The canonical ancient Jewish sources, specifically Tanach and the Talmud, are the guidebooks for how Jews live their lives. They contain ageless morals and lessons, prescribe rules and customs for a holy life, and provide a window into the history and development of the Jewish people. Neither Tanach nor the Talmud is primarily viewed as a reference for modern or medieval medical procedures. Nevertheless, there are many examples in Tanach and discussions in the Talmud that focus on cases of pathophysiology, which are abnormal physiological changes associated with a disease. Surgical or alternative disease treatments are also considered.

Various descriptions in Tanach, discussions among the rabbis in the Talmud, and findings of medical historians provide a glimpse at ancient medical afflictions, diagnoses, and treatments. It is important to remember that the medical cases found in the Talmud were not intended to act as a medical or scientific record; rather, the Talmud recorded specific cases and discussions that were relevant to religious practices and laws. There are also cases of pathophysiology and medical care that are recorded in Tanach, including likely uses of artificial respiration and medical explanations of Goliath’s easy defeat. The Talmud contains a detailed description of cranial surgery and possible reasons and remedies for the gastrointestinal problems experienced by priests of the Temple periods.

There are two well-known accounts in Tanach that can be used to illustrate the early use of artificial respiration. These narratives indicate that artificial respiration was used over a thousand years before it became an accepted and discussed form of medical assistance. The book of Kings I contains the story of Elijah and the Shunamite woman. In return for the kindness the woman displayed by hosting Elijah, she was informed that she and her husband would be granted a child. However, when the child was just a young boy, he became sick and died. When the Shunamite woman approached Elijah for help, he “stretched himself upon the child three times and cried unto the Lord… I pray thee, let this child’s soul come back into him” (I Kings 17:21), and the child came back to life [1]. Radak, a 13th century Biblical commentator, explains that the purpose of lying on top of the child was to warm him and to breathe life into him [2].

A similar situation is presented in the book of Kings II, which involves Elijah’s student Elisha. Like his teacher, Elisha promised a child to a barren woman in the town of Shunam as thanks for her hospitality. However, the child died at a young age. While there is some speculation as to the source of the child’s death, it is thought to have been caused by sunstroke [3]. The child was revived when Elisha “lay upon the child, and put his mouth upon his mouth, and his eyes upon his eyes, and his hands upon his hands…” (II Kings 4:34-35) [1]. Radak again interprets the purpose of lying upon the child as an attempt by Elisha to warm the boy with his natural body heat in an effort to revive him. Dr. Fred Rosner, a respected medical ethicist, concludes that these two instances are both describing mouth-to-mouth resuscitation [2].

Another incident in Tanach that warrants study from a medical perspective is the story of David and Goliath. How was it possible for David, a small shepherd boy, to defeat a giant, who was also an experienced warrior, with just a slingshot and a pebble? The text reads: “David put his hand in his bag, and took thence a stone, and slung it, and smote the Philistine in his forehead; and the stone sank into his forehead, and he fell upon his face to the earth” (I Samuel 17:49) [1]. Dr. Stanley Sprecher, a specialist in nuclear radiology, reports that the cause of Goliath’s death was much less straightforward than it appears in the text. He explains that Goliath grew to be so large because he suffered from a pituitary macroadenoma (a large tumor), which resulted in acromegaly, a syndrome caused when a benign tumor on the pituitary gland secretes excess amounts of growth hormone [4,5]. Among the common symptoms of this condition are visual deficits, which are caused by the tumor applying pressure on the optic chiasm, the area of the pituitary gland through which optic nerves pass through to the brain, and an enlarged paranasal sinus, which is a group of air filled spaces around the nose and eyes. This pressure often results in a thinned cranial frontal bone. Therefore, it is possible that Goliath’s sight was hindered, rendering him unable to follow David’s swift movements. Moreover, a thinned frontal bone can explain why the stone easily entered Goliath’s skull. Sprecher postulated that the stone was lodged in Goliath’s pituitary gland and caused a pituitary hemorrhage, resulting in excessive pressure on Goliath’s brain and his eventual death [4].

Dr. Vladimir M. Berginer, a consulting neurologist at Ben Gurion University, presents an alternative theory to the cause of Goliath’s death. Like Sprecher, Berginer believes that Goliath suffered from acromegaly and a visual deficit. However, he explains that the cause of Goliath’s death was not the stone—it was simply a result of David cutting off the fallen giant’s head. He theorizes that the stone merely caused Goliath to lose consciousness, which afforded David the opportunity to sever the giant’s head. Berginer also suggests other factors that could have led to Goliath’s simple defeat. He explains that either Goliath was slow and clumsy as a result of his great size and the heavy weight of his armor, or that Goliath had muscle atrophy or joint inflammation [6].

Another interesting malady mentioned in Tanach is the deadly bowel disease that affected King Jeroham, a 9th-century king in Jerusalem. The text reads: “at the end of his life… the Lord smote him in his bowels with an incurable disease… his bowels fell out by reason of his sickness: so he died…” (II Chronicles 21: 18-19) [1]. According to Dr. Liubov Ben-Noun, a family medicine specialist at Ben Gurion University, this is a description of bowel prolapse with an unspecified cause. Ben-Noun discusses a few theories of the possible cause of this unknown disease. However, based on the description of the disease within the text, she concludes that the king suffered from colorectal carcinoma, a type of colon cancer.
She explains that although this is usually a familial disease, there are no indications that any other family members had this disease, and colorectal cancer is one of the only incurable diseases that primarily affects the bowels. She expands on this diagnosis by using the Dukes rating scale for rectal cancers to assess the severity of the cancer, ultimately concluding that the king’s cancer must have been on the fourth stage of the scale—the final and worst stage. The Dukes scale ranges from a small cancerous polyp within the inner lining of the bowel in the first stage, to a large malignant cancer spreading from the bowel to other parts of the body, including the liver and lungs, in the fourth stage. From this diagnosis, it is possible that the “malignant, incurable course” the cancer took caused it to spread to the king’s lymph nodes, and possibly to his blood [7].

The cases in the Talmud are presented in a different format than those in Tanach. Instead of stories and narratives, Talmudic cases are often presented as discussions regarding laws and ancient practices. There is a descriptive and detailed case of a cranial surgery in the Talmud (Ketubot 77b) presented in conjunction with a discussion of situations and professions that are grounds for a divorce. The Talmud explains that there are certain diseases that provide a woman the right to have a lawful divorce from her husband. One of the diseases listed is called ra’atan. Among the symptoms of this disease is severe discomfort caused by the skin being painful to the touch, as well as easy skin breakage. As a result, a husband would refrain from having intimate relations with his wife, thus violating the duty of a husband to satisfy his wife sexually, one of the contractual obligations found in the ketuba, the marriage contract. The Talmud explains that the debilitating symptoms could be stopped and the marriage saved with an invasive cranial surgery. It should be noted that the Talmud does not condone invasive, dangerous surgery unless it was truly warranted. The Talmud details the surgery itself, the environment in which it should be done, the anesthetics that are to be used, the materials required, and the recovery period [8].

Ra’atan can be interpreted as a growth that rests on the meninges, the protective membrane that covers the brain and spinal cord. In ancient Jewish texts it has been described as a form of boils. According to Rosner, however, it could be a form of leprosy or a reference to an insect in the brain. It is listed as the most harmful of all skin diseases in the Talmud, possibly because it affects potency (Vayikra Rabbah 16:1) [9]. Aside from skin lesions, symptoms include teary eyes, a runny nose, foam at the mouth, and flies swarming around the victim. The Talmud reads like a surgical manual describing how the tumor should be removed. The instructions state that the patient should be taken to a house made out of marble with no draft, or a house with incredibly thick walls. This ensures a sterile and clean environment. The Talmud then lists ingredients for a balm to be used before and after the surgery to “soften the skull.” These preliminary procedures were surprisingly redolent of modern antisepsis or anesthetic procedures [8]. The use of this balm, over a thousand years before the introduction of antisepsis treatments to surgical practices in the 1800s, indicates that the writers of the Talmud already understood the concept of infection and disease prevention [10]. The first ingredients listed are wormwood and pennyroyal, comparable to a mixture of wormwood and rosewater that was introduced in 1170 CE as a mixture to help with blood clotting during cranial surgery. After the balm is applied to the patient’s head, the surgeon must tear open the skull to expose an “organism” that rests on the meninges [8]. While both Weinberg and Rosner discuss that the organism could be a reference to an actual living, parasitic insect, Rosner explains that it is possible that there was no insect; the “organism” could have been nothing more than a growth or tumor [9]. In any case, once the “organism” was revealed, the surgeon used four myrtle leaves to lift each end of the growth, removed it with a pair of tongs, and burned it completely. If not burned completely, the growth would return [8].

The Talmud also contains accounts of personnel appointed to treat medical ailments during the Temple period. Ben Achiya was a Second Temple official who treated the gastrointestinal (GI) disorders of Jewish priests. Dr. Leonard Hoenig, an internist, expounds on the many GI ailments experienced by priests and their possible origins. He explains that these problems were caused by the priests’ working conditions and the food they ate. The priests had a specific uniform that they were commanded to wear when performing their priestly duties; however, these pieces of clothing were not always appropriate for their working conditions. The medieval commentator Rambam, who was also a physician, explains that the Priests wore the same uniform throughout the year, and the clothing was not always sufficient to protect them from the weather. The Talmud posits that the priests were prone to GI problems because they were forbidden from wearing shoes in the Temple, and the cold floor beneath their bare feet chilled them. Priests were also required to consume large quantities of sacrificial meat within small periods of time. Though the Talmud does not specifically comment on whether or not the heavy meat diet had an adverse effect on the priests, it is possible that because of the time constraints the meat was not always adequately cooked or cleaned, causing adverse effects on the GI system as well.

Ben Achiya used his vast knowledge of both herbal medicine and the positive effect of specific wines on the GI system to help the Temple priests. The Talmud comments that old wines, in moderate quantities, had the ability to help with stomach issues. Modern medical scholars have discussed these ideas as well. It has been proven that the ethanol in wine stimulates gastric secretions to help with digestion, and certain pigments in wine have the ability to help treat intestinal infections [11].

The aforementioned theories and accounts provide the ability to better understand the descriptions of specific illnesses in both Tanach and the Talmud through the lens of modern medical knowledge. Though details given in textual descriptions are often limited in regards to the causes and symptoms of specific diseases or pathophysologies, these narratives provide an opportunity to examine interesting and plausible modern medical theories with regard to ancient afflictions. They also provide evidence of advanced techniques used by biblical and Talmudic personalities to provide healing interventions that may have been unknown to the greater scientific community of their time.
Acknowledgments:

I would like to thank my family for their constant love and support throughout all of my endeavors. Thank you to my brother Chaim for reviewing my paper for its Torah content, and to my friends and family for their helpful comments and edits. I would also like to thank Dr. Babich for providing me with the honor to write for this publication and for his commitment to the science students of Stern College.

References: