REPORT ON
A SURVEY, INVENTORY, AND EVALUATION OF CLINICAL EQUIPMENT IN THE HOSPITALS AND CLINICS OF MACEDONIA

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A

TABLE OF CONTENTS

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I SCOPE OF WORK

The information presented in this report is based on the results of a detailed evaluation of the clinical health care equipment presently available in the MOH hospitals and clinics of Macedonia, the study conducted by a team of six experts from Project HOPE during an on-site assignment from March 20 to April 1, 1994 The objective of this study was to conduct an on-site study to establish the specific types and locations of all major clinical equipment, evaluate their operational condition and need for repair, assess the capability of clinical staff to use and the technical staff to maintain and repair the equipment, and establish a data base inventory of the clinical equipment in the major hospitals and clinics of Macedonia. The components of the study establish the information base on which to build a national program of repair, training and replacement.

Based on the survey results, the Team was requested to prepare a plan to diagnose the actual equipment problems and spare parts required in preparation for implementing a program to determine the sources of these parts, obtaining and installing the parts, calibration and check of all equipment, a program for training of local technicians and engineers to continue the maintenance and repair, and establishing and carrying out, as appropriate, recommendations for specifying and obtaining new and replacement equipment.

II DESCRIPTION OF SURVEY TEAM ACTIVITIES

Project Hope conducted a study and evaluated the status of the clinical equipment of a major portion of the hospitals and clinics in the Republic of Macedonia based on a request from U S A I D and the Minister of Health of Macedonia The survey team was lead by Professor Herman Weed, Director of Biomedical Engineering for Project HOPE, four biomedical engineers and one physician. The survey was carried out from Sunday, March 20 through Saturday, April 1, 1994. The survey team was divided into three groups based on areas of expertise Appropriate combinations of these groups visited 38 hospitals throughout the country both in Skopje and across the country in combinations of 1-3 of the groups based on the hospital size and areas of specialization This was accomplished by day trips in and from Skopje, and one three day trip based in Ohrid in the South and Western part of the Republic To facilitate the process, the U S A I D office in Skopje arranged three cars and drivers, and an interpreter/translator for each team member Arrangements for

actual site visits and initial contacts in the individual hospitals, primarily with medical directors, or when necessary, assistant directors or financial officers, were made through the U S A I D office in cooperation with the Ministry of Health At all institutions, the HOPE team members were welcomed warmly and professionally The directors or other contact individuals were open and candid in showing their facilities, the equipment, the state of the equipment, explaining their perceived needs, and making the technical and medical professionals available to the teams.

During the two-week period in Macedonia, the team visited regional and general hospitals and clinics located in Skopje, Bitola, Gevgelija, Gostivar, Debar, Davadarci, Kichevo, Kochani, Kriva Palanka, Kumanov, Ohrid, Prilep, Struga, Strumica, Tetovo, Veles, and Stip, plus the specialty hospitals of

National Institute for Health Care (Skopje)
National Transfusiology Institution (Skopje)
Institute for Hearing, Speech and Voice Rehab (Skopje)
Gerontology Institute "13 November" (Skopje)
Institute for Medical Rehabilitation (Skopje)
Institute for Pulmonary Diseases and TB (Skopje)
Neuro and Psychiatric Hospital "Bardovci" (Skopje)
Institute for Nephrology, Dyalysis & Rehab (Struga)
Institute for Chronic Nonspecific Respiratory Diseases (Otesevo)
Institute for Prevention and Treatment of Cardiovascular Diseases (Ohrid)
Institute for Orthopedic and Trauma (Ohrid)
Special Pediatric Hospital (Ohrid)
Special TB Hospital (Tetovo)
TB Hospital (Veles)
Psychiatric Hospital (Demir Hasir)

Data gathered at each location on the total of 2709 pieces of clinical equipment included

1 Type of equipment
2 Manufacturer, Model and age
3 Serial Number
4 General operational condition
5. Existence of service manuals, operational manuals
6. Specific location
7 Individual or groups responsible for the equipment
8. Present apparent use
9 Service and maintenance record, if available
10 Apparent suggested recommendations for the classification of useable, repairable, or throwaway

The initial survey identified the type, location, operational status, and utilization of the equipment The data collected permits the determination of the magnitude of the required program to diagnose problems, the design of a program to determine the spare parts needed, obtain the parts and repair equipment, train technicians, and specify new and replacement needs The study did not include actual repair diagnosis of equipment or its repair in general In a limited number of situations, repair or callibration was carried out at the time of the survey

Members of the team visited several potential technical training facilities, a major part of the University hospitals for comparison, the present centralized BME repair and maintenance facility, REPLEX, all 16 Regional Hospitals of the MOH, 4 units of the MOH General City Hospital and 17 specialty hospitals, institutions, and clinics The total bed capacity of the institutions visited was 9646 - Skopje MOH, 1875, MOH outside of Skopje, 6354, University, 1417

III CLINICAL EQUIPMENT INVENTORY AND CLASSIFICATION

At each location the team or teams assigned to that hospital or clinic requested to see and check all pieces of clinical equipment in the hospital and from this brief contact with each piece of equipment, established a data base including City, Hospital, Description of Piece of Equipment, Manufacturer, Model, Serial Number, Approximate Age, Location within the hospital, whether or not functional, whether or not used, existence of Service and Operator Manuals, Repair done inside or on-site, Service Record, whether or not Preventive Maintenance (PM) was being carried out, if there was a PM schedule, and added comments relative to the functions of the unit, use of the equipment, repair, spare parts, general comments on status, and a recommendation as to whether the piece of equipment was considered useable, repairable, or throwaway These data are available in Appendix B of this report

Based on these data, a functional computerized database was created from which the initial classifications and comparisons of age, functional status, manufacturing source, type of equipment by hospital, and type of equipment for the country were drawn

1 Age of the Equipment

Of the total of 2709 pieces of clinical equipment seen in 37 hospitals of the MOH plus the University

A 203 or 7 0% are 0-4 years old
776 or 29 0% are 5-9 years old
1153 or 42 5% are 10-19 years old
577 or 21 5% are ≥20 years old

64% of the equipment is 10 years old or older

B Comparing Age of Equipment MOH and Univ

MOH 1464 out of 2216 or 66% of the MOH equipment is ≥10 years old

Univ 276 out of 493 or 56% of the University equipment is ≥10 years old

Total 1740 of 2709 or 64% of the clinical equipment in the country is ≥10 years old

It appears that the University equipment has a significant component younger than the MOH

2 Functional Status of Equipment

A Removing the University group of 493, a total of 2216 pieces of equipment are in the MOH hospitals These were separated into Useable (U), Repairable (R), Throwaway (T)

	U	R	T
MOH (2216)	1774 80%	304 13 7%	138 6 3%
University (493)	387 78 5%	63 12 8%	43 8 7%
Total (2710)	2161 79.8%	367 13 5%	181 6 7%

There appear to be no significant differences between the MOH and University in this respect

B. As evaluated, R and T are presently non-functioning equipment, while U represents equipment that is functional and generally used, although perhaps only

partly functional or functioning improperly Therefore, 20 2% of the country's equipment and 20% of the MOH is totally non-functional at this time

Breaking this down by MOH, Univ, Total

MOH 20% of 2216 pieces (442) are presently non-functional

Univ 21 5% of 493 pieces (106) are presently non-functional

Total 20.2% of 2709 pieces (548) are presently non-functional

C Comparing MOH hospitals in Skopje, the Regional MOH Hospitals outside of Skopje, and the University hospitals

	SKOPJE			REGIONAL HOSPITALS OUTSIDE		
	U	R (of 406)	T	U	R (of 1810)	T
MOH	67 7%	17 8%	14 5%	82 8%	12 8%	4 4%
Univ	78 5%	(of 493) 12 8%	8 7%			

It appears that the MOH Hospitals outside of Skopje are actually using a larger percentage of their equipment than those in Skopje

3 Manufacturers of Equipment by East vs West

A The survey data show the manufacturer of 2360 of the 2709 pieces of equipment Of the 2360, 1085 were manufactured in the Eastern Block or 46% On this basis, assuming similar manufacturer distribution, of the 2709, 1246 or 46% were manufactured in the Eastern Block. This breaks down into 50% for the MOH, 29% for the University, and 46% combined

B The summary data on pages 19-21 indicate by hospital the number of manufacturers represented in the equipment compliment and the number of these from the Eastern Block This shows a wide variation from hospital to hospital, with an average of 36% of the manufacturers Eastern.

C The list of manufacturers, page 25-27, includes 84 total from the East and West These may represent a broad spectrum of equipment areas under each manufacturer

D It is observed, page 19 to 21, that any one of the MOH hospitals appears to have equipment of from 4 to 53 manufacturers with the hospitals having the greatest diversity including

		Total	East	West	% East
1	Regional Hospital, Palanka	17	8	9	47
2	Regional Hospital, Kochani	25	10	15	40
3	Regional Hospital, Kumanov	25	15	10	60
4	Regional Hospital, Ohrid	27	10	17	37
5	Regional Hospital, Strumica	33	15	18	45
6	Regional Hospital, Stip	36	9	27	25
7	Regional Hospital, Tetovo	36	12	24	33
8	Regional Hospital, Ritola	53	13	40	25

It appears that most of this diverse group are outside of Skopje

By comparison in Skopje

		Total	East	West	%East
1	General Hospital Gerontology	5	1	4	20
2	Rehabilitation	12	2	10	17
3	Skin & Venereal Disease	12	3	9	25
4	Gastroenterology Hospital	15	3	12	20
5	General Hospital OB/Gyn	19	8	11	42
6	General Hospital Pediatrics	23	6	17	26
7	General Hospital Surgery	24	8	16	33
8	University Hospital	90	14	76	16

This results in an average for the country of 38% of the manufacturers represented in any hospital are from the Eastern Block

4 The database information showing type of equipment by hospital is shown on pages 28-65

5 The database information showing country-wide areas of equipment at the MOH, University, Total, is on pages 22-24

6 Summary

It is apparent from these data that 64% of the clinical equipment in the country is 10 years old or older, 20 2% is non-functional, 79 8% is still being used in some manner in the delivery of health care, 13 5% if repaired could provide a useful short-term life extending the period of decline of the country's technical health care equipment, and 6 7% is considered not to be repairable, not worth repair in terms of the contribution to the country's health care needs, or unlikely to function usefully or reliably without major ongoing repairs

The data base addresses only the existing equipment in the MOH, and most of the University hospitals for comparison and does not address the obvious diagnostic and therapeutic functions not part of the original equipment capabilities, but standard to most Western health care systems

Approximately 46% of the equipment from the former Eastern block nations generally suggests a design and functional capability at least one generation behind that of the West, often with unfortunate negative consequences for the patient such as higher x-ray exposure, less definition of analysis, or lesser sensitivity, or accuracy

IV CLINICAL EQUIPMENT REPAIR AND MAINTENANCE STATUS

A relatively high percentage compared to Western standards of the existing clinical equipment is either totally or partially non-operational due almost totally to the absence of repair and maintenance The absence of repair and maintenance appears to be the result of a combination of factors including

A. Lack of technical staff or technical expertise either within the hospital or available to the hospital to diagnose or repair the equipment

B. Lack of technical facilities, technical diagnostic and repair equipment to carry out the repair

C Absence of necessary spare parts to accomplish the repair

D Lack of funds either to pay for local Skopje REPLEX or manufacturer's representatives to diagnose and repair the equipment, often requiring hard currency

E Equipment so old and in such bad repair as to suggest that it would be unwise to repair since subsequent failures would continue to mitigate against any realistic utilization

Under the previous political setting of a unified Yugoslavia, the mode of operation generally was to have no in-house repair-maintenance capability in hospitals or clinics Repair-maintenance was centralized in a facility headquartered in Belgrade with branches in the various Republics, including Skopje, now under the title of REPLEX. All perceived failures were reported to the hospital Director or his Deputy, who notified REPLEX REPLEX then sent a service person, and to the extent of available parts and diagnostic-repair-calibration equipment and expertise, made the repair With the breakup of Yugoslavia, this function for Macedonia reverted to the Skopje branch of REPLEX, now independent The branch was taken over by a drug company for a short time, but with limited hospital (MOH) funds to purchase parts, the drug company has dropped its support, and REPLEX in Skopje is floundering with no parts, little diagnostic test equipment, loss of staff, and in general has become non-functional With, for the most part, no in-hospital Biomedical Engineering capability, there is no one available presently to carry out even minimal repairs The status of the existing equipment is rapidly deteriorating If funds are available, and the priority high enough, and if the manufacturer's representative maintains a repair capability, there are some in Skopje, Belgrade, or Western Europe that can be contacted at excessive cost to facilitate repair. This is rarely done

A brief summary of the repair/maintenance situation at the Prilep General Hospital appears as a reasonable reflection of the general situation in the country.

The Engineer has been there 20 years, is of the old school, with responsibility for all engineering in general and tends to represent the conceptual idea that all engineering is the same and anyone can do it He has had no training for clinical equipment, although the one tech there, who is 80% paid by the central government or MOH, had a short 2-week course in the handling of dialysis equipment in Skopje There were 2 techs for a short period, but with no parts or training available, one left.

