

59-AML - DCC

DATE : June 22, 1959

STATE OF MINNESOTA

DEPARTMENT Public Welfare

## Office Memorandum

TO : E. J. Engberg, M.D., Faribault State School & Hospital

FROM : Dale C. Cameron, M.D. *DC*

SUBJECT: Proposed Study of Possible Association of  
Mongolism and Leukemia

Transmitted herewith is a copy of the above proposed study which was sent to me by Dr. Gaylord Anderson, together with a copy of my reply to him. Dr. Anderson indicates that this was drafted by Dr. Bruhl and Dr. Ernest Ager, a medical fellow in the School of Public Health. May I have your comments on the proposal.

DCC:mts  
Attach. 2

Proposed Study of Possible Association of  
Mongolism and Leukemia

Introduction

Leukemia has a higher incidence in mongoloid children than in other children according to Krivit and Good (1,2). No explanation has been derived for this phenomenon, and factors surrounding the association have not been thoroughly investigated. According to Benda (3) and Engler (4), some minor differences in peripheral blood and bone marrow have been observed in small numbers of mongoloid patients.

This study is intended to investigate the association of the two conditions and to examine mongoloid children for possible blood and bone marrow abnormalities.

Phases of the Study

- 1) Search of all death certificates recorded in Minnesota over a period from 1948 to 1958 for:
  - a) Total number of deaths of persons with leukemia.
  - b) Total number of deaths of persons with mongolism.

It will be possible, then, to calculate rates of leukemia in mongoloid and non-mongoloid persons for this period of time. It is estimated that these rates will be derived from a base of 300,000 deaths. Although death certificates cannot be assumed to be accurate with respect to these two diagnoses, any difference of real significance should be uncovered.

- 2) The State Hospital and School, Faribault, Minnesota, has a population of approximately 400 mongoloid persons. The present population of mongoloid persons in the State Hospital and School will be studied hematologically. It is proposed that a significant sample of mongoloid persons and appropriate

control individuals be examined by white blood counts and differential blood counts. Differential smears will be examined by a trained hematologist. Mongoloid persons frequently exhibit exaggerated febrile responses to minor infections, and it is suggested that peripheral blood studies done at such times may be valuable.

- 3) Bone marrow biopsies will be done on a sample of approximately 100 mongoloid persons, to be studied for evidence of abnormality.
- 4) A chart review of deceased mongoloid persons is proposed. Evidence of leukemia will be sought, as well as other abnormalities of the hematopoietic system. Approximately 200 deaths of mongoloid persons is likely to have occurred between 1938 and 1958. A significant proportion can be studied from autopsy data.
- 5) Deaths of mongoloid persons occurring during the period of study will be carefully reviewed. Whenever possible, autopsy will be performed, and if permission for autopsy is denied, an effort will be made to obtain permission for necropsy of rib cartilage, spleen and liver fragments. It is anticipated that five years will be required to collect sufficient autopsy material for analysis.

All phases of the proposed study, except autopsy, as outlined in section 5, will be performed by staff members of the School of Public Health, University of Minnesota. It is suggested also that bone marrow biopsy (sternal puncture) be performed only by graduate physicians of the staff of the School of Public Health and that other phases may be delegated to medical student summer fellows who have completed

two or more years of work at the University of Minnesota School of Medicine. Autopsies will be performed by members of the medical staff of the State School and Hospital, Faribault, Minnesota.

References:

- 1) Krivit, W. and Good, R.A., The Simultaneous Occurrence of Leukemia and Mongolism. A.M.A. J. Dis. Ch. 91:218-222, March 1956.
- 2) Krivit, W. and Good, R.A., Simultaneous Occurrence of Mongolism and Leukemia, A.M.A.J. Dis. Ch. 94:289-93, September 1957.
- 3) Benda, Clemens E., Mongolism and Cretinism, 2nd Edition, Gene and Stratton, 1949.
- 4) Engler, M., Mongolism, Williams and Wilkins, Baltimore, 1949.

June 22, 1959

Gaylord W. Anderson, M.D.  
Mayo Professor & Director  
School of Public Health  
University of Minnesota  
Minneapolis 14, Minnesota

Dear Dr. Anderson:

Thank you for sending the "Proposed Study of Possible Association of Mongolism and Leukemia" to me for review. I have forwarded a copy to Dr. Engberg at Faribault in accordance with your suggestion.

Is it proposed that the bone marrow biopsies be done on Mongoloid patients at Faribault? I presume this is so but it isn't quite clear to me from the proposal.

By copy of this letter I am asking Dr. Engberg to comment on the feasibility of this procedure and also on the feasibility of item 5 relative to autopsies by his staff at Faribault. I presume that the tissue sections would be done at the University if the autopsies are carried out as you indicate. Is this correct?

Though it is not stated in the proposal am I correct in assuming that the costs of the study would be borne by the School of Public Health, except of course for the performance of autopsies at Faribault?

I shall be in touch with you further after I have an opportunity to hear from Dr. Engberg relative to his reaction to the proposal. Thank you again for sending it.

Sincerely,

DCC:mts  
CC: Dr. Engberg

Dale C. Cameron, M.D.  
Medical Director

**RETYPE FROM ORIGINAL MEMO**

Faribault State School & Hospital

Dr. Dale C. Cameron, Director  
Division of Medical Services  
Dr. E. J. Engberg, Superintendent

July 2, 1959

**Proposed Study of Possible Association of  
Mongolism and Leukemia**

I wish to acknowledge the receipt of your memorandum of June 22, 1959 transmitted with a copy of the above proposed study which had been sent to you by Dr. Gaylord Anderson, together with a copy of your reply to him. As stated in the conversation that Dr. Bruhl and I had with you Tuesday, Dr. Ernest Ager had discussed this type of study with Dr. Bruhl at a time that Dr. Thorsten Smith and I happened to be away. Upon receiving your memorandum, I discussed this matter with Dr. Smith and Dr. Bruhl and we all are in agreement that we have a sufficient number of patients for such a study and that it will provide additional diagnostic information of patients included in the study. You will remember we raised the question as to whether the consent of parents should be secured in advance of sternal punctures. I was glad that as a result of the discussion it was decided that such consents would be unnecessary and that you looked with favor upon our participating in it. We shall be awaiting further information in regard to this project if it is decided to undertake it.

EJE:aj

cc: Dr. Gaylord Anderson  
Dr. Thorsten Smith  
Dr. H. H. Bruhl

Faribault State School & Hospital

July 9, 1959

Gaylord W. Anderson, M.D.  
Mayo Professor & Director  
School of Public Health  
University of Minnesota  
Minneapolis 14, Minnesota

Dear Dr. Anderson:

By this time you have doubtless had an opportunity to review the material that Dr. Engberg sent to me in response to my queries to him about the proposed study on the possible association of Mongolism and leukemia. I have also received a letter from Dr. Schuman answering some of the questions that I had raised in my letter to you. With these clarifications I feel certain that the Department of Public Welfare can collaborate with you on this program and is very pleased to do so. May I suggest that your future contacts relative to the program be directly with Dr. Engberg.

Sincerely,

Dale C. Cameron, M.D.  
Medical Director

DCC:mts

CC: Dr. Engberg  
Dr. Schuman