

November 8, 1965

Dr. Flaminio Fidanza
Istituto di Fisiologia della Universita
S. Andrea delle Dame 8
Naples,
ITALY

Dear Flaminio:

We are set up to re-code and arbitrate readings on the 1965 follow-up Italian ECGs. You wrote that duplicate records are available

Please send the ECGs here, along with Lamm-Nedeljkovic codings and we'll get the job done.

The date of shipment and name of shipper should be forwarded to us.

Things go well here. As you know, the Acta ms. is "in press", and we must move along on the follow-up material.

Best regards to you and family,

Henry Blackburn, M. D.

HB:mj

CC: Dr. Keys

The Prague meeting is close to but not coincident with the dates for Athens. I might try to do both, whereas I really should not try to do either because of the travel cost. If I attend I might plan to present some data November 10, 1965, and to compare with those of Crete and Corfu.

I think it would be a good idea for you to give a report at the Dr. Christ Aravanis symposium giving the data on prevalence in Crete and Corfu in the 37 Vasiliadis Sophias, the results of the 5-year follow-up in Crete, and the total Athens, Greece for 5 years, i.e. up to October, 1965. A trip to Corfu to check deaths is needed about now anyway but for the Athens meeting it would be essential to make sure that all deaths are known through 5 years.

Dear Christ:

As noted above, the Crete cohort aged 40-59 in 1960 numbered 678. I am in regard to relatives, I suppose we had best see what we make of the all brothers and fathers and sons before deciding whether it is worthwhile to make a special effort to find out about cousins, etc. But for the analysis we need to have here the data on the brothers. We can start to learn something about those missed-

deaths, known to be alive but not in Crete, address and dead-or-alive. All that is required is a list of the serial numbers of all sets of brothers; the computer will then be programed to sort the cards and run the correlations, etc. This will be done for the 1960 data as soon as I get the list of numbers. I am sending a copy of this letter to Andy; perhaps you can check to see that the list is sent here soon. I suggest that basic needs would include

Henry Blackburn has just written you about the deaths. The total of only 11 dead in 5 years among the men 40-59 in 1960 is extraordinarily low. Since there were just 678 men of those ages in the original cohort, this means a total 5-year death rate of 16.2 per 1000. In comparison, the 5-year death rate of our U.S. railroad men of the same age is 55.3 per 1000, half from heart disease. Have all 678 Cretans been accounted for? This is important. If we can guarantee the overall figures, there will be a powerful argument for support of more study on this population with so good a record for heart disease and total mortality.

7-day records of everything eaten and drunk (except water) on each of 25-30 men. About the third serum spots, unless you need them for something else, send them here. We may be able to do uric acid (we are checking the method on dried spots) or we could use some to check values after long storage.

If I cannot be in Athens for the meeting, I'll see if I can visit you for a few days. I had heard about the symposium in Athens scheduled for May 30 - June 2, 1966. The problem is that I have agreed to go to Norway in late March, I must be on hand for Corfu (August-September?), and the New Delhi Congress is at the end of October. Finally, Dr. Lukl is arranging a symposium in Prague for May.

David Keys, Director

Page Two

November 10, 1965

Dr. Christ Aravanis

SCHOOL OF PUBLIC HEALTH - LABORATORY OF PHYSIOLOGICAL HYGIENE
STADEN GATE ST - MINNEAPOLIS, MINNESOTA 55455

If the Prague meeting is close to but not coincident with the dates for Athens, I might try to do both; otherwise I really should not try to do either because of the travel cost. If I attend I might plan to present some data from the other areas to compare with those of Crete and Corfu.

In any case, I think it would be a good idea for you to give a report at the Athens meeting, simply giving the data on prevalence in Crete and Corfu in the initial examinations, the results of the 5-year follow-up in Crete, and the total deaths in Corfu for 4 years, i.e. up to October, 1965. A trip to Corfu to check deaths is needed about now anyway but for the Athens meeting it would be essential to make sure that all deaths are known through 4 years.

As noted above, the Crete cohort aged 40-59 in 1960 numbered 678. I am told that this August-September 765 men were examined. We expect to have all the Deck I data for Crete 1965 on punch cards by the first week in December and then we shall quickly see what men were not seen and shall send you the serial numbers so that efforts can start to learn something about those missed-- dead, refused, known to be alive but not in Crete, address and dead-or-alive status unknown.

These data will be essential for your and my progress reports to U.S.P.H.S., and for your application for renewal which I suppose should be prepared before too long. On the renewal, I suggest that basic needs would include

1) Enough follow-up to know all deaths, and their causes, each year in both Crete and Corfu;

2) Ten-year re-examinations in 1970 and '71;

3) At least one more dietary study in each area, say in 1967, '68. Actually, I suggest two surveys in each area to be done sometime in 1967-'69. But I think we might be able to do without all the food collection and analysis and use only the 7-day records of everything eaten and drunk (except water) on each of 25-30 men on each occasion. When the time comes we'll make every effort to provide personnel to help in the field.

If I cannot be in Athens for the meeting, I'll see if I can visit you for a few days in April. In the meantime, best regards to all.

Sincerely,

Ancel Keys, Director

CC: Drs. Dantas, Lekos, and
Blackburn

November 15, 1965

Dr. Martti Karvonen
Institute of Occupational Health
Haartmaninkatu 1
Helsinki,
FINLAND

Dear Martti:

Your November 12 microfilm of the late follow-up men was received. Can you photocopy the ECGs for insurance and send originals here for me to read?

Regards,

Henry Blackburn, M. D.

HB:mj

TYÖTERVEYSLAITOS

INSTITUTE OF OCCUPATIONAL HEALTH - L'INSTITUT DE MÉDECINE DU TRAVAIL - INSTITUT FÜR ARBEITSMEDIZIN

HAARTMANINKATU 1—HELSINKI—FINLAND

DIR.PROF. LEO NORO, M.D.

November 20, 1965

Dr. Henry Blackburn
Laboratory of Physiological Hygiene
University of Minnesota
Stadium, Gate 27
Minneapolis, Minn. 55455
USA

Dear Henry,

Do you really wish to read all the ecg:s? We have had the east read by four readers, Mohacek, Nedeljkovic, Kallio and Punsar, and the west by three of the above, excluding Mohacek. Moreover, in the west there are duplicate readings by Kallio. All reader discrepancies were picked up and a decision was made in joint sessions by Kallio and Punsar.

I appreciate the advantage of having one man like you reading all the ecg:s of the cooperative study. On the other hand, I do not know what would be the preferred procedure if you don't agree with the joint decision of Kallio and Punsar. Some correspondence between you three?

We now have very definite information on all the ecg:s a copy of which can be mailed to you in the form you wish. I would now risk sending all the ecg:s to you, even without the insurance of photocopying, if you like to have them.

I delay the mailing of the ecg:s to you until your directions.

With best regards,

Sincerely yours,



Martti J. Karvonen

November 29, 1965

Dr. Martti Karvonen
Institute of Occupational Health
Haartmaninkatu 1
Helsinki,
FINLAND

Dear Martti:

I think you may have misinterpreted my November 15 request. You may remember I read in Geneva all the disagreements and other special ECG categories for the 1964 follow-up. I do want now to read all the ECGs of the "late follow-ups", those men you've apparently found since 1964, on which you sent microfilm on November 12.

I have trained four students to read ECGs, and they do better than any of us cardiographers, though of course, I continue to check them.

Did you get my November 16 note on mortality follow-up? Also, the details available on health and status of all 1964 non-respondents are needed to estimate the completeness of the follow-up.

Regards,

Henry Blackburn, M. D.