The process of carrying out maintenance of clinical equipment is done on a "when it fails" basis The information is brought to the engineer and he sends his technician (no longer there) to look at the equipment to see if it is a problem If very simple, a cord pulled out, a broken wire on the outside, the tech fixes it, otherwise, the engineer must go to a committee composed of

the Hospital Director and the Heads of Departments to establish the priority to spend more than 2000 denar If the committee agrees, the engineer then calls in the manufacturer or the REPLEX service. This is done however only after the decision of priorities as to whether the limited money will be spent for this, or the equipment will be left unrepaired In the past they could only obtain parts for most of their equipment from REPLEX and so had to call them for both parts and repairs The engineer has no budget or source of parts under his control REPLEX now has essentially no parts and cannot carry out any service requiring them

They have operating manuals, but NO service manuals There is NO preventive maintenance done on anything other than the dialysis units which are checked each morning The engineer's estimate of the equipment non-repair was

no parts	90%	
cannot repair	10%	(do not have technical skills or diagnostic test equipment)
beyond repair	1%	

An example service call recently made

Trip to Prilep 1000 denar = $20
Diagnosis on arrival 800 denar = $16
Part if available 3150 denar = $30

Since he had the authority to go ahead on his own only if the charge was less than 2000 denar, the above would go to the committee made up of the Hospital Director, the Finance Director, and all department heads or directors to determine the priority

He actually has no budget of his own, but for less than 2000 denar, can sign and send it to the Director and it will be ordered

After considerable additional discussion about the problems of the budget and, in particular, the lack of recognition of the engineer by the medical professionals, the discussion went back to the problems of diagnosis and repair

The team then asked to see the repair shop where the 2 technicians worked or had worked before the one left The engineer did not have the key. He did take us upstairs and showed us the door to the room, and since it was opaque glass and the light from the window showed through, it could be seen that there appeared to be nothing in it A small room like a closet, perhaps 8 by 10 feet, with a lab coat hung there When asked what test equipment was in the room, he said a voltmeter and an

ammeter, no scope, no signal generator, and obviously not really anything of value for the job It is a non-functioning shop The fact that the engineer, and later the Director, did not have the key suggests that the present tech for the dialysis units is paid by the MOH or government, and the hospital has no jurisdiction over him

In the closing discussion, the Director said that the team had hit on their most vital problem, Engineering They really have none, yet 570 beds. The survey indicated that they have 100 or less pieces of clinical equipment for the entire hospital, 72% of which is 10 years old or older and of very limited design and utilization in its original form In this case 30% is non-operational (page 47)

This appears to represent the status of a desperate nation with major lack of functioning health care equipment in most hospitals (some with not even a general engineer) The hospitals have only the legally required technician covering the dialysis work, if they do dialysis, and the engineer (with 2 exceptions) is the general hospital engineer, not appropriatly trained for clinical equipment, even of the vintage they have, and certainly not for any western equipment that they might receive. It appears that the medical staff are considerably more advanced than the obviously non-existent technical staff, but undoubtedly would require extensive training in the use of any modern clinical equipment much beyond the present level of sophistication The medical staff may have heard of it, but certainly in most cases have had no experience using such capability

In assessing a possible solution to this technical capability problem, the first objective would be to create a minimal technical capability in each major hospital with one to three trained qualified technicians. They in turn would be able to refer to a revitalized REPLEX, perhaps in Skopje in the private sector as it is now, for the next advanced level of help, and finally reference to the manufacturer's representatives in or outside of Macedonia.

There must be a minimal source of general spare parts for the on-site technicians, the service manuals, and training courses and on-site training to keep them abreast of any equipment being brought in, either by gift or purchase

Four facts of importance emerged concerning repair and maintenance

1 At present, with little exception, the decision as to whether or not a piece of equipment is failing is made solely by the physician While he has been accustomed to using the equipment, it may not always be true that he will

recognize the gradual shifting of reference, reduction in function, or increase in leakage current often associated with age of the equipment Such equipment should be calibrated and checked for problems at least every few months by a qualified technician with appropriate test equipment

2 REPLEX appears to represent the best overall capability, particularly for the older, Eastern equipment, but in the present economic and political atmosphere, appears to be on the verge of disappearing

3 In recent months, it is not certain over just how long a period, the Central Government and/or the MOH has set up a requirement that all hospitals that carry out dialysis must have a trained technician (2 weeks) or engineer in-house to daily check the dialysis equipment. In a few instances, this person does other minor repairs In most cases, they do not. This at least sets the stage for the concept of an in-hospital technician or engineer. Several hospitals have a "General" Engineer such as Prilep, but in general the individual knows little of modern health care equipment There were two exceptions, one at the Institute for Hearing and Speech and the other at the University in Skopje Note the percentage of non-functional dialysis equipment is relatively low, 12% vs 20% for all other equipment

4 Equipment is not and cannot be repaired without adequately trained and supported personnel supported with the necessary spare parts With no in-hospital repair maintenance capability and no funds for parts, there exists essentially no repair-maintenance of clinical equipment in Macedonia today

V MEDICAL AND PUBLIC HEALTH SERVICES

In order to determine the ability of medical staff to use existing equipment and determine what additional training will be required, if any, for replacement or repaired equipment, the team reviewed the available data concerning patient care, public health and some specific treatment programs This data or lack of data was discussed with hospital directors and clinical staff to obtain verification through conversation and observation In addition, we reviewed the educational programs for clinical staff for emphasis of training and access to medical equipment, especially in the university system.

Patient Care Outcomes The team was unable to find evidence of any significant outcome measures. Rarely were there any data or statistics on morbidity or mortality rates associated with hospitalization, much less with operations or deliveries Most

hospitals could provide the number of premature babies born, the number of mothers who needed Cesarean section, and the number of therapeutic abortions performed, but beyond that, morbidity and mortality numbers did not seem to be available It would appear the health care now available in the country and given the extremely limited resources, the morbidity outcomes would be significantly less favorable than in Western institutions, but this was impossible to document One thing seems clear, in many situations, such as the care of premature infants under 1,000 gms , or treatment for older patients with cancer or severe cardiac or pulmonary disease, very little is done for the patient Radiation therapy is available only in the University setting, and it is not physically possible for many patients to remain there for the duration of therapy If they do, the level of treatment would appear to be somewhat limited as there is only one linear accelerator of low output and a cobalt source so old that it is currently at about 40% of its original strength

Public Health In discussing overall care with various hospital medical directors, it appears that as recently as five to ten years ago, there were significant efforts made in public health and preventive medicine There is currently a good water supply, it is safe to drink from the municipal supplies in most cities, although not safe in some of the smaller communities In addition, under the regime present when Macedonia was part of Yugoslavia, there was apparently excellent coverage for immunizations for all childhood diseases with reported compliance of between 90 and 95% Valid numbers could not be obtained, but multiple physicians admitted that the level of immunization is now below World Health Organization standards, and may be as low as 75 or 80% instead of the previous 95% coverage

Other major public health problems are industrial pollution of air, water, and soil, the level of smoking in the entire population, the diet appears to be based primarily on meat with reasonable vegetable and limited fruit intake. We were informed that historically this has been a "meat and potatoes" type of country This is beginning to show in the significant incidence of myocardial infarcts for middle-age individuals There is also significant hypertensive cardiovascular disease and left ventricular dysfunction Rheumatic heart disease has not been a problem for some time, but with an increasing shortage of medications for Streptococcal prophylaxis, they believe that rheumatic heart disease will be on the rise again There are also a number of patients with myocardiopathies seen, but there are inadequate facilities for accurate diagnosis They present primarily as myocardial dysfunction A great deal of care for these patients is purely rehabilitation, as there is no cardiac surgery available in the country, nor is there invasive cardiology, such as balloon angioplasty, available However, even with these programs, we believe that a change in national

lifestyle would be necessary to make a significant impression on cardiovascular disease.

