

Hidden In Plain Sight: The Pioneering Work of Frederick Robert Klenner, M.D.

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Some physicians would stand by and see their patient die rather than use ascorbic acid because in their finite minds it exists only as a vitamin. —F. R. Klenner, MD

The sound barrier was broken in 1947. The Korean War began in 1950. In between was the polio epidemic of 1948-9, during which Dr. Frederick Robert Klenner cured every polio case he saw by using vitamin C.

Vitamin C Against Polio

Claus W. Jungeblut¹ had the initial idea; William J. McCormick² was an early proponent of frequent gram-sized doses. But it was Frederick Robert Klenner who first gave polio patients tens of thousands of milligrams of vitamin C per day. He had been doing so since before D-Day.

“From 1943 through 1947,” writes Robert Landwehr,³ “Dr. Klenner reported successful treatment of 41 more cases of viral pneumonia using massive doses of vitamin C. From these cases he learned what dosage and route of administra-

tion—intravenously, intramuscularly, or orally—was best for each patient. Dr. Klenner gave these details in a February 1948 paper published in the *Journal of Southern Medicine and Surgery* entitled ‘Virus Pneumonia and Its Treatment with Vitamin C.’⁴ This article was the first of Dr. Klenner’s twenty-eight (through 1974) scientific publications.”

“When I first came across Klenner’s work on polio patients,” writes Thomas Levy, “I was absolutely amazed and even a bit overwhelmed at what I read... To know that polio had been easily cured and so many babies, children, and some adults still continued to die or survive to be permanently crippled by this virus was extremely difficult to accept... Even more incredibly, Klenner briefly presented a summarization of his work on polio at the *Annual Session of the American Medical Association* on June 10, 1949 in Atlantic City, New Jersey:

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'It might be interesting to learn how poliomyelitis was treated in Reidsville, N.C., during the 1948 epidemic. In the past seven years, virus infections have been treated and cured in a period of seventy-two hours by the employment of massive frequent injections of ascorbic acid, or vitamin C. I believe that if vitamin C in these massive doses—6,000 to 20,000 mg in a twenty-four hour period—is given to these patients with poliomyelitis none will be paralyzed and there will be no further maiming or epidemics of poliomyelitis.' Levy concludes: "The four doctors who commented after Klenner did not have anything to say about his assertions."⁵

"How then," asks Landwehr, "could a Dr. Fred R. Klenner, a virtually unknown general practitioner specializing in diseases of the chest, from a town no one ever heard of, with no national credentials, no research grants and no experimental laboratory, have the nerve to make his sweeping claim in front of that prestigious body of polio authorities?" Indeed, Klenner was hardly a man to mince words. "When proper amounts are used, it will destroy all virus organisms," he would say. "Don't expect control of a virus with 100 to 400 mg of C."⁶

Klenner administered ascorbate by injection, and, as Lendon H. Smith describes in great detail in the *Clinical Guide to the Use of Vitamin C: The Clinical Experiences of Frederick R. Klenner, M.D.*, Klenner found that "the most effective route was intravenous, but the intramuscular route was satisfactory. He gave at least 350 mg per kilogram of body weight." That quantity per day is a dose of 25,000-30,000 mg or so for an adult. Yet, Smith adds, "With 350 mg per kilogram of body weight every two hours, he could stop measles and dry up chicken pox."

This is indeed a large amount of vitamin C. Such use exemplifies the modern orthomolecular physician. Klenner's doses were enormous, flexible and symptom-

driven. The sicker the patient, the higher the dose. Massive ascorbate treatment cured every one of 60 polio cases Klenner saw. He published his report in *Southern Medicine and Surgery* in July of 1949.⁷ All patients were well in three days. None had any paralysis.