HB:mj

CC: Dr. Keys

December 27, 1965

Mr. Martti J. Karvonen
Institute of Occupational Health
Haartmaninkatu 1
Helsinki, Finland

Dear Martti:

The only identification on the majority of the ECG's sent us December 16 from the "late follow-up" cases is their name. It would be a wretched job for us to match these with numbers from the microfilm here. Please send us a name - number roster. If this is impossible we will return the ECG's for the numbers to be added.

We wondered why ECG paper without coordinates was used and hope it won't be again, as it complicates the coding process. We wonder also about cases such as Hassinen Heikki and Tolvanen, and a number of others with a single lead ECG unidentified as to lead or procedure.

Best regards,

Henry Blackburn, M.D.

cc:
HB:jh

January 3, 1966

Dr. Martti Karvonen
Institute of Occupational Health
Haartmaninkatu 1
Helsinki,
FINLAND

Dear Martti:

As a crude measure of validity I would like to see the relationship between claudication history by Rose Questionary and the pulse wave values. Did you not get leg pulses in a sample in '64? If not, let's get them in an interim study.

Incidentally 1967 would be a good year to think of an interim study of a subsample in regard to a number of questions. Should I bring it up with Ancel, or is this something you plan on anyway?

We are getting into the question of experimental studies of the effect of exercise in random samples of the population, probably starting in March. The CVD program will continue 6 more years. Otherwise, little new here.

Regards,

Henry Blackburn, M. D.

HB:mj

SCHOOL OF PUBLIC HEALTH • LABORATORY OF PHYSIOLOGICAL HYGIENE
STADIUM GATE 27 • MINNEAPOLIS, MINNESOTA 55455

I see no need for more dietary records if competent dietitians are available. It would be desirable to carry out 3-day diet recordings (weighing) on perhaps 30 men at random in each area, in 1968 or 1969, but collection of food for chemical analysis would be unnecessary. One dietitian and January 14, 1966 could cover 30 men in 3 weeks in this way and the cost would not be high--air fare--\$120, meals and housing--\$350, car hire, including driver--\$250, stipends for field work period plus time for calculating--\$1000, misc. local costs, typing, etc.--\$120, of \$2100 per survey.

Dr. Christ Aravanis

37 Vasilissis Sophias Av.

Athens, Greece

budget estimates for the Corfu re-examinations. Note that I shall take care of all costs for Dr. Blackburn and an E. C. G. man and that we would supply at least one E. C. G. machine and also take care of the cholesterol analyses, statistical work. Apart from these items my estimate totals \$6659.

Dear Christ:

This is further to the letter and application materials mailed to you last night. both Crete and Corfu. The cost per visit should be less than \$250, including stipends.

For the continuation of the work in Greece the following are the basic needs: The 10-year re-examinations in Crete and Corfu should be budgeted at \$7000 to \$8000 each, to allow for possible inflation, etc.

- 1) Check on mortality in both Crete and Corfu between now and July 1, 1966.
- 2) 3-year re-examinations in Corfu in August-September, 1966. Who is to handle the responsibilities between re-examinations. On the latter, the equivalent of one week of work in Crete should suffice for the small amount of things to be done--making sure that someone does the mortality checks, and preparing a brief progress report each year. Ideally, you and/or someone in your party should plan on meeting with others who are in these cooperative programs for several days in Italy in 1967, 1968, 1969 and 1970. An air passage of \$250 for each such meeting would do.
- 3) Check on mortality in Crete between July 1 and December 31, 1966.
- 4) Twice yearly check on mortality in both Crete and Corfu in 1967, 1968, 1969.
- 5) Check on mortality in both Crete and Corfu between January 1 and July 1, 1970.
- 6) 10-year re-examinations in Crete in August-September 1970. (This will include mortality check) The mortality data so far reported. The death rates are far out of line w/ any expectation. It is clear that a twice-yearly check in both Crete and Corfu is essential with every effort to be made to prevent any death being missed.
- 7) Check on mortality in Corfu between July 1 and December 31, 1970. For Crete, I note that the 1958 examination data do not cover 80 men who were aged 40-50 and examined in 1958. Only 10 men are mentioned in the interim. How are the other 70 men accounted for?
- 8) Check on mortality in Corfu between January 1 and July 1, 1971.
- 9) 10-year re-examination in Corfu in August-September 1971. As for Corfu, our latest data on deaths date from 1963, at which time only 5 deaths were reported since September 1961. What is the experience since? Is it certain that only 5 deaths occurred in two years? Surely someone should go to Corfu in the next few months to make a thorough check. (Also to Crete.)
- 10) Work up all data for both Crete and Corfu and finish reports by August 31, 1972.