Dialysis Program One of the major consumers of national resources is the end-stage renal disease program, or the dialysis program Currently, there are about 750 patients on dialysis in the country, or about 350/million people. The incidence of renal failure is stated to be about the same as the rest of Eastern Europe, and possibly somewhat higher than the United States (For Colorado, there are about 425 patients per million people on dialysis - hemo or peritoneal - and renal transplantation is available) There is no renal transplantation capability in the country, so that patients with end-stage renal disease must be managed medically and with dialysis in order to survive The Director of Nephrology at the University and for the Republic has been able to obtain a great deal of support, estimated at about one-third of the total national health budget, to support the dialysis program Diagnosis of disease is usually made at the University Hospital, but there are 12 or 14 centers outside of Skopje that do provide dialysis The machines in the regional hospitals generally are old, but in most instances, are still functioning However, obtaining dialysate is difficult, and reverse-osmosis is used to provide dialysate, but there often are equipment problems

The actual outcome of dialysis, life-span after the first diagnosis, etc was not available The national priorities would have to be examined to gain a perspective as to why 750 patients are carried on dialysis at significant expense, while at the same time, there is significant diarrheal disease in infants and children (mortality unknown) and an ongoing decline in the level of immunization coverage for children which will present a long-term problem once the level of "herd immunity" drops significantly The goal, however, should not be to reduce the support for dialysis, but hopefully, to improve public health care measures and other health care measures for the citizens

Cardiovascular Disease As is true in many countries, the diagnosis and treatment of cardiovascular disease, particularly those diseases of adult life, such as coronary artery disease, myocardial infarction and hypertension, are highly visible and often of high prestige. This would appear to be true at the University Hospital where the Cardiovascular Institute has one of the best equipped and most modern buildings, and in addition, is just completing a seven million dollar project to provide two totally equipped, high-standard cardiovascular operating rooms This is aimed at the treatment of adult cardiovascular disease, such as coronary artery grafting and valve replacement, and is currently not planned for congenital heart disease It appears that a great deal of money relative to the national health budget is being spent to send a relatively small number of patients

outside the country for surgery, and in light of those figures, it is felt that spending the money to develop this program within the Republic is appropriate However, one should examine very carefully the priorities for this program given the overall significantly lowered standard of care vis-a-vis public health and lack of equipment available in the forty or so other hospitals besides the Cardiovascular Institute

VI MEDICAL EDUCATION/TRAINING AND STAFFING

Medical Education There is one medical school in Macedonia at the University in Skopje It admits a class of approximately 150 students each year, and with about a 30% drop-out rate, graduates approximately 100 students per year However, this appears to be significantly in excess of the physician needs for the country We have been told that there are somewhere between 750 and 1,000 unemployed physicians in the Republic Some are able to leave the country and practice elsewhere, but since the break-up of Yugoslavia and with the difficulty of transferring credentials from one country to another, many of these newly trained physicians remain unemployed One stated reason for continuing to produce the over-supply of physicians is that, if they cut-back on the number of students enrolled in medical school, a number of medical school professors may no longer be employed The number of students is determined not by the Ministry of Health, but by the department heads in the University Better coordination for national priorities for health education seems appropriate

Medical Staff There is an abundance of physicians In fact, probably too many are being trained for the needs of the country at this time The physicians appear to be well trained The younger physicians are knowledgeable about what they want to do for patients and what equipment they need, but are totally frustrated by both the lack of the machines themselves and the disposable supplies necessary to use them Most of the physicians function at a much lower level than their training allows because of the lack of equipment or supplies Of note, in the operating room, anesthesiologists practice with the level of care equal to about the late 1950s or early '60s in the United States The current standards of monitoring, either non-invasive or invasive, including EKG and oxygenation levels, are essentially unavailable Should equipment become available, it is our opinion that it will take time to retrain the physicians and upgrade their skills to improve the level of care.

Nursing The level of nursing education appears to be that of approximately a high school level There are so-called medical high schools, one of which is for the training of nurses. If our information is correct, the lectures are done by physicians. There is no cadre of nurse educators The concept of bachelor

level education for nursing is non-existent Any higher level of training in nursing above high school usually consists of specialty training in physical therapy, laboratory medicine, or other practical applications, but not in true education There did not appear to be an opportunity for nursing education at all beyond the level of bachelor's, such as in a master's or doctoral program To upgrade the level of care, at least in part, by obtaining more modern equipment and maintaining that equipment in a usable state, it will be necessary to extensively retrain the nursing staff

VII DETAIL OF THE BIOMEDICAL ENGINEERING TECHNICAL STAFF AND TRAINING FACILITIES

For all practical purposes there is no formal training for the BME Technician needs in Macedonia There is one program for limited training of Engineers in BME within the Electrical Engineering Department at the University They, in fact, have graduated 6 or 7 with this background who presently are working in the University hospitals

All training in the past was carried out through REPLEX from Belgrade or by manufacturer's representatives on-site or through remote short courses, i e the 2 weeks of training for the dialysis equipment was done in Skopje

Overall there are essentially no trained BME's or Electrical Engineering BME's available within the country outside of the 11 or so who previously worked with REPLEX, the 6 or 7 graduates of the University, the 3 or 4 exceptions at the Institute of Speech and Hearing, and at Rehabilitation Clinic in Skopje which utilizes the several technicians who have resigned from REPLEX

Even these individuals have little or no knowledge in the digital-logic field and thus would be unable presently to work with Western equipment of even one or two generations back

Training programs are needed at two levels - the technician level, in Macedonia, at the secondary school or technical school level, in the BMET area, and training at the University level inside or outside of Macedonia to train engineers in the areas of clinical equipment

Capability for Training Programs

The team identified a secondary technical school near Skopje, "Electrotehnicni Ucilisen Center, Skopje, ul Blospj, Stefkovski, BB under the direction of Dr Vase Popovski" that has the apparent interest and capability to initiate and carry out a BMET program They presently are very active in the field of

electronics and computers, have good labs, and expressed avid interest

The group is aggressive, interested, and is ready to go ahead and initiate a program very quickly They will need help and guidance It would appear appropriate to establish a program to help them set up such a curriculum and labs, and train their staff

At the Engineering level, again it appears that the already demonstrated interest by the University should be encouraged, broadened, and coordinated with specific training Fellowships outside of Macedonia

It is critical that such long-term training capabilities be established together with a quick response on-site training program such as Project HOPE has initiated in other programs to provide immediate in-hospital capability

VIII UNIVERSITY EQUIPMENT STATUS

Although not included directly in the original study of the MOH hospital clinical equipment survey, it was felt that it would be desirable to carry out at least a limited sample study of the University hospital equipment as a comparison Essentially all departments were reviewed.