In a 1950 letter, Klenner wrote: "Since my last communication, I have seen four new cases of poliomyelitis. All of these have completely recovered. Three cases were seen in the acute febrile stage and in each instance, using 65 mg per kg body weight (by injection) every two (to) four hours, recovery was spontaneous in 48 hours."⁸

In 1951, "In an especially incredible case," Levy says, "Klenner⁹ described a five-year-old girl stricken with polio. This child had already been paralyzed in both her lower legs for over four days! The right leg was completely limp, and the left leg was determined to be 85% flaccid. Pain was noticed especially in the knee and lumbar areas. Four consulting physicians confirmed the diagnosis of polio. Other than massage, vitamin C was the only therapy initiated. After four days of vitamin C injections the child was again moving both legs, but with only very slow and deliberate movement. Klenner also noted that there was a 'definite response' after only the first injection of vitamin C. The child was discharged from the hospital after four days, and 1,000 mg of oral vitamin C was continued every two hours with fruit juice for seven days. The child was walking about, although slowly, on the 11th day of treatment. By the 19th day of treatment there was a 'complete return of sensory and motor function,' and no long-term impairment ever resulted. Vitamin C not only completely cured this case of polio, it completely reversed what would undoubtedly have been a devastating, crippling result for the remainder of this girl's life."⁴ For such elegant results, in the days before widespread use of either antibiotics or vaccination, one may wonder why

Klenner was not awarded the Nobel Prize for Medicine.

Orthomolecular Originator

Born 22 October 1907 in Johnstown, Pennsylvania, Frederick Robert Klenner earned his undergraduate and graduate degrees in biology, magna cum laude, from St. Vincent and St. Francis Colleges. After two teaching fellowships, he entered Duke University School of Medicine. There, while he was ill, he met his future wife, Annie Hill Sharp (born February, 19, 1914), then a senior nursing student who “helped nurse him back to health, and romance blossomed.”¹⁰ At the time, Annie would be only the second woman in the school’s history to graduate with a bachelor of science degree. Klenner received his M.D. in 1936, and “The couple settled in Winston-Salem, where Dr. Klenner was completing his residency at the North Carolina Tuberculosis Sanitarium.”¹⁰ There, according to a short biography published in the *Journal of Applied Nutrition*, he “served three years in post-graduate hospital training before embarking on a private practice. Although specializing in diseases of the chest, he continued to do general practice because of the opportunities it afforded for observations in medicine. His patients were as enthusiastic as he in playing ‘guinea pigs’ to study the action of ascorbic acid.”¹¹

Klenner had hospital privileges at Reidsville’s Annie Penn Memorial Hospital where, among other things, he delivered hundreds of babies. Given supplemental ascorbate, not merely from birth but also all throughout gestation, Klenner’s uniformly healthy, trouble-free infants were known by the staff as the “Vitamin C Babies.”¹²

In a 1978 letter to Klenner, Irwin Stone writes that he thinks that “giving levels of ascorbate for long periods of time at the daily levels you recommend... is equivalent to creating a new human subspecies, “Homo sapiens ascorbicus”... with unusual

resistance to disease and stress and with a prolonged life span.” Stone adds, “I was sorry to hear that the book you intend to write is still only a gleam in your eye.”¹³

Although he never would publish a book on vitamin therapy, Dr. Klenner was a Fellow of the American College of Chest Physicians, the American College of Angiology, the American Association for the Advancement of Science, and one of the founders of the American Geriatrics Society. He was inducted into the Orthomolecular Medicine Hall of Fame in 2005.¹⁴

Greensboro Daily News reporter Flontina Miller has colorfully described Klenner’s office, above a drug store in Reidsville. “Up a creaking stairway is a dimly-lighted hallway... On one side of the hall is a stark waiting room nearly filled with patients... A hand-printed sign tacked by the door reads, ‘Limited General Practice’... Two walls (are) covered with framed certificates and honors awarded by medical schools and organizations. A crude hand-scrawled cardboard sign on a window air-conditioning unit reads, ‘Snake Inside.’ No snake actually lives inside the air conditioner, but Mrs. Klenner declares the sign has worked miracles to keep visitors’ hands off. She said patients, waiting to talk with the doctor, often would tamper with the unit, causing continual need for repairs... For the past 12 years, Mrs. Klenner has been her husband’s fulltime nurse, and they manage the office with no other help. ‘I’d never see my husband if I didn’t work with him,’ said Mrs. Klenner. . . ‘Sometimes he overworks and feels kind of tired.’¹⁵ He was also subject to severe headaches, including migraines. Still, according to journalist Jerry Bledsoe, Klenner never sent bills to his patients. “If a patient couldn’t pay when treated, then he could pay when he could. And even if he couldn’t pay and still needed a doctor, Dr. Klenner would be there, making house calls no matter the hour.”¹⁶

