention. His score would likely be even higher if a physical exam were included. This score corresponds to a diagnosis of SGA-C.

21. The PG-SGA and the SGA, two standard tools for nutritional assessment, therefore both place Mr. Ba Odah into the most severe category of malnourishment and indicate a need for immediate critical care.

22. In multiple studies, SGA scores of A, B, C, have been shown to correlate with varying levels of mortality. This predictive analysis has probably been validated across tens of thousands of individuals. In studies of hospice, cancer and CVA patients, the median survival term of patients who presented with an SGA C score (severe malnutrition) was 6 months. This sets a norm, standardized across many thousands of cases, and a reliable guide for the risk of mortality Mr. Ba Odah is facing.

23. Indeed, it is quite possible that, consistent with nutritional predictions and epidemiological studies, his unchanging weight is a floor, presaging imminent decline. Because Mr. Ba Odah is under nourished, and because he may have little, if any, fat or muscle mass to lose, his malnourishment may not allow for further weight loss but will manifest in various other ways, triggering the spiral of symptomology, additional caloric need, more serious symptomology and ultimately death I describe above.

The Way in Which Severe Malnutrition and Protein Deficiency Affects the Human Body

24. Mr. Ba Odah is critically malnourished. Unquestionably, this is having (or will have) grave consequences for his vital organ functioning. Given that he is approximately 50% of his ideal body weight, and coupled with an SGA-C assessment, we can confidently conclude that he has no “stores” of excess fat or protein in the body. At this stage in chronic malnourishment his body is mobilizing protein to compensate for the absence of fat and sufficient carbohydrates to meet his energy needs, and this leads to

loss of organ and skeletal mass. In essence, the body is cannibalizing protein to maintain survival. Protein is the most vital macromolecule for the formation, maintenance, and function of muscles and organs at the cellular level.

25. It is well known that chronic malnourishment or acute starvation causes vital organs such as the gastrointestinal tract, heart, kidneys, liver, and lungs lose a significant percentage of their protein content and their mass. The evidence supporting this depletion of vital organ mass from starvation includes:

a. Studies in numerous animal investigations has shown that in addition to skeletal and body weight losses, animals lose anywhere between 26-58% of their gastrointestinal tract, heart, kidney, liver, and lung mass from prolonged malnutrition.

b. Similar controlled studies in humans are not available. However, German biologist Marie Krieger in 1921 reported on a series of 125 autopsies she conducted from 1915-1919 of patients succumbing to cachexia – a “wasting” condition associated with substantial weight loss. Krieger found that these patients on average exhibited 39 percent loss in body weight, 34 percent decrease in heart mass, 42 percent decrease in liver mass, and 36 percent decrease in kidney mass compared with age and sex-matched accidental death victims. The studies therefore demonstrated a connection between severe weight loss (39%) and decrease in vital organ mass (34% heart mass, 42% liver mass, and 36% kidney mass) – a correlation I would expect to see present (and likely greater) as a result of Mr. Ba Odah’s nearly 50% loss of body weight.

c. In another publication, autopsies performed during World War II on concentration camp prisoners, who died of starvation in the Warsaw Ghetto Hospital,

demonstrated loss of 20 percent of the mass of the heart, 46 percent of the liver, 48 percent of the spleen, 25 percent of the kidney, and 4 percent of the brain, compared with average organ weights for normal individuals as reported in standard pathology texts.

d. These studies demonstrate a correlation between severe malnutrition and starvation and substantial – and grievously dangerous – depletion of vital organ mass. Mr. Ba Odah is likely suffering these consequences now on a parallel scale.

26. Malnourishment's impact on vital organ depletion is severe and the consequences are grave. Morbid (i.e. potentially fatal) complications from organ damage including sepsis, respiratory failure, acute renal failure, and ultimately hemodynamic collapse (requiring advanced cardiac and respiratory support) are all increased with the caloric deprivation and resultant protein cannibalization. There is little doubt that starvation and the associated loss of organ mass lead to increased morbidity and mortality when the loss results in altered organ function.

27. There is another very obvious and fatal risk Mr. Ba Odah is facing in addition to this inevitable decline from wasting and organ failure. His body is in such a fragile state owing to his depleted caloric absorption and compromised vital organs, that any additional stress on the body, from an infection, fever, or serious injury, could quite simply overwhelm his systemic response causing death in a period of days. This is why, for example, per World Health Organization protocols, a child presenting with even far milder forms of malnutrition, is supposed to be administered antibiotics prophylactically; to stave off the immediately spiraling effects of an infection in a malnourished body, before it happens.

28. For this reason, it is impossible for Mr. Ba Odah to be clinically stable in his present condition. His body is in a state of persistent, inevitable morbid decline and is at every moment presenting a latent but severe risk of death from infection.

The Probability of Severe and Damaging Micronutrient Deficiency

29. In addition to the likely organ mass depletion and compromised organ functioning caused by malabsorption of calories and protein deficiency, Mr. Ba Odah is most likely suffering from serious deficiency in essential micronutrients necessary for health and ultimately survival. Micronutrient deficiency is more subtle but can be much more debilitating than caloric deficiency. With proper clinical intervention, one can recover from calorie deprivation. Harmful effects of severe vitamin A and thiamine deficiency or B12, however, can be permanent if not corrected within a reasonable amount of time.

30. On the assumption that Mr. Ba Odah is *absorbing* 1250-1350 calories of the most ideal enteral formulas, Mr. Ba Odah would be close to obtaining intake of 100% of the essential vitamins, minerals, amino acids. This would be sufficient under the assumption that he maintains normal absorption of these vitamins and minerals. However, as described above, due to his compromised condition, his ability to absorb essential micronutrient is actually far more compromised than his ability to absorb macronutrients (calories) and he needs vast vitamin supplementation to possibly ensure adequate health. The connection between malnourishment (diminished caloric and protein absorption) and severe vitamin deficiency, including the tell-tale consequence of Thiamine (B1) deficiency, is quite clear and is supported by these, among many other clinical observations and studies:

a. Histological changes during starvation of gastric mucosa demonstrate cytoplasmic and nuclear degeneration of the parietal and chief cell populations. What this means is that the stomach and intestine cells during starvation change their intracellular composition, which prevents the proper absorption of nutrients. This only exacerbates patients' preexisting micronutrient deficiency, causing a potential death spiral: malnourishment changes the molecular functioning of cells that frustrates micronutrient absorption, which in turn amplifies the effects of starvation. Indeed, there is evidence that people's intestinal lining never recovers from malnutrition.

b. The autopsy records of severely cachectic patients (i.e. those suffering from physical wasting with loss of weight and muscle mass) in the Warsaw Ghetto Hospital recorded extreme depletion of intestinal tract mass, revealing "paper-thin" and even translucent bowels.

c. In one study, 90% of children with kwashiorkor (severe malnutrition and protein malabsorption) had mucosal atrophy of the intestines. In that same study, children with classical marasmus (prolonged calorie deficiency with normal protein intake) had normal intestinal mucosal but had decreased mitotic index within crypt cells, which are essential for absorption.

d. Absorption of Vitamin A and other protein bound micronutrients has been documented to be severely decreased in patients with protein malnourishment. I note that Mr. Ba Odah's counsel reports that Mr. Ba Odah has complained of weakened vision, which is symptomatic of a Vitamin A deficiency.

e. We can assume a depletion of Thiamine in Mr. Ba Odah's malnourished condition which is associated with Wernicke's encephalopathy -- a serious neurological disorder commonly associated with severe alcoholism (where absorption of thiamine is compromised) and with starvation. The disease occurs as a result of biochemical lesions of the central nervous system after exhaustion of B-vitamin reserves, in particular B1 (thiamine). Studies show that large amounts of oral doses of thiamine hydrochloride in malnourished patients fails to provide effective prevention of Wernicke's encephalopathy, hence why rapid replacement of depleted brain thiamine levels by intravenous therapy is standard of care for alcoholics.

f. If the enteral formula does not contain adequate fat content (of which many do not) then Mr. Ba Odah is likely deficient in all fat soluble vitamins (A, B, C, D).

g. Jejunal folate hydrolase (an enzyme within cells) is decreased in patients with malnourishment leading to inability to absorb folate. As a result, mere ingestion of supplemental folate will not be sufficiently absorbed at the cellular level, requiring intravenous folate supplementation.

h. It has been well documented that progressive malnutrition leads to prolongation of gastric emptying – such that fluid does not efficiently pass from the stomach into the intestines. Incidentally, this phenomenon is only further exacerbated with NG feeding. The result is that despite needing to increase their caloric intake, malnourished individuals feel full faster and their absorption of nutrients is inhibited. While impossible to confirm without a proper diagnostic work-up, I note that, to the

extent Mr. Ba Odah complains of vomiting and constipation, this is symptomatic of precisely this phenomenon and others.

Physical Symptoms Associated With Severe Vitamin or Protein Deficiency:

31. Mr. Ba Odah's counsel reports that Mr. Ba Odah's skin is pasty and lifeless and that he complains of severe rawness in his throat. This can either be attributed to classical marasmus, riboflavin, or folate deficiency.
32. Mr. Ba Odah's neurological impairments – his confusion, impaired memory, psychomotor-slowness – could all be the result of thiamine deficiency.
33. The description of his peripheral neuropathy (bilateral numbness in all his extremities) matches the disease dry beriberi (a variation of the beriberi starvation condition that specifically affects the peripheral nervous system), which is also caused by thiamine deficiency. Abdominal pain, which Mr. Ba Odah also complains about, is often also a symptom of thiamine deficiency.
34. Thiamine deficiency is a very serious condition. Mr. Ba Odah's symptoms suggest he is thiamine deficient. This is concerning as it indicates he needs immediate hospitalization and repeat doses of IV thiamine to prevent the onset or worsening of Wernicke-Korsakoff syndrome of which he is already symptomatic. Wernicke-Korsakoff syndrome in late stages will result in death, frequently through heart failure.
35. In addition, Mr. Ba Odah has complained of swelling in his feet. This is a dangerous manifestation and is symptomatic of a number of serious conditions including protein deficiency, heart failure, or kidney failure. Leg edema is a significant symptom and any physician encountering it would be concerned and likely advise the immediate

performance of a number of diagnostic tests to rule out serious conditions before attributing it to benign etiologies (which, incidentally, are unlikely given Mr. Ba Odah's young age). The required diagnostic tests when presented with such a symptom would include an echo-cardiogram, urinalysis, diagnostic lab testing for albumin and protein ration, and lastly ultrasound of his legs and feet to rule out blood clots.

Prolonged Nasogastric Feeding

36. Mr. Ba Odah's gross nutritional inadequacy does not surprise me as nasogastric feeding is not ideal for long-term nutrition. Due to the varied position of the NG tube, delayed gastric emptying, and high gastric residuals (high amount of content left in stomach without passing to the intestines), adequate nutritional support over the long-term with gastric feedings is impossible. (This has been documented in numerous clinical studies). There is not one clinical study that I am aware of that demonstrates that adequate long-term nutritional support can be delivered via nasogastric enteral nutrition. There is likewise no responsible physician or health care facility in the country that would ever use a protocol that attempted to provide long-term nutritional support through NG enteral feeding. Successful enteral nutrition requires placement of jejunal feeding access (i.e. directly through the belly into the small intestine), which is what is routinely done for cancer patients, chronically, debilitated patients, and patients in chronic vegetative state.

Required Medical Intervention

37. Mr. Ba Odah exhibits all the tell-tale signs of severe malnourishment and starvation. The deterioration to his vital organs and neurological functioning, evidenced by the aforementioned symptoms, is grave and might well lead to his death in a period of

months, absent medical intervention, even without the onset of infection or injury as described above.

38. Standard protocol in any U.S. medical facility commands that he should be immediately hospitalized. He should receive IV (intravenous) correction of thiamine, folate, B-12, hypoglycemia, and dehydration. Prophylactic antibiotics should be considered during re-feeding.

39. It must be stressed that Mr. Ba Odah's severe malnourishment simply cannot be remediated by resuming oral consumption of solid food. Put simply, he cannot eat himself back to health and no responsible physician would attempt this course of re-nourishment. Oral feedings need to be monitored out of concern about re-feeding syndrome, which can cause immediate cardiovascular collapse and death. Secondly, IV folate, thiamine, B-12, and amino acid supplementation is necessary to help the recovery of the gastrointestinal tract to the point where he is able to reabsorb micro and macro nutrients sufficiently.

40. Mr. Ba Odah should be treated in an appropriate intensive care setting – with constant monitoring, preferably by specialists, for a period of approximately 5-14 days (assuming no organ collapse has occurred or would occur during his hospitalization) as he will need to be carefully monitored for refeeding syndrome. Refeeding syndrome refers to the constellation of metabolic derangements that occur as a result of the reinstatement of nutrition in patients who are starved or severely malnourished. This syndrome was first discovered in American soldiers held captive by Japanese in World War II after their release and treatment in military hospitals in the Philippines. The metabolic and electrolyte changes that happen can lead to immediate death without

Careful blood chemistry monitoring.

41. He has been fed through a NG tube for a length of time that was unheard of to me before my introduction to the detention practices at Guantánamo. Prolonged enteral feeding through NG tube is forbidden in appropriate clinical setting because of the poor mechanism for absorption of nutrients and the damage it can cause to his gastrointestinal system. If he has suffered esophageal erosion and stricture due to prolonged NG tube placement then he may require longer hospitalization with parenteral nutrition or placement of jejunal tube until his esophagus can heal.

42. After acute hospitalization, preferably in an intensive care unit, he should undergo a course of rehabilitation lasting at least 6 weeks that consists of advancing nutrition and ongoing vitamin supplementation (1.5x normal). This is not what is necessary to get him to what is commonly understood as good health. Rather, this is what is minimally necessary to remove him from danger of death. Longer-term health care would likely also be necessary to address his micronutrient deficiency, damage to his gastrointestinal system and his affected organs.

43. He may well have suffered organ damage that would require sophisticated longer-term medical treatment, even if some of this could be undertaken on an outpatient basis.

44. In addition, given symptoms suggesting neurological damage, he may need physical therapy with sophisticated diagnostic and rehabilitative equipment for a period of 6 months to a year, or perhaps more. Proper evaluation by neurologist and psychologist is recommended to determine this treatment course.

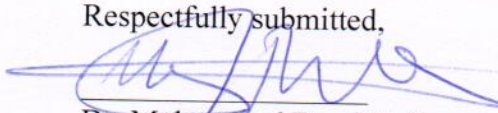
45. Without seeing recent, relevant laboratory tests, and/or examining him, I

cannot make a prediction with great precision about what damage Mr. Ba Odah has suffered to his metabolic functioning. I nevertheless repeat the elementary medical conclusion that at 75 pounds, a 36 year-old man experiencing the telltale symptoms Mr. Ba Odah complains of, is severely malnourished. His physical condition is grave and commonsense, experience, and all available clinical models suggest that complications caused by his malnourishment will lead to his death likely in a period of months.

I declare under penalty of perjury that the forgoing is true and correct.

Dated: Belmont, California
June 18, 2015

Respectfully submitted,



Dr. Mohammed Rami Bailony

Supporting Authorities

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Exhibit 1

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WORK EXPERIENCE

- 2014 – Present** **Enara Health, Inc.**
- Founder and President
 - Advanced and at risk business model development for MSOs (Management Service Organizations)
 - Leading a team to develop mhealth behavioral health paradigms and algorithms.
 - Leading R+D team on using geographic information systems for context based patient alerts and recommendations.
- 2014 – Present** **Enara Health Group., P.C.**
- Medical Director: supervised R.D. and C.D.Es; diabetes panel management and outcomes analysis
 - Designed and implemented a mobile and telehealth DSMT and MNT program
 - Content director for mobile patient education tools.
- 2013 – Present** **Kaiser Hospital**
- Part time Internal Medicine Hospitalist

RESIDENCY/TRAINING

- 2013 – 2014** **Stanford University, Healthcare Entrepreneurship and Innovation Fellowship**
- Health Tech and Mobile Health Evaluation
 - Applying Lean Start-up and Design Thinking Methodology to the Healthcare industry
 - Rapid prototyping for service innovation
 - Behavioral change and m-health strategies.
- 2010- 2013** **University of California, San Francisco, Department of Internal Medicine**
- Categorical Program.
 - AOD: Program in Residency Investigation Methods and Epidemiology

LICENSES

- 2011- Present** Medical Licensure, California # A120308.

EDUCATION

- 2014- 2014** **Stanford University Graduate School of Business**
- Ignite, Innovation and Entrepreneurship Program
- 2005-2010** **University of California, San Francisco, School of Medicine**

- AOD: Pathway in Global Health.