In general, several factors emerged

1 Surprisingly, the equipment at the University, in general, had a slightly higher percentage non-operational than that of the MOH, 21 5% vs 20%.

2 The University hospitals' equipment as a whole was not as old as that of the MOH, 56% vs 64% ≥ 10 years old Some is quite current, e.g cardiovascular.

3 The University appeared to have somewhat greater funding available to obtain parts

4 The University is utilizing at least 6 or 7 of their own graduate Electrical Engineers with some BME training in their hospitals.

5 With one or two exceptions, there appeared to be little or no cooperation between the University, their engineering staff, and the MOH hospitals

6 While showing a somewhat younger component of equipment overall, the percentage of non-functional at the University is essentially the same as for the MOH

Direct comparisons of the University equipment compared to the MOH appear in the Detailed Equipment Inventory and Classification Section Specific areas of equipment problems at the University point to particular areas of need in a somewhat better overall atmosphere (page 65), eg ECG monitors, defibrillators, and x-ray

IX RECOMMENDATIONS

It is recommended that a series of phased program components be established to meet the critical clinical equipment and training needs of Macedonia

A From the Database

1 Place equipment survey into three groups

a U - useable
b R - repairable, if parts, for a limited period of operation
c T - throwaway

2 A team be sent to diagnose the equipment determined to be worth repair, group 2, and specify parts needed

3 Order the parts and manuals

4 Send a team to carry out repairs.

5 This diagnosis and repair should be done with local techs on the job as a training exercise, thus assignment and training of techs must at least parallel the repair phase

B Recommend list of appropriate needed clinical equipment with specifications This should be equipment that will function locally in the environment, interface, can be repaired, can be operated locally, and fits a plan of appropriate replacement and upgrade

C Obtain and install new equipment with local techs

D Design and carry out user and maintenance-repair training programs

E Establish a small BME shop with one or more BMETs in each hospital to serve as the first level PM, maintenance, calibration, and repair with a plan for parts availability

F Establish a revamped REPLEX as the major second level resource facility for the local BMET shops with manuals and a stock of available parts.

G Establish a basic BMET training program at the Second Electro-Tech school near Skopje as the training point for BMETs in the country

H Establish outside training arrangements for the needed Clinical Engineers, and selected BMET Supervisors, and University staff in the U S or Europe

In general, Project HOPE could coordinate and supervise all aspects of the clinical equipment specification, distribution, ordering, and installation, and would design and carry out the training program, renovation of the training facilities, and establish the BME shops in the hospitals and the revamped REPLEX

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	HOSPITAL	U	R	T	REPRESENTED MFGR	AGE			EASTERN SOURCE	% EASTERN MFGR
						5-9	10-19	≥20		
Skopje	University Hospital	387	63	43	90	212	223	88	14	15 5
Stip	Regional Hospital	120	15	5	36	35	56	20	9	2 5
Skopje	General Hospital - Surgery	27	11	21	24	15	21	17	8	33
Skopje	General Hospital - Pediatrics	33	6	8	23	13	14	10	6	2
Skopje	General Hospital - OB/GYN	44	2	3	19	13	27	7	8	42
Skopje	Gerontology Hospital	15	4	1	5	2	3	9	1	20
Ohrid	Regional Hospital	80	14	9	27	28	27	25	10	37
Kochani	Regional Hospital	55	9	7	25	26	31	8	10	40
Katlanovo	General Hospital - Spa	30	0	3	4	4	21	8	3	75
Jasenova	TB and Pulmonary Hospital	15	1	1	9	1	10	4	4	44
Gostivar	Regional Hospital	63	19	1	16	43	28	7	4	25
Debar	Regional Hospital	26	2	2	8	12	4	3	4	25
Bitola	Regional Hospital including Polyclinic	150	14	15	53	48	79	38	13	25
Totov Veles	Regional Hospital	41	8	2	18	8	17	5	5	28
Struga	Dialysis Center	72	3	15	19	62	14	1	4	21
Struga	Regional Hospital	33	3	5	8	16	8	13	3	38
Skopje	Transfusology Hospital	14	7	10	34	4	16	7	5	14

U - Usable R - Repairable T - Trash

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	HOSPITAL	U	R	T	REPRESENTED MFGR	AGE			EASTERN SOURCE	% EASTERN MFGR
						5-9	10-19	≥20		
Skopje	Gastroenterology Hospital	24	10	1	15	4	27	4	3	20
Ohrid	Institute for Orthopedics and Traumatology	55	9	0	17	5	44	7	7	41
Prilep	Regional Hospital	52	22	0	27	15	30	28	8	30
Kavadarci	Regional Hospital	67	3	1	25	22	28	19	9	36
Gevgelija	Regional Hospital	65	13	2	33	3	31	37	8	24
Tetovo	Special TB Hospital	9	3	0	9		8	4	4	44
Tetovo	Regional Hospital	125	30	6	36	42	61	40	12	33
Skopje	Institute for Medical Rehabilitation	12	23	7	12	3	12	24	2	17
Skopje	Institute for Hearing, Speech and Voice Rehabilitation	35	5	5	18		34	11	3	17
Skopje	Psychiatric Hospital	24	0	1	14	3	13	9	8	57
Skopje	National Institute of Healthcare	4	0	1			2	1	4	
Skopje	Skin and VD Hospital	17	1	0	12	4	9	4	3	25
Skopje	Institute for TB and Lung Diseases	26	3	1	18	7	9	11	7	39
Kriva Palanka	Regional Hospital	41	3	0	17	20	8	16	8	47
Kumanovo	Regional Hospital	131	5	0	25	43	52	23	15	60
Strumica	Regional Hospital	97	17	0	33	24	36	31	10	30
Demir Kisar	Hospital for Mental Illness	36	3	0	17		27	10	9	53
Otesevo	Hospital for Nonspecific Respiratory Diseases	35	5	1	17	8	28	1	11	65
Ohrid	Hospital for Diagnosis and Treatment of Cardiovascular Diseases	26	7	0	5	5	35	1	2	40

U - Usable R - Repairable T - Trash

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	HOSPITAL	U	R	T	REPRESENTED MFGR	AGE			EASTERN SOURCE	% EASTERN MFGR
						5-9	10-19	≥20		
Ohrid	Pediatrics Hospital	30	16	1	14	2	37	9	7	50
Kicevo	Regional Hospital	45	8	3	15	24	23	17	11	73
	TOTAL	2161	367	181		776	1153	577		36 8

