IN THE UNITED STATES DISTRICT COURT

WESTERN DISTRICT OF OKLAHOMA

GLEN L. RUTHERFORD, individually and on behalf of a class composed of terminally ill cancer patients	)	
Plaintiffs	)	VERIFIED STATEMENT OF JOSEPH F. ROSS, M.D.
vs	)	
UNITED STATES OF AMERICA, JOSEPH A. CALIFANO, JR., Secretary of Health, Education and Welfare, and DONALD KENNEDY, Commissioner of the Food and Drug Administration	)	
Defendants	)	

1. I am Joseph F. Ross, M.D., Professor of Medicine at the UCLA School of Medicine, Los Angeles, California. I am licensed to practice medicine in the states of California and Massachusetts. I received my M.D. Degree from Harvard Medical School in 1936 and received extensive training in cancerous diseases at the Huntington Memorial Hospital, and the Harvard Medical Service of the Boston City Hospital; and at the University of Rochester School of Medicine and Hospital. I am certified as a specialist in Internal Medicine by the American Board of Internal Medicine and as a specialist in Nuclear Medicine by the American Board of Nuclear Medicine. At present, I am a member of each of these Boards and also of the American Board of Medical Specialties. I was a member of the National Advisory Cancer Council from 1956 to 1960, and subsequently have served on numerous committees of the National Cancer Institute until the present time. I have been a member of the California State Department of Health Cancer Advisory

Council since 1959 and was Chairman from 1963 to 1967, and from 1975 to 1977.

2. I am informed and understand that certain orders have been entered in these proceedings which permit distribution of Laetrile to persons who have or believe they have cancer, and which permit distribution of the drug to terminal cancer patients. I offer this statement in support of my professional judgment that both such orders perpetuate a fraud upon the public and constitute an imminent hazard to the public health.

3. I have devoted my professional life to the diagnosis and treatment of neoplastic diseases, primarily of the hematopoietic system, and to research on the nature, mechanisms and treatment of these diseases. I teach medical students and physicians about cancer and the medical management of patients with cancer. I am Director of the United States Public Health Service-funded Training Program in Hematology and Hematologic Oncology at UCLA. I am actively engaged in the treatment of patients with cancer. Details of my professional activities are provided in Exhibit 1.

4. Since 1959, I have been concerned with the problems caused by the advocacy of Laetrile as a cancer treatment and have amassed a large amount of factual information concerning Laetrile and related compounds, and their effects on human beings, and their ineffectiveness as therapeutic agents in humans and in animals with cancer. I have observed and studied many patients who had been treated by others with Laetrile. I am, therefore, well informed about the effects of Laetrile and related materials (apricot kernels, "Vitamin B-17," and other cyanogenic materials) on human beings. First,

I will discuss the dangerous nature of these materials and their potential for causing serious illness and death. Second, I will comment on my observations and studies indicating the ineffectiveness of these materials in the treatment of cancer. I hope that this information will be helpful to the court in its consideration of the orders relating to legitimation of Laetrile as a cancer therapeutic or preventative substance. I believe the best interests of the American people will be served by vacating the orders and by supporting the position of the United States Food and Drug Administration concerning these materials.

THE DANGEROUS EFFECTS OF LAETRILE AND CYANOGENIC PLANT MATERIALS ON HUMAN BEINGS

5. ACUTE POISONING: Laetrile or Amygdalin is one of several chemically-related compounds occurring naturally in the kernels and seeds of certain plants and in the tubers of the cassava. These compounds are similar in their effects on the body. They contain cyanide as a constituent part of their structure, and when these compounds in the presence of beta-glucosidase enzymes contained in food stuffs are subjected to digestive processes in the gastrointestinal tract of human beings or animals, they release cyanide (hence, the generic name "cyanogenic" compounds). When released in the gastrointestinal tract, cyanide is rapidly absorbed into the body, and interferes with the body's ability to use oxygen, producing cyanosis, dizziness, stupor, coma, nausea, vomiting, drop in blood pressure, shock and death. When given by intravenous injection the fate of these materials is obscure and they are less toxic than when ingested. However, some of the symptoms described above follow intravenous injection.

6. The proponents of Laetrile have stated that it is harmless. This statement is contrary to fact as illustrated by the following tabulation.

Summary of Cases of Poisoning
by Laetrile and Cyanogenic Fruit Kernels

Product	Cases of Poisonings	Death
Laetrile	1	1
Apricot	18	3
Bitter Almonds	5	5
Peach Kernels	4	4
Wild Choke Cherry Kernels	5	1
Sweet Cherry Kernels	2	1
Prune Kernels	2	2
Total	37	17

7. These cases have occurred sporadically, since the materials involved have been proscribed by law, or are recognized as poisonous by the populations of foreign nations. Should they be made generally available and advocated as beneficial to humans, the number of cases may be expected to increase. An example of such advocacy is given in Exhibit 3. Additional documentation of these poisonings and deaths is provided in Exhibit 2. It is a well known fact that adverse reactions to drugs are notoriously under-reported.[1]

8. The most recent of these fatal cases is very informative of the tragic consequences of Laetrile poisoning, and the symptoms, mechanisms, and pathogenic changes caused by Laetrile. A 10-month-old infant ingested one to five of her father's 500 mgm Laetrile tablets, and rapidly became listless, developed symptoms of vomiting, stupor, coma and shock. Her blood contained significant amounts of cyanide. In spite of vigorous and informed therapy, she died 72 hours after the ingestion of the Laetrile. The medical examiner's autopsy findings of "extensive anoxic brain damage due to acute cyanide poisoning due to Amygdalin ingestion" describes the mechanism

1. Stolley, Paul D. (1975) Assessing Rare And Delayed Side Effects Of Contraceptive Steroids J. Steroid Biochem 6: 937-940

by which Laetrile causes death. Certainly an agent which causes tragic deaths such as this cannot be considered harmless. (With the permission of Dr. James R. Humbert, his letter to the editor of the JAMA is reproduced in Exhibit 2A.)

CHRONIC POISONING BY CYANOGENIC MATERIALS:

9. Proponents of Laetrile and "Vitamin B-17" and "Aprikern" (apricot kernels) now advocate continuing long-term ingestion of these materials as cancer preventatives. There is strong probability that such use, in addition to possibly causing acute toxic effects, will result in chronic poisoning similar to the poisoning produced by the ingestion of cassava root. Cassava contains a cyanogenic compound with chemical similarities to Laetrile and is believed to be responsible for a severe degenerative disease of the nervous system known as Tropical (Nutritional) Ataxia which frequently is seen in Nigeria and other areas where cassava root is a staple food. The release into the gastrointestinal tract over a prolonged period of time of cyanide from apricot kernels certainly has the potential for causing a similar neurological degenerative disease in American citizens (Exhibit 4).

10. Chronic ingestion of cassava root poisons the thyroid gland with resultant goiter and a potential for an increase in the incidence of thyroid cancer. Additionally, there is evidence that birth defects may develop in the offspring of mothers ingesting cyanogenic materials during pregnancy. (Exhibit 4)

THE DANGER OF DEFERRAL OF EFFECTIVE CANCER THERAPY BY CANCER WHO UNDERGO LAETRILE THERAPY:

11. In the majority of cancer, the more promptly effective treatment is started the better is the chance of

cure or prolongation of useful life. Thus deferral of conventional therapy to take Laetrile therapy costs lives and causes great misery. Examples of two such tragedies that I have personally observed are illustrated by cases R.L. and E.S. in Exhibit 5. Both these patients had the alternative of accepting conventional therapy with a good expectancy of years of useful life but instead were persuaded to take Laetrile with resulting development of cord compression and paralysis from lymphoma in R.L. and of a fatal fungating cancer of the breast in E.S. Legitimation of Laetrile therapy will eventuate in many more such tragic cases. Active solicitation of cancer patients by the proponents of Laetrile diverts many unfortunate patients from conventional cancer therapy and preys most cruelly on the unsophisticated and underprivileged.

LAETRILE IS A DANGEROUS DRUG, EVEN FOR "TERMINAL" CANCER PATIENTS

12. "Terminal" cancer patients who turn to Laetrile immediately remove themselves from the realm of orthodox medical treatment. There is a substantial body of evidence, well known to experts in the management of cancer, that clearly establishes that Laetrile serves as a wedge which drives cancer patients at all stages of their illness away from good care and into the hands of quacks and charlatans. A popular account of a number of good examples of such tragedies may be found in the attached article, "Laetrile, The Fatal Cure." (Exhibit 6)

13. While specific forms of cancer have a statistically expectable mortality rate , that rate is meaningless as

applied to individual cancer patients. Oncologists are all familiar with cases which were statistically considered to be hopeless in which sudden remissions have occurred, or in which new discoveries have turned the tide against what appeared to be immeasurable odds. Being alive, in touch with reality, and within the existing system of health care provides the only hope of benefiting from new discoveries. The term, "terminal" cannot be applied prospectively to individual cancer patients. Because it disrupts normal avenues of communications between patients with advanced cancer and their physicians and deprives them of the opportunity for treatment with advanced agents following the decision to use Laetrile, Laetrile is a dangerous drug which is not safe for use at any stage of the disease process.