If there are other special jobs to be done regarding the men of Crete and Corfu, they must be planned and financed separately. other materials (objectives, detailed methods, significance, etc.) needed for the new

Page Two
January 14, 1966
Dr. Christ Aravanis

I see no need for more dietary studies of the type already done. If competent dietitians are available, it would be desirable to carry out 3-day diet recordings (weighing) on perhaps 30 men at random in each area, in 1968 or 1969, but collection of food for chemical analysis would be unnecessary. One dietitian and 3 helpers could cover 32 men in 2 weeks in this way and the cost would not be high--air fare--\$120, meals and housing--\$550, car hire, including driver--\$250, stipends for field work period plus time for calculating--\$1000, misc. local costs, typing, etc.--\$120, making a grand total of \$2100 per survey.

I enclose budget estimates for the Corfu re-examinations. Note that I shall take care of all costs for Dr. Blackburn and an E. C. G. man and that we would supply at least one E. C. G. machine and also take care of the cholesterol analyses, statistical work, etc. Apart from these items my estimate totals \$6659.

I further enclose estimates for the cost of checking mortality twice yearly in both Crete and Corfu. The cost per visit should be less than \$250, including stipends.

The 10-year re-examinations in Crete and Corfu should be budgeted at \$7000 to \$8000 each, to allow for possible inflation, etc.

CC: Dr. A. S. Denton

Then there is the question of interim office costs and your time or that of whoever is to handle the responsibilities between re-examinations. On the latter, the equivalent of one week of work a year should suffice for the small amount of things to be done--making sure that someone does the mortality checks, and preparing a brief progress report each year. Finally, you, Andy or someone in your group should plan on meeting with others who are in these cooperative programs for several days in Italy in 1967, 1968, 1969 and 1970. An allowance of \$250 for each such meeting would do.

I am much concerned about the mortality data so far reported. The death rates are far out of line of any expectation. It is clear that a twice-yearly check in both Crete and Corfu is essential with every effort to make sure no deaths are missed. For Crete, I note that the 1965 examination data do not cover 80 men who were aged 40-59 and examined in 1960. Only 10 men are reported to have died in the interim. How are the other 70 men accounted for?

As for Corfu, our latest data on deaths date from 1963, at which time only 5 deaths were recorded since September 1961. What is the experience since? Is it certain that only 5 deaths occurred in two years? Surely someone should go to Corfu in the next few months to make a thorough check. (Also to Crete.)

I am working hard on the Report for 1961 to date, as well as preparing all the other materials (objectives, detailed methods, significance, etc.) needed for the new

January 14, 1966

Dr. Christ Aravanis

DAYS STIPEND AIR FARE HOTEL, MEALS, etc. TOTAL TOTAL

application. Please send me post-haste the signed form plus comments on this and the previous letter.

Dr. A. S. Dostas	25	400	30	275	705
------------------	----	-----	----	-----	-----

Dr. I have put in a 'phone call to you in Athens and may add a p. s. to this letter before mailing it if I get through to Athens in time.