U - Usable R - Repairable T - Trash

Project HOPE - Macedonia
March 18 - April 1, 1994

	Macedonia		GRAND TOTALS

EQUIPMENT	CONDITION			AGE	U+R+T	%(R+T)
	U	R	T	≥10		
Anesthesia machines	81	7	2	64	90	10 00
Aspirators	101	9	6	59	116	12 93
Balances	14	1	2	16	17	17 65
Blood gas analyzers	12	7	2	15	21	42 86
Centrifuges	142	11	9	101	162	12 35
Colorimeters	67	14	2	54	83	19 28
Defibrillators	30	15	4	27	49	38 78
Diagnostic ultrasound	39	12	2	18	53	26 42
Dialyzers	172	6	24	51	202	14 85
Diathermy	42	22	3	51	67	37 31
ECG monitors	125	34	16	112	175	28 57
EEG monitors	23	2	1	18	26	11 54
Electrical stimulators	70	7	5	52	82	14 63
Electrolyte analyzers	8	1	1	3	10	20 00
Endoscopes	46	17	2	52	65	29 23
ESUs	67	11	2	39	80	16 25
EYE	30	7	1	35	38	21 05
Fetal monitors	23	3	1	12	27	14 81
Flame/spectro-photometers	66	14	9	60	89	25 84
Holter/telemetry	6	2	0	8	8	25 00
Incubators	81	8	1	46	90	10 00
Microscopes	99	5	0	88	104	4 81
Nebulizers	18	6	3	23	27	33 33
Patient monitors	40	5	9	28	54	25 93
pH meters	15	4	0	14	19	21 05
Pulmonary function monitors	15	16	3	29	34	55 88
Pulse oximeters	2	0	0	0	2	0 00
Radiant lamps	84	6	0	53	90	6 67
Therapeutic ultrasound	31	2	2	31	35	11 43
Thermostats/sterilizers	173	17	6	151	196	11 73
Ventilators	42	4	4	19	50	16 00
Xray equipment	71	39	19	121	129	44 96
Misc clinical chemistry equipment	167	19	15	133	201	16 92
Misc dialysis equipment	3	1	0	0	4	25 00
Misc monitoring equipment	55	6	8	45	69	20 29
Misc OR/ICU equipment	51	14	7	48	72	29 17
Misc physical therapy equipment	40	9	6	47	55	27 27
Misc radiology equipment	10	4	4	14	18	44 44
TOTAL	2161	367	181	1740	2709	20 23

U - Useable **R** - Reparable **T** - Trash

Project HOPE - Macedonia
March 18 - April 1, 1994

	Macedonia		MINISTRY OF HEALTH TOTALS

EQUIPMENT	CONDITION U	R	T	AGE >10	U+R+T	%(R+T)
Anesthesia machines	60	4	2	55	66	9 09
Aspirators	96	9	3	55	108	11 11
Balances	14	1	2	16	17	17 65
Blood gas analyzers	10	7	1	12	18	44 44
Centrifuges	108	10	8	81	126	14 29
Colorimeters	64	14	2	54	80	20 00
Defibrillators	27	9	3	21	39	30 77
Diagnostic ultrasound	28	8	2	11	38	26 32
Dialyzers	149	6	15	47	170	12 35
Diathermy	42	22	3	51	67	37 31
ECG monitors	98	27	11	88	136	27 94
EEG monitors	12	2	1	10	15	20 00
Electrical stimulators	69	6	5	50	80	13 75
Electrolyte analyzers	7	1	1	2	9	22 22
Endoscopes	41	16	2	48	59	30 51
ESUs	51	10	2	34	63	19 05
EYE	30	7	1	35	38	21 05
Fetal monitors	18	3	0	11	21	14 29
Flame/spectro-photometers	56	10	8	49	74	24 32
Holter/telemetry	1	2	0	3	3	66 67
Incubators	59	5	1	34	65	9 23
Microscopes	74	4	0	67	78	5 13
Nebulizers	17	6	1	20	24	29 17
Patient monitors	21	5	9	24	35	40 00
pH meters	14	4	0	13	18	22 22
Pulmonary function monitors	14	13	2	24	29	51 72
Pulse oximeters	1	0	0	0	1	0 00
Radiant lamps	72	6	0	51	78	7 69
Therapeutic ultrasound	30	1	2	28	33	9 09
Thermostats/sterilizers	166	17	6	147	189	12 17
Ventilators	26	4	3	17	33	21 21
Xray equipment	53	29	13	87	95	44 21
Misc clinical chemistry equipment	122	13	7	89	142	14 08
Misc dialysis equipment	2	0	0	0	2	0 00
Misc monitoring equipment	49	5	8	42	62	20 97
Misc OR/ICU equipment	31	7	6	32	44	29 55
Misc physical therapy equipment	36	9	6	45	51	29 41
Misc radiology equipment	6	2	2	8	10	40 00
TOTAL	1774	304	138	1464	2216	19 95

U - Useable **R** - Reparable **T** - Trash

Project HOPE - Macedonia
March 18 - April 1, 1994

	Macedonia		UNIVERSITY TOTALS

EQUIPMENT	CONDITION U	R	T	AGE >10	U+R+T	%(R+T)
Anesthesia machines	21	3		9	24	12 50
Aspirators	5		3	4	8	37 50
Balances						
Blood gas analyzers	2		1	3	3	33 33
Centrifuges	34	1	1	20	36	5 56
Colorimeters	3				3	0 00
Defibrillators	3	6	1	6	10	70 00
Diagnostic ultrasound	11	4		7	15	26 67
Dialyzers	23		9	4	32	28 13
Diathermy						
ECG monitors	27	7	5	24	39	30 77
EEG monitors	11			8	11	0 00
Electrical stimulators	1	1		2	2	50 00
Electrolyte analyzers	1			1	1	0 00
Endoscopes	5	1		4	6	16 67
ESUs	16	1		5	17	5 88
EYE						
Fetal monitors	5		1	1	6	16 67
Flame/spectro-photometers	10	4	1	11	15	33 33
Holter/telemetry	5			5	5	0 00
Incubators	22	3		12	25	12 00
Microscopes	25	1		21	26	3 85
Nebulizers	1		2	3	3	66 67
Patient monitors	19			4	19	0 00
pH meters	1			1	1	0 00
Pulmonary function monitors	1	3	1	5	5	80 00
Pulse oximeters	1				1	0 00
Radiant lamps	12			2	12	0 00
Therapeutic ultrasound	1	1		3	2	50 00
Thermostats/sterilizers	7			4	7	0 00
Ventilators	16		1	2	17	5 88
Xray equipment	18	10	6	34	34	47 06
Misc clinical chemistry equipment	45	6	8	44	59	23 73
Misc dialysis equipment	1	1			2	50 00
Misc monitoring equipment	6	1		3	7	14 29
Misc OR/ICU equipment	20	7	1	16	28	28 57
Misc physical therapy equipment	4			2	4	0 00
Misc radiology equipment	4	2	2	6	8	50 00
TOTAL	387	63	43	276	493	21 50