2005-2008

University of California, Berkeley, Joint Medical Program

- Masters of Science, Health and Medical Education.
- Advanced course work in epidemiology and public health.

2001-2005

University of California, San Diego

- BA in Political Science with a Minor in Biology.
- GPA: 3.85, Phi Beta Kappa Honors Society.

PRESENTATIONS AND PUBLICATIONS

Bailony MR, Scherzer R, Huhn G, Plankey M, Peters M, Tien P. Association of HIV infection, HCV infection and Metabolic Factors with Liver Stiffness measured by Transient Elastography. *Journal of Infectious Disease*. Accepted for Publication (June 2013). MS #51903R2.

Bailony MR, Scherzer R, Huhn G, Plankey M, Peters M, Tien P. "Association of HIV Mono-infection and HIV/Hepatitis C Virus Co-infection with Liver Fibrosis Measured by Indirect Markers Aspartate Aminotransferase to Platelet Ratio Index and FIB-4 and Transient Elastography." Poster Presented at the 18th annual Floyd Rector UCSF Internal Medicine Resident Research Symposium (May 2013).

Phyllis Tien, R Scherzer, R Bailony, M Plankey, M Peters, G Huhn, and Women's Interagency HIV Study. "Association of HIV Mono-infection and HIV/Hepatitis C Virus Co-infection with Liver Fibrosis Measured by Indirect Markers Aspartate Aminotransferase to Platelet Ratio Index and FIB-4 and Transient Elastography." Abstract Presented at the 20th Conference on Retrovirus and Opportunistic Infections (Atlanta, GA, 2013).

PC Tien, R Scherzer, M. Rami Bailony, J Goderre, MG Peters, M Plankey, G Huhn, "Association of HIV infection, HCV infection and Metabolic Factors with Liver Stiffness measured by Transient Elastography." Abstract presented at the fourth Biennial HIV and Liver Disease Conference (Jackson, Wy 2012).

Bailony MR, Hararah MK, Salhab AR, Ghannam I, Abdeen Z, Ghannam J. Cancer registration and healthcare access in West Bank, Palestine: A GIS analysis of childhood cancer, 1998–2007. *Int J Cancer*. 2011 Sep 1;129(5):1180-9

Lin P, Fintelmann RE, Khalifa YM, Bailony MR, Jeng BH. Ocular surface disease secondary to vitamin A deficiency in the developed world: it still exists. *Arch Ophthalmol*. 2011 Jun;129(6):798-9.

Khalifa YM, Bailony MR, Acharya NR. Treatment of Pediatric Vogt-Koyanagi-Harada Syndrome with Infliximab. *Ocular Immunology and Inflammation*. 2010;18(3):218-22.

Khalifa YM, Bailony MR, Bloomer MM, Killingsworth D, Jeng BH. Management of Nontraumatic Corneal Perforation With Tectonic Drape Patch and Cyanoacrylate Glue. *Cornea*. 2010;29(10):1173-5.

Bailony, MR. "Hospitals in the Medieval Middle East: Precursors to the Modern Hospital?"

- Paper presented at Pestilence and Public Health in World History Conference, July 30th, 2008;
- Paper presented at UCSF- Fresno Grand Rounds Special Wednesday Series, April 8th, 2009.

Bailony, MR. "The Study of a 16th Century Arabic Hospital Protocol: Medieval Arabic Hospitals in the 16th and 17th Centuries."

- Thesis presented at JMP Research Symposium, January 2008.

Bailony, MR. "Islam and Democracy: Between Tradition and Ideology."

- Paper submitted and presented at the 2006 American Academy of Political and Social Science Annual Conference in Washington D.C.

HONORS AND AWARDS

- 2004** Member of Pi Sigma Alpha (National Political Honors Society).
- 2004** Research Scholar at the 17th Annual Undergraduate Research Conference at UCSD, 2004.
- 2005** "The Sandy Lakoff Award for the Most Outstanding Undergraduate Thesis."
- 2004** Highest Honors of 2005 graduating political science class.
- 2006** Junior Fellow of the American Academy of Political and Social Science (2006).
- 2007** UCSF.UCB Joint Medical Program Research Grant (2007-2008).
- 2008** Center for Middle Eastern Studies and Office of Resources for International and Area Studies Research Grant
- 2013** UCSF Internal Medicine Residency Award for Global Health Research and Community Service.