One Athens Technician	30	150	30	240	420
-----------------------	----	-----	----	-----	-----

Second Best wishes to all,	24	150	30	240	420
----------------------------	----	-----	----	-----	-----

One Corfu Assistant	24	100	--	---	100
---------------------	----	-----	----	-----	-----

Second " "	24	100	--	---	100
------------	----	-----	----	-----	-----

Third " "	24	100	--	---	100
-----------	----	-----	----	-----	-----

Misc. Help		100	--	---	100
------------	--	-----	----	-----	-----

Sincerely,

Total Personnel					54813
-----------------	--	--	--	--	-------

SUPPLIES

Ancel Keys, Director

AK:ccj Recording paper, ink, rollers, notebooks, etc.					400
---	--	--	--	--	-----

Forms, printing					100
-----------------	--	--	--	--	-----

CC: Dr. A. S. Dostas			Total Supplies		500
----------------------	--	--	----------------	--	-----

Dr. D. Lekos					
--------------	--	--	--	--	--

SHEP: Dr. H. W. Blackburn					100
---------------------------	--	--	--	--	-----

Enclosures

Volkswagen, 1 week					66
--------------------	--	--	--	--	----

Pougeot stationwagon, 4 weeks					130
-------------------------------	--	--	--	--	-----

Car and driver, 3 1/2 weeks					450
-----------------------------	--	--	--	--	-----

Total Car Hire					646
----------------	--	--	--	--	-----

OFFICE COSTS (Athens)

Clerical help					150
---------------	--	--	--	--	-----

Postage, telephone and telegraph, stationery, etc.					50
--	--	--	--	--	----

Total Office Costs					200
--------------------	--	--	--	--	-----

OTHER

Subjects					100
----------	--	--	--	--	-----

Misc.					100
-------	--	--	--	--	-----

Total Other					200
-------------	--	--	--	--	-----

Grand Total					6659
-------------	--	--	--	--	------

CORFU FOLLOW-UP August-September 1966

PERSONNEL	DAYS	STIPEND	AIR FARE	HOTEL, MEALS, etc.	TOTAL	TOTAL
Dr. G. Aravanis	25	\$500	\$30	\$275	\$805	
Dr. D. Lekos	25	400	30	275	705	
Dr. A. S. Dostas	25	400	30	275	705	
Dr. Adrian Corcondilas	25	400	30	275	705	
George Arniotakis	35	250	53	350	653	
One Athens Technician	24	150	30	240	420	
Second " "	24	150	30	240	420	
One Corfu Assistant	24	100	--	---	100	
Second " "	24	100	--	---	100	
Third " "	24	100	--	---	100	
Misc. Help		100	--	---	100	
Total		500	500	500	250	250
			Total Personnel			\$4813

SUPPLIES

Each visit involves one Dr. from Athens for 3 days (stipend--\$100), Air travel--(\$30),
 Recording paper, ink, rollers, notebooks, etc. 400
 Forms, printing 100

Each check up requires one Doctor from Athens (stipend--\$100, Air fare 500
 \$30, per diem--\$40, total \$170), car hire for 3 days (rental--\$20, mileage--\$14, gas,
SHIPPING and CARTAGE hire of local helper for 5 days (\$30), making a grand total 100
 of \$244.

CAR HIRE

Volkswagon, 1 week	66
Peugeot stationwagon, 4 weeks	330
Car and driver, 3 1/2 weeks	450
Total Car Hire	846

OFFICE COSTS (Athens)

Clerical help	150
Postage, telephone and telegraph, stationery, etc.	50
Total Office Costs	200

OTHER

Subjects	100
Misc.	100
Total Other	200
Grand Total	6659

UNIVERSITY OF *Minnesota* GREEK FOLLOW-UP

Mortality and Health Status Work

SCHOOL OF PUBLIC HEALTH · LABORATORY OF PHYSIOLOGICAL HYGIENE
JUN GATE ST · APOLOS, MINNEAPOLIS, MINNESOTA

PLACE	1966		1967		1968		1969		1970		1971
	No. 2	No. 1	No. 2	No. 1	No. 2	No. 1	No. 2	No. 1	No. 2	No. 1	No. 1
Crete	244	244	244	244	244	244	244	244	244	244	---
Corfu	---	244	244	244	244	244	244	244	244	244	244
Misc.	6	12	12	12	12	12	12	12	12	6	6
Total	250	500	500	500	500	500	500	500	500	250	250

37 Vasilissis Sophias Av.
Athens, Greece

Dear Christa:

This is further to the letter and application materials mailed to you last night. Each visit involves one Dr. from Athens for 3 days (Stipend--\$100), Air travel--(\$30), Per diem--(\$45).

Continuation of the work in Greece the following are the basic needs:
Each check up requires one Doctor from Athens for 3 days (Stipend--\$100, Air fare--\$30, per diem--\$40, total \$170), car hire for 3 days (rental--\$20, mileage--\$14, gas, etc. --\$10, total \$44), and hire of local helper for 5 days (\$30), making a grand total of \$244.

- 3) Check on mortality in Crete between July 1 and December 31, 1966.
- 4) Twice yearly check on mortality in both Crete and Corfu in 1967, 1968, 1969.
- 5) Check on mortality in both Crete and Corfu between January 1 and July 1, 1970.
- 6) 10-year re-examinations in Crete in August-September 1970. (This will include mortality check)
- 7) Check on mortality in Corfu between July 1 and December 31, 1970.
- 8) Check on mortality in Corfu between January 1 and July 1, 1971.
- 9) 10-year re-examination in Corfu in August-September 1971.
- 10) Work up all data for both Crete and Corfu and finish reports by August 31, 1972.

If there are other special jobs to be done regarding the men of Crete and Corfu, they must be planned and financed separately.

February 21, 1966

Dr. Flaminio Fidanza
Istituto di Fisiologia della Universita
S. Andrea delle Dame 8
Naples,
ITALY

Dear Flaminio:

Work is progressing well and Italian ECGs are half recorded. We really don't have the incidence data in any organized form but I imagine Ancel will turn his attention to it soon. Ask him for those data. We have looked at them only for Crete and I send you the enclosed report.

The W. H. O. Manual is at the printers.

Hans Friedrich may be taking the tapes to Corfu but funds are not yet clear for this. Ancel and I would like to have all the equipment turned over to Dr. Puddu and Dr. Menotti and stored in Rome, if possible.

Best regards,

Henry Blackburn, M. D.

HB:mj

Enclosure

April 25, 1966

Dr. Christ Aravanis
37 Vasilissis Sophias
Athens, GREECE

Dear Christ:

We understand September 1 is the starting date at Corfu. Since we have not heard to the contrary, from our earlier letter, we have gone ahead with plans to have a separate station for magnetic tape recording. Requirements would be a small room or part of a larger testing room, stable power at 50 cps, a comfortable stiff bed or table, and one full-time unskilled female assistant. Please let me know if you have a bicycle ergometer available? Expenses for the engineer and assistant will be borne from this laboratory. We hope to record one or two arterial pulse waves simultaneously with the ECG and thus would be at the same station with Dr. Dontas. There might be as much as 12-15 amps. required in the power supply to that room.

Andy, please inform us immediately the output voltage level of the strain gauge you use for the pulses.

All equipment can be brought in by different people as personal professional tools, but their value (The Rome Elema ECG, the magnetic tape unit, control box, etc.) will be around \$12,000. We would appreciate your making formal entry arrangements for all this equipment with your customs, through the Ministry of Health or wherever appropriate. Please be good enough to let us know the steps taken and papers required.

The dual system of subject identification numbers used in 1965, though it facilitated the field movement, have been a source of possible error here when there was no way of knowing which number on a sample represented which person examined in 1960. If you want to use two serial numbers again, please devise a clear method of distinguishing them.

Dr. Keys feels that we should settle again for only a small sample of fasting serum triglycerides, approximately 15 in each 5 year age group, and make arrangements to send them here air mail every two days. I will bring envelopes and plastic containers for the triglyceride spots.

I will contact Rome for the Elema we used last year.

Cordially,

Henry Blackburn, M. D.

HB:neb

cc: Dr. Keys
Dr. Dontas