U - Useable **R** - Reparable **T** - Trash

MANUFACTURER	PRODUCTS
Abbott Labs	spectrophotometers
ACMI	gastroscopes
ADAC	image storage systems
Aesculap	vacuum extraction systems bone saws
Air Shields	infant incubators
Alvar	EEG machines diagnostic ultrasound
Amplaid	audimeters
ATL	diagnostic ultrasound
AVL	blood gas analyzers electrolyte analyzers centrifuges
B Braun	hemodialysis machines infusion pumps
Bausch and Lomb	microscopes eye examination units
Bechman	spectrophotometers
Becton Dickenson	dosers
BEO Medicin	infant warmers
Biomedicina	phototherapy lamps infusion pumps
Bovie	ESUs
Carl Zeiss	film processors microscopes
Cobe	hemodialysis machines
Coulter Electronics	cell counters
Datascope	defibrillators monitors
Drager	incubators anesthesia machines ventilators phototherapy units
Drake Willock	hemodialysis machines
EI	electroshock units ESUs inferometrics inhalers ultrasonic cleaners defibrillators ECG monitors EEG monitors diathermy stimulators therapeutic ultrasound units diatermy phototherapy units traction machines film processors

U - Useable **R** - Reparable **T** - Trash

MANUFACTURER	PRODUCTS
Elektromedicina	stimulators blood cell counters HB meters diluters colorimeters
Elmi	autoclaves
EMA Japan	ECG monitors
IEVT	inhalers
Fenwal/Baxter	atopheresis
Fresenius	hemodialysis machines
Gambro	hemodialysis machines
General Electric	gamma cameras diagnositc ultrasound ECG monitors defibrillators
Hehoch	centrfuges
Heraeus Christ	centrifuges
HP	fetal monitors
Hinon	EEG monitors
Horbe Budapest	surgical lamps
Hospal	hemodialysis machines
International Medical Corp	stress test ECGs
Imed	infusion pumps
Infuziona	infusion pumps
Instrumentaria	sterilizers
Instrumentation Labs	flame photometers
Italian	EEG machines
Jaeger	spirometers pulmonary function monitors
Janetzki	centrifuges
JK Hopple	microscopes
Jugodent	surgical lamps
Kodak	film processors
Krunzbulher	fetal monitors
Medical Academy Bulgaria	ECG monitors
Meditronics	stress bikes
Medrad	angiographic dye injectors
Meopto	Microscopes
Mettler	balances
Miles	cryostats
MLW	centrifuges
Morava	xray machines
MZT Hepos	sterilizers
Narco	incubators
Nikola Tesla	incubators phototherapy units
Odeleft	xray machines

U - Useable **R** - Reparable **T** - Trash

MANUFACTURER	PRODUCTS
Olympus	bronchoscopes light sources video laporoscopy units ESUs fiberoptic scopes
Opton	microscopes
Pasteur Austria	incubators
Peters	audiometers
Phamacia Fine Chemicals	fraction collection units
Phillips	xray machines diagnostic ultrasound ECG central station monitors ECG monitors
PPG Hellige	ECG monitors
PZO Poland	microscopes
Radiometer	blood gas analyzers dilutors pH meters
RIZ	EEG machines
RR-Nis	diathermy
Schiller Switzerland	respirometers
Searle	beta counters assay machines gamma camera
Shandon	tissue processors
Siemens	xray machines diagnostic ultrasound superficial voltage units ECG monitors EEG monitors ventilators nuclear medicine computers gamma counters
Siemens/Burdick	treadmills ECG monitors
Slovenia	stress test systems
Sonicaid	fetal monitors
SpaceLabs	ECG monitors defibrillators
Sutjeska	sterilizers
Tectnica	centrifuges
Toshiba	diagnostic ultrasound
Unicam Instruments	spectrophotometers

U - Useable **R** - Reparable **T** - Trash

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Stip	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines	4			4	4	0 0
Aspirators	9			3	9	0 0
Balances					0	
Blood gas analyzers		1			1	100
Centrifuges	7	1		10	8	12 5
Colorimeters	4				4	0 0
Defibrillators	2	2		1	4	50
Diagnostic ultrasound	1			1	1	0 0
Dialyzers	12		2	12	14	14 29
Diathermy	2	2		3	4	50
ECG monitors	5	2		3	7	28 57
EEG monitors	2				2	0 0
Electrical stimulators	6		1	4	7	14 29
Electrolyte analyzers					0	
Endoscopes	2			1	2	0 0
ESUs	2			2	2	0 0
EYE					0	
Fetal monitors	2			1	2	0 0
Flame/spectro-photometers	3		1	3	4	25
Holter/telemetry					0	
Incubators	5				5	0 0
Microscopes	5			4	5	0 0
Nebulizers					0	
Patient monitors	4			2	4	0 0
pH meters	1				1	0 0
Pulmonary function monitors		1		1	1	100
Pulse oximeters					0	
Radiant lamps	4	3		4	7	42 86
Therapeutic ultrasound	7			7	7	0 0
Thermostats/sterilizers	7		1	4	8	12 5
Ventilators	2			1	2	0 0
Xray equipment	7	2		7	9	22 22
Misc clinical chemistry equipment	11			5	11	0 0
Misc dialysis equipment	2				2	0 0
Misc monitoring equipment	2			2	2	0 0
Misc OR/ICU equipment		1		1	1	100
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	120	15	5	86	140	14 29

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	General Hospital Surgery

EQUIPMENT	CONDITION U	R	T	AGE ≥10	U+R+T	%(R+T)
Anesthesia machines	5			4	5	0 0
Aspirators	3		1		4	25
Balances			1	1	1	100
Blood gas analyzers			1	2	1	100
Centrifuges	2		1	2	3	33 33
Colorimeters	2			2	2	0 0
Defibrillators	1		1	2	2	50
Diagnostic ultrasound		1			1	100
Dialyzers					0	
Diathermy					0	
ECG monitors	1		4	4	5	80
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes		2		1	2	100
ESUs	2	3		1	5	60
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	1		2	2	3	66 67
Holter/telemetry					0	
Incubators					0	
Microscopes	1			1	1	0 0
Nebulizers					0	
Patient monitors			1	1	1	100
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	2		1	3	3	33 33
Ventilators	3				3	0 0
Xray equipment		3	3	6	6	100
Misc clinical chemistry equipment	3	1	1	2	5	40
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment		1	3	4	4	100
Misc physical therapy equipment					0	
Misc radiology equipment	1		1	1	2	50
TOTAL	27	11	21	41	59	54 24

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	General Hospital Pediatrics