Another *Greensboro Daily News* article written by Miller recounts how Klenner first used injections of vitamin C: "Dr. Klenner remembers using (ascorbate) for a man, who was lying near death from severe virus pneumonia, but refused to be hospitalized. 'I went to his house and gave him one big shot with five grams or 5,000 milligrams of vitamin C,' he recalled. 'When I went back later in the day, his temperature was down three degrees and he was sitting on the edge of the bed eating. I gave him another shot of C, 5,000 milligrams and kept up that dosage for three days, four times a day. And he was well. I said then, well, my gosh! This is doing something.'¹⁷

Klenner devised an early office test for vitamin C.¹⁸ He would go on to administer massive amounts of ascorbate against any and all viral diseases. And, in the course of some forty years of general practice, Klenner used vitamin C, often accompanied with high doses of other nutrients, to fight a striking variety of other illnesses. Smith⁶ itemizes a list that includes Rocky Mountain Spotted Fever, bladder infections, alcoholism, arthritis, leukemia, atherosclerosis, ruptured intervertebral discs, high cholesterol, corneal ulcer, diabetes, glaucoma, burns and secondary infections, heat stroke, radiation burns, heavy metal poisoning, chronic fatigue, and complications resulting from surgery. Additionally, Klenner also reported mega nutrient cures of tetanus,^{19,20} trichinosis,²¹ venomous bites from spiders or snakes,^{22,23} and, perhaps most controversially, multiple sclerosis.

Vitamins Against Multiple Sclerosis

Nearly every person with multiple sclerosis that I've met has had two things in common: a lack of hope, and a lack of vitamins. Klenner's patients lacked neither, with a treatment schedule calling for massive quantities of B-vitamins to, said Klenner, "effect nerve repair."

He based his protocol in part on work, in the late 1930s, by "Stern"²⁴ from Columbia University, (who) was employing thiamin hydrochloride intraspinally with astonishing results in multiple sclerosis. He reported taking patients to the operating room on a stretcher, and following 30 mg thiamin given intraspinally, they would walk back to their room." While, Klenner commented, "the response was relatively transient," it indicated that multiple sclerosis might be a severe form of avitaminosis.

If one vitamin helped, two seemed likely to work better. Klenner writes: "Moore,²⁵ in 1940, published a monograph on the use of high intravenous doses of nicotinic acid for the cure of multiple sclerosis. Moore employed a drug combination called 'Nicobee.' This preparation contained 100 mg nicotinic acid and 60 mg of thiamin in each 10 cc solution." Moore, like Klenner, was influenced by earlier work showing that nerve degeneration results from multiple nutritional deficiencies.²⁶ Subsequently, Klenner would employ what may only be described as a wide ranging nutritional approach. His protocol for multiple sclerosis and myasthenia gravis follows, as described in his paper, "Response of Peripheral and Central Nerve Pathology to Mega-Doses of the Vitamin B-Complex and Other Metabolites":²⁷

Thiamin hydrochloride (B₁): 300 mg to 500 mg, 30 minutes before meals and bed hour, and during the night if awake plus 400 mg daily by needle, given intramuscularly.

Niacin (B₃): 100 mg to 3 grams, thirty minutes before meals and at bed hour, and also during the night if awake – whichever dose will produce a strong body flush.

Pyridoxine (B₆): 100 mg to 200 mg is given before meals and bed hour. At least 100 mg daily is given intramuscularly.

Cobalamin (B₁₂): 1,000 mcg three times each week by needle.

Ascorbic Acid (C): Ten to twenty grams should be taken daily by mouth in divided doses.

Riboflavin (Vitamin B₂): 40 mg to 80 mg given daily by needle I.M. 25 mg before meals and bed time.

Choline: 700 mg to 1,400 mg after each meal and at bed hour.

Lecithin: 1,200 mg soybean lecithin after each meal.

Magnesium: 100 mg after each meal.

Calcium gluconate: Two 10 grain tablets after each meal and at bed hour.

Calcium panthothenate: 200 mg after each meal and at bed hour.

Aminoacetic acid (glycine): One heaping tablespoon of the powder in a glass of milk four times each day.

Zinc gluconate: 10 mg three times each day has some value in Myasthenia Gravis. Take several hours after vitamin B₂.

Additionally, Klenner gave vitamin E (800 to 1,600 IU/day), crude liver extract, adenosine-5-monophosphoric acid, and a multi-vitamin/ multi-trace-mineral tablet, which would have included some vitamin D. Klenner prescribed a high protein diet, and used available drugs to relieve tremor and stiffness. He might also specify linolenic acid, thyroid, fresh green vegetables, fresh fruits, a considerable quantity of milk (1 quart/day) and eggs (up to 6/day). Klenner required patients to limit fats, eat only whole grain bread, and specified “no junk foods, especially sweets.”²⁸

Klenner also offered what he considered to be an abbreviated, compromise program. “Should a given patient’s physician refuse to administer this schedule, I have this recommendation: One gram thiamin hydrochloride one hour before meals and at bed hour, and during the night if awake. Niacin taken at the same time, and in amounts sufficient to produce a good body flush. Two hundred mg calcium pantothenate and 100 mg pyridoxine before meals and at bed hour. Ten grams ascorbic acid, taken in divided doses.

Amino acetic acid: one heaping tablespoon in a glass of milk, four times each day. Naturally, the full schedule will afford more dramatic response.” He declares: “We categorically make this statement: Any victim of multiple sclerosis who will dramatically flush with the use of nicotinic acid, and who has not yet progressed to the stage of myelin degeneration, as witnessed by sustained ankle clonus elicited in the orthodox manner, can be cured with the adequate employment of thiamin hydrochloride and other factors of the vitamin B complex in conjunction with essential proteins, lipids, carbohydrates and injectable crude liver.”²⁷

Media Muckraking

Perhaps it is not a complete surprise that the print and broadcast media have been obsessively interested in the scandal that rocked Klenner’s family following the doctor’s death from heart disease in 1984. Fred Klenner Jr., known as Fritz, implicated in the murders of at least five people, died by his own hand in 1985.²⁹ The tragedy was the subject of a bestselling 1988 tell-all book,³⁰ in which Dr. Klenner is mentioned over 50 times, and then, in 1994, a 3 ½ hour made-for-TV movie.³¹ It is instructive to note that the news media reported on the son’s crimes far more than it reported on the father’s cures. There have been countless television programs and Hollywood films about crime, but not one ever made about the life-saving achievements of megavitamin therapy. Perhaps that is an even greater tragedy. “We’ve used massive doses of vitamins on over 10,000 people over a period of 30 years,” said Dr. Klenner, “and we’ve never seen any ill effects from them. The only effects we’ve seen have been beneficial.”

Dr. Klenner’s immensely valuable work is his legacy. Linus Pauling said, “The early papers by Dr. Fred R. Klenner provide much information about the use of large doses of vitamin C in preventing

and treating many diseases. These papers are still important.”³² Klenner is justly remembered as the doctor who was first to boldly assert that “Ascorbic acid is the safest and most valuable substance available to the physician” and that patients should be given “large doses of vitamin C in all pathological conditions while the physician ponders the diagnosis.” Whether overshadowed by scandal or stubbornly ignored by the medical profession, high-dose ascorbate therapy is here to stay. “I have used Dr. Klenner’s methods on hundreds of patients,” said Lendon H. Smith. “He is right.”

References and Notes

1. Saul AW, Claus Washington Jungeblut, M.D.: Polio pioneer; ascorbate advocate. *J Orthomol Med*, 2006; 21(2): 102-106. Note: Available online at: www.doctoryourself.com/jungeblut.html
2. Saul AW: The pioneering work of William J. McCormick, MD. *J Orthomol Med*, 2003; 18(2): 93-96. Note: Available online at: www.doctoryourself.com/mccormick.html
3. Landwehr R: The origin of the 42-year stone-wall of vitamin C. *J Orthomol Med*, 1991; 6(2): 99-103. Note: Available online at: www.seanet.com/~alexs/ascorbate/199x/landwehr-r-j_orthomol_med-1991-v6-n2-p99.htm
4. Klenner FR: Virus pneumonia and its treatment with vitamin C. *Southern Med Surg*, 1948; 110/2: 36-38, 46. Note: Available online at: www.seanet.com/%7Ealexs/ascorbate/194x/klenner-fr-southern_med_surg-1948-v110-n2-p36.htm
5. Levy TE: *Vitamin C, Infectious Diseases, and Toxins: Curing the incurable*. Philadelphia, PA: Xlibris Corporation, 2002, p 52-53. Note: Previously reviewed in the *J Orthomol Med*, 2003; 18(2): 117-118.
6. Smith LH: *Clinical Guide to the Use of Vitamin C: The Clinical Experiences of Frederick R. Klenner, MD*. Portland, OR: Life Sciences Press, 1988. Note: Originally titled: *Vitamin C as a Fundamental Medicine*: Abstracts of Dr. Frederick R. Klenner, M.D.’s published and unpublished work. Reprinted 1991. The full text of this book is posted at http://www.seanet.com/~alexs/ascorbate/198x/smith-lh-clinical_guide_1988.htm.
7. Klenner FR: The treatment of poliomyelitis and other virus diseases with vitamin C. *Southern Med J*, 1949; 3/7: 209-214. Note: Available online at: www.orthomed.com/polio.htm and http://www.seanet.com/%7Ealexs/ascorbate/194x/klenner-fr-southern_med_surg-1949-v111-n7-p209.htm
8. Klenner FR: Letter to M.G. Farnsworth, Farnsworth Laboratories, Inc., Chicago, dated October 14, 1950. NB: Photocopy in author’s possession.
9. Klenner FR: Massive doses of vitamin C and the virus diseases. *South Med J*, 1951; 113(4): 101-7. Note: Available online at: www.seanet.com/~alexs/ascorbate/195x/klenner-fr-southern_med_surg-1951-v103-n4-p101.htm
10. Bledsoe J. *Bitter Blood: A True Story of Southern family Pride, Madness, and Multiple Murder*. NY: Dutton, 1988. Also: NY: New American Library, 1989; 114.
11. Klenner FR: Observations on the dose of administration of ascorbic acid when employed beyond the range of a vitamin in human pathology. *J Applied Nutr*, 1971; 123(3&4): 61-68. Note: Available online at: www.orthomed.com/klenner.htm and <http://www.doctoryourself.com/klennerpaper.html>
12. Stone I. *The Healing Factor: Vitamin C against Disease*. NY: Grosset and Dunlap, 1972; p 191-192.
13. Letter from Irwin Stone to Dr. & Mrs. Frederick R. Klenner, Gilmer Street, Reidsville, North Carolina, dated 3 June 1978. NB: Carbon copy kindly provided by Steve Stone. The house that was the Klenners’ longtime residence is less than 20 miles north of Greensboro, NC, about four miles west of US Highway 29, and five blocks north of the Annie Penn Memorial Hospital.
14. Saul AW: The 2005 Orthomolecular Medicine Hall of Fame. *J Orthomol Med*, 2005; 20(2): 113- 117. Note: Available online at: <http://orthomolecular.org/hof/index.shtml>.
15. Miller F: Klenner’s office recalls old-fashioned practitioner. *Greensboro Daily News*, undated reprint. Note: This medium-circulation newspaper, founded in 1909, has been known since 1982 as the *News-Record*. The periodical’s archives are accessible at <http://company.news-record.com/library.htm>.
16. Bledsoe J: 231.
17. Miller F: Dr. Klenner urges taking vitamins in huge doses. *Greensboro Daily News*, 1977; (12)13: A8-A10.
18. Klenner FR. A new office procedure for the determination of plasma levels for ascorbic acid. *Tri-State Medical J*, 1956(2): 26-28.
19. Klenner FR: The history of lockjaw. *Tri-State*

- Med J*, 1954(6).
20. Klenner FR: Recent discoveries in the treatment of lockjaw with vitamin C and tolserol. *Tri-State Med J*, 1954(7).
 21. Klenner FR: A treatment of trichinosis with massive doses of vitamin C and para-aminobenzoic acid. *Tri-State Medical J*, 1954(4).
 22. Klenner FR. Case history: The black widow spider. *Tri-State Med J*, 1957(12).
 23. Klenner FR: Case history: Cure of a 4-year old child bitten by a mature Highland Moccasin with vitamin C. *Tri-State Med J*, 1954;(7) The Highland Moccasin, a viper, is also known as the Copperhead.
 24. Sern EL. The intraspinal injection of vitamin B₁ for the relief of intractable pain, and for inflammatory and degenerative diseases of the central nervous system. *Am J Surg*, 1938; 34: 495.
 25. Moore MT. Treatment of multiple sclerosis with nicotinic acid and vitamin B₁. *Arch Internal Med*, 1940; 65(1): 18.
 26. Zimmerman HH, Burack F. Lesions of the nervous system resulting from a deficiency of the vitamin B complex. *Arch Pathology*, 1932; 13(2): 207.
 27. Klenner FR: Response of peripheral and central nerve pathology to mega-doses of the vitamin B-complex and other metabolites. Parts 1 and 2. *J Applied Nutrition*, 1973; 25:16-40. Note: Free full-text download at http://www.townsendletter.com/Klenner/KlennerProtocol_forMS.pdf Also: Klenner, FR: Treating multiple sclerosis nutritionally. *Cancer Control J*, undated. 2:3: 16-20. And, a similar, comprehensive MS/MG protocol is to be found in the *Clinical Guide to the Use of Vitamin C: The Clinical Experiences of Frederick R. Klenner, MD*, reference 5, above.
 28. Program Prescribed by Dr. Fred R. Klenner. NB: A two-page itemized check-off list of nutritional recommendations for patients. Hand-dated January 25, 1979 by Irwin Stone, who added a notation that it had been "Rec'd from L. P. Institute." *Linus Pauling Institute of Science and Medicine*. Provided by Steve Stone.
 - 29.NB: While it has sometimes been assumed that son Fritz Klenner (Fred Klenner Jr.) was a physician, he was not. He never attended medical school.
 30. Bledsoe J. *Bitter Blood: A True Story of Southern family Pride, Madness, and Multiple Murder*. NY: Dutton, 1988. Also: NY: New American Library, 1989. Note: The book contains three black-and-white photos of Dr. Klenner. Chapter 22 focuses on his work.
- That chapter, and the balance of the book, is less than flattering. Publisher's notes say that Jerry "Bledsoe wrote an award-winning series about the (Fritz Klenner) case in 1985 in the Greensboro (NC) News & Record," where he is a senior writer and columnist. <http://company.news-record.com/library.htm>. A New York Times bestselling author, Bledsoe has also written *Before He Wakes: A True Story of Money, Marriage, Sex and Murder; The Angel Doll; Death Sentence: The True Story of Velma Barfield's Life, Crimes, and Punishment; Death by Journalism? One Teacher's Fateful Encounter with Political Correctness*; and *North Carolina Curiosities: Jerry Bledsoe's Guide to Outlandish Things to See and Do in North Carolina*.
31. *In the Best of Families: Marriage, Pride & Madness* stars Kelly McGillis as Susie Lynch and Harry Hamlin as Fritz Klenner (Fred Klenner Jr.). Produced by Ambroco Media Group and Dan Wigutow Productions. Directed by Jeff Bleckneritz. Note: Originally telecast in the USA by CBS in two parts, on 16 and 18 January, 1994. Later shown in Britain by BBC 1 on 19 and 20 April, 1997. The film is not known to have won any awards.
 32. Pauling L: Foreword to: Smith I. *Clinical Guide to the Use of Vitamin C: The Clinical Experiences of Frederick R. Klenner, MD*.

For Further Reading:

Only two of Dr. Frederick R. Klenner's many papers are currently indexed by Medline. No abstract is available for either. The US National Library of Medicine, the world's largest medical library, indexes nothing whatsoever written by Klenner after 1952, when he published primarily in the *Tri-State Medical Journal*.

Klenner FR: Massive doses of vitamin C and the virus diseases. *South Med J*, 1951; 113(4): 101-7. Note: Sometimes erroneously cited as 103(4), such as in this link, which does in fact access the full text of the paper: http://www.seanet.com/~alex/ascorbate/195x/klenner-fr-southern_med_surg-1951-v103-n4-p101.htm

Klenner FR: The vitamin and massage treatment for acute poliomyelitis. *South Med J*, 1952; 114(8): 194-7.

Additional Bibliography:

Klenner FR. Fatigue, normal and pathological, with special consideration of myasthenia

- gravis and multiple sclerosis. *Southern Med Surgery*, 1949; 11(9).
- Klenner FR: The use of vitamin C as an antibiotic. *J Applied Nutr*, 1953; 6: 274-278.
- Also may have appeared in 1953; *Southern Med Surg*, 1953; 114(8). http://www.seanet.com/~alexs/ascorbate/195x/klenner-fr-j_appl_nutr-1953-v6-p274.htm and <http://whale.to/v/c/klenner1.html>
- Klenner FR: A critical analysis of the Francis report concerning the 1954 poliomyelitis vaccine program. *Tri-State Med J*, 1955; (6)
- Klenner FR: Poliomyelitis vaccine: Brodie vs. Salk, *Tri-State Med J*, 1955; (7)
- Klenner FR: The role of ascorbic acid in therapeutics. (Letter) *Tri-State Med J*, 1955; 11: 34.
- Klenner FR: Poliomyelitis: Case histories. *Tri-State Med J*, 1956; (9): 28-31.
- Klenner FR: An insidious virus. *Tri-State Med J*, 1957; (6).
- The folly in the continued use of a killed polio virus vaccine. *Tri-State Med J*, 1959; (2): 1-8.
- Klenner FR: Encephalitis as a sequelae of the pneumonias. *Tri-State Med J*, 1960; (2): 7-11.
- Klenner FR: Observations on the dose and ad-

ministration of ascorbic acid when employed beyond the range of a vitamin in human pathology. *J Appl Nutr*, 1971; 23(3&4): 60-89.

- Klenner FR: Significance of high daily intake of ascorbic acid in preventive medicine. *J Int Acad Prev Med*, 1974; 1:1, 45-69. Also: In Williams RJ, Kalita DK, editors. *A Physician's Handbook on Orthomolecular Medicine*. 1977. New York: Pergamon, Reprinted 1979; New Canaan CT: Keats. ISBN-10: 0879831995; ISBN-13: 978-0879831998.

Publications attributed to Frederick R. Klenner include:

- Klenner FR: Paper presented at the 52nd Annual Meeting of the Tri-State Medical Association of the Carolinas and Virginia, held in Columbia, Feb 19th and 20, 1951. May have been published in *J Applied Nutr*.
- Klenner FR: News about diabetes mellitus (letter). *Tri-State Med J*, 1955, May.
- Klenner FR. Poliomyelitis vaccine: The authorities speak. *Tri-State Med J*, 1956, March.
- Klenner may also have published in *Tri-State Med J* in April, 1954 and again in October, 1958.