14. It is sometimes said that Laetrile is a suitable placebo. A placebo is usually thought of as a "sugar pill" which is harmless and inert but which causes improvement which results from the patient's faith in the physician. Laetrile is not a psychologically inert compound and is not a safe placebo. It has enormous meaning in our society and a demonstrated propensity to drive patients away from good medical care. If a physician wants to produce a placebo effect in a patient with advanced cancer, there are many appropriate, substances which can safely be used for this purpose.

THE USELESSNESS OF LAETRILE IN THE TREATMENT OF CANCER

15. Evidence that Laetrile is without benefit in the treatment of human cancer has been obtained by objective observation by qualified investigators of patients who have been treated with Laetrile and by review of records of patients who have been treated with Laetrile, which have been submitted by proponents of Laetrile therapy as exemplifying

the benefits of such treatment, and by review of published reports of Laetrile treatment of cancer.

16. Such observations must be compared and weighed against the anecdotal and scientifically unsubstantiated claims of the proponents of Laetrile and of persons who claim that they have benefited from such therapy.

OBSERVATIONS OF LAETRILE PATIENTS SEEN AT UCLA:

17. A representative sample of 5 cancer patients of the many who have been observed in the UCLA Hospital after having elected to take Laetrile rather than conventional therapy or who have elected to substitute Laetrile therapy or to take Laetrile in addition to conventional therapy are tabulated in Exhibit 5. Cases R.L. and E.S. (referred to above) exemplify the disastrous effects of electing Laetrile therapy rather than conventional therapy while cases S.C., N.P. and D.L. illustrate the uselessness of Laetrile to modify the course of the disease when used in conjunction with conventional therapy or when interspersed with such therapy.

EVALUATION OF CASE REPORTS SUBMITTED BY THE PROPONENTS OF LAETRILE AS EXEMPLIFYING THE BENEFICIAL EFFECTS OF LAETRILE THERAPY:

18. Table 1 presents a summary of 9 reports of evaluation of Laetrile in cancer therapy. 1009 patients have been reported, although many of these reports are inadequate for scientific clinical evaluation. No valid evidence of objective improvement of these patients attributable to Laetrile is presented. Some patients may have had subjective improvement although this is very difficult to establish and if it occurred may have been attributable to placebo effect or to benzaldehyde. A report of the evaluation of such cases is presented in Exhibit 7.

Food, Drug, and Cosmetic Act and the regulations of the FDA in regard to these materials are wise and should be continued.

25. I hereby verify under penality of perjury that the foregoing statement is to the best of my knowledge and belief true and correct.

Joseph F. Ross, M.D. Date

> "Neither amygdalin nor any other cyanogenic glycoside was generally recognized or safe (for the treatment of cancer, for prophylaxis against cancer, for relief of pain associated with cancer, or for any medical use) on October 10, 1962, or since."

This is an indisputable fact, well known to any qualified expert with knowledge of the recognition accorded drugs intended for these purposes in October 1962. I am such an expert. My views with respect to the recognition accorded amygdalin were and are in agreement with the overwhelming concensus of informed scientific opinion. They are supported by the absence of any body of scientific literature upon which general recognition of safety could be predicated, and by the real and serious dangers I have discussed in this statement.

SUMMARY

23. There is ample scientific evidence that Laetrile is a toxic material which is potentially lethal when ingested, and may produce adverse symptoms when injected.

24. Observation of patients treated with Laetrile and review of cases purporting to show the benefits of such therapy indicate that there is no scientific evidence of objective or unequivocal subjective benefit of cancer patients subjected to this therapy. There is ample evidence that administration of Laetrile therapy instead of conventional therapy results in needless deaths and great suffering. It is my opinion that legitimation of Laetrile and its related compounds would be deleterious to the health and well being of the American people, to cancer patients, to "terminal" cancer patients, and that the new drug provisions of the Federal

19. Fifty of these cases were carefully reviewed by competent oncologist members of the California Cancer Advisory Council. There is not one shred of evidence indicating that Laetrile therapy had any benefit in the allaviation, palliation, or control of cancer! And yet these were cases that the proponents of Laetrile provided as examples of the benefits to be expected from such therapy.

20. Similarly, an evaluation of 44 Laetrile cases by the Cancer Commission of the California Medical Association in 1953 indicated that Laetrile had no beneficial effect on the patients so treated and that autopsy studies did not reveal any histological or cytological change that could be attributed to Laetrile treatment. A photocopy of this report is enclosed in Exhibit 8.

21. Very recently Drs. Wallace I. Sampson and Lawrence A. William have reported discovery of evidence that patients treated with Laetrile have a shorter life span than a "control" group of patients who were not treated with Laetrile. These observations are preliminary and have not yet been confirmed by other investigators, but they are suggestive that not only does Laetrile not prolong life, but may actually shorten it. Further studies are necessary to establish this observation. Their report is attached as Exhibit 9.

22. Amygdalin was not generally recognized as safe on October 9, 1962, and has never been so recognized. In the affidavit which I submitted to the Food and Drug Administration in the matter of their rulemaking proceeding concerning Laetrile, I stated:

TABLE I

SUMMARY AND EVALUATION OF REPORTS OF CANCER PATIENTS TREATED WITH LAETRILE

Author	Reference	Year of Report	# of Cases	Comments
California Cancer Advisory Council	1	1963 1965	36 14	Review of case reports submitted by McNaughton Foundation as evidence of the efficacy of Laetrile in treatment of cancer. The Council found no evidence of therapeutic or palliative benefit from the Laetrile therapy.
Cancer Commission of the California Medical Association	2	1953	44	"All patients either have active disease or are dead of their disease, with one exception." (Cervical lesion probably entirely removed by biopsy.) Of those alive with disease, no patient has been found with objective evidence of control of cancer under treatment with Laetrile alone. Autopsy histological studies have shown no evidence of any chemotherapeutic effect."
Marco Tosco	3	1958	21	All patients died; some questionable evidence of subjective improvement. Little or no evidence of objective improvement. Duration of illness consistent with natural history of the disease. No prolongation of life.
Navarro	4	1956 1958 1959 1962 1970	17	Patients treated with conventional treatment as well as Laetrile; objective evidence of benefit from Laetrile is not presented. Not possible to corroborate report of subjective improvement.

TABLE I

Author	Reference	Year of Report	# of Cases	Comments
Morrone	5	1962	10	Inadequate reports: no histological diagnosis of cancer in two cases. Impossible to determine how much and how long Laetrile administered. Impossible to determine outcome of cases or duration of survival.
Contreras	6	1970	702	Sixty-two died of undetermined cause within three weeks of start of Laetrile therapy. Only 23 patients (3%) alive at end of one year. The author's claim of 30 - 35% "response rates" in certain cancers is not substantiated by data presented nor by the 97% deaths in one year.
Hieper	7	1971	60	Not possible to attribute any response or benefit to Laetrile, since multiple therapies employed simultaneously. Survival does not appear to be prolonged, but adequate control data not provided.
Richardson & Griffin	8	1977	90	These case histories were prepared and evaluated by Patricia Griffin, R.N., B.S. and do not fulfill criteria of objective clinical evaluation. They are presented as promotional material for Laetrile therapy for the Richardson Clinic. Many erroneous statements and unsupported claims are made and false conclusions are drawn. Patient testimonials are a major component of the reports. This cannot be considered an objective report.
Sampson & William	9	1977	15	Laetrile therapy in addition to conventional therapy. No remission, no objective improvement compared to controls. Life span less than controls. Other studies necessary to corroborate shortened life span.

TABLE I

References

1. Report of Cancer Advisory Council: Treatment of Cancer with Beta-Cyanogenic Glucosides (Laetriles) 1963 and Supplement of 1965, State of California Department of Health.

2. California Medicine 8 320-326, 1953.

3. Gazetta Medico Italiano April 1958, p. 3.

4. Santo Tomas Journal of Medicine: 10 : 113, 1955;
   25 : 125, 1970.

   Acta Union Contra Cancer 15 : Suppl : 209, 1959.

5. Exp. Med. Surg 20 : 299, 1962.

6. Manuscript in preparation for publication.
   Copy in California State Department of Health.

7. Z. Blut u Geschwulstkrankh 3 H. 1, 7, 1971.
   also manuscript with California State Department of Health.

8. Laetrile Case Histories, Richardson & Griffin,
   Bantam Books, 1977.

9. Report to F.D.A., 1977, and manuscript appendad.