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances	1			1	1	0 0
Blood gas analyzers	1	2		2	3	66 67
Centrifuges	1	1	1	3	3	66 67
Colorimeters	3			3	3	0 0
Defibrillators					0	
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy					0	
ECG monitors					0	
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers	1	1			2	50
Endoscopes	1				1	0 0
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectrophotometers	2			1	2	0 0
Holter/telemetry					0	
Incubators					0	
Microscopes	2			2	2	0 0
Nebulizers	1				1	0 0
Patient monitors				2	0	
pH meters	1			1	1	0 0
Pulmonary function monitors	1	2	2	4	5	80
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	3			1	3	0 0
Ventilators	5		1		6	16 67
Xray equipment	1		2	3	3	66 67
Misc clinical chemistry equipment	5			5	5	0 0
Misc dialysis equipment					0	
Misc monitoring equipment	1		2		3	66 67
Misc OR/ICU equipment	1				1	0 0
Misc physical therapy equipment	1			1	1	0 0
Misc radiology equipment	1			1	1	0 0
TOTAL	33	6	8	30	47	29 79

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	General Hospital OB/GYN

EQUIPMENT	CONDITION U	R	T	AGE >10	U+R+T	%(R+T)
Anesthesia machines	4			4	4	0 0
Aspirators	1			1	1	0 0
Balances	1			1	1	0 0
Blood gas analyzers	1			1	1	0 0
Centrifuges	4			2	4	0 0
Colorimeters	2			2	2	0 0
Defibrillators					0	
Diagnostic ultrasound	2	1		1	3	33 33
Dialyzers					0	
Diathermy					0	
ECG monitors					0	
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers	1				1	0 0
Endoscopes	1			1	1	0 0
ESUs	2			1	2	0 0
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	1		1	2	2	50
Holter/telemetry					0	
Incubators	11		1	12	12	8 33
Microscopes	2			2	2	0 0
Nebulizers					0	
Patient monitors	2				2	0 0
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters	1				1	0 0
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	5			5	5	0 0
Ventilators	1	1		2	2	50
Xray equipment			1	1	1	100
Misc clinical chemistry equipment					0	
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment	2			2	2	0 0
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	44	2	3	40	49	10 2

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	Gerontology Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances					0	
Blood gas analyzers	1				1	0 0
Centrifuges	1	1		2	2	50
Colorimeters					0	
Defibrillators		1		1	1	100
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy	2				2	0 0
ECG monitors	3	1		4	4	25
EFG monitors					0	
Electrical stimulators	1		1	2	2	50
Electrolyte analyzers	1				1	0 0
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	1			1	1	0 0
Holter/telemetry					0	
Incubators					0	
Microscopes					0	
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound	1	1		2	2	50
Thermostats/sterilizers					0	
Ventilators					0	
Xray equipment					0	
Misc clinical chemistry equipment	4				4	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	15	4	1	12	20	25

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Ohrid	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines	3			1	3	0 0
Aspirators	5			4	5	0 0
Balances					0	
Blood gas analyzers		1			1	100
Centrifuges	11			3	11	0 0
Colorimeters	5		1		6	16 67
Defibrillators	3			1	3	0 0
Diagnostic ultrasound	2				2	0 0
Dialyzers					0	
Diathermy	2			2	2	0 0
ECG monitors	4	6		4	10	60
EEG monitors	2			1	2	0 0
Electrical stimulators	5			3	5	0 0
Electrolyte analyzers					0	
Endoscopes					0	
ESUs	6			2	6	0 0
EYE					0	
Fetal monitors	1	1		2	2	50
Flame/spectro-photometers	1		2	2	3	66 67
Holter/telemetry					0	
Incubators	3	1		2	4	25
Microscopes	5			5	5	0 0
Nebulizers					0	
Patient monitors					0	
pH meters		1		1	1	100
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	6			6	6	0 0
Therapeutic ultrasound	3			2	3	0 0
Thermostats/sterilizers	4		1	4	5	20
Ventilators	1		1	1	2	50
Xray equipment		2		2	2	100
Misc clinical chemistry equipment	6	1		2	7	14 29
Misc dialysis equipment					0	
Misc monitoring equipment	2		2	2	4	50
Misc OR/ICU equipment		1	2	2	3	100
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	80	14	9	54	103	22 33

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Kochani	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines	4		1	3	5	20
Aspirators	2		1	4	3	33 33
Balances					0	
Blood gas analyzers					0	
Centrifuges	2			1	2	0 0
Colorimeters	1			1	1	0 0
Defibrillators	1	1	1	3	3	66 67
Diagnostic ultrasound	5				5	0 0
Dialyzers	5			5	5	0 0
Diathermy			1	1	1	100
ECG monitors	4	2	1	3	7	42 86
EEG monitors					0	
Electrical stimulators	5			1	5	0 0
Electrolyte analyzers					0	
Endoscopes	2			1	2	0 0
ESUs	3	1		3	4	25
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	1	1		2	2	50
Holter/telemetry					0	
Incubators	3				3	0 0
Microscopes	1				1	0 0
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors	1			1	1	0 0
Pulse oximeters					0	
Radiant lamps	4	1		4	5	20
Therapeutic ultrasound					0	
Thermostats/sterilizers	4	2	1	3	7	42 86
Ventilators					0	
Xray equipment	1		1	2	2	50
Misc clinical chemistry equipment	2				2	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment	1			1	1	0 0
Misc physical therapy equipment	3			2	3	0 0
Misc radiology equipment		1		1	1	100
TOTAL	55	9	7	43	71	22 54

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Katlanovo	HOSPITAL	General Hospital Spa

EQUIPMENT	CONDITION U	R	T	AGE ≥10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances					0	
Blood gas analyzers					0	
Centrifuges					0	
Colorimeters	1			1	1	0 0
Defibrillators					0	
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy	1		1	2	2	50
ECG monitors	2			2	2	0 0
EEG monitors					0	
Electrical stimulators	14		1	14	15	6 67
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry					0	
Incubators					0	
Microscopes					0	
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	5			5	5	0 0
Therapeutic ultrasound	4		1	5	5	20
Thermostats/sterilizers	1				1	0 0
Ventilators					0	
Xray equipment					0	
Misc clinical chemistry equipment	2				2	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	30	0	3	29	33	9 09

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Jasenova	HOSPITAL	TB and Pulmonary Hospital

EQUIPMENT	CONDITION U	R	T	AGE >10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances					0	
Blood gas analyzers					0	
Centrifuges					0	
Colorimeters	1			1	1	0 0
Defibrillators	1				1	0 0
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy	1			1	1	0 0
ECG monitors	1		1	1	2	50
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers	1				1	0 0
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	1				1	0 0
Holter/telemetry					0	
Incubators					0	
Microscopes	1			1	1	0 0
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors	4			3	4	0 0
Pulse oximeters					0	
Radiant lamps	1			1	1	0 0
Therapeutic ultrasound	1			1	1	0 0
Thermostats/sterilizers	1			1	1	0 0
Ventilators					0	
Xray equipment					0	
Misc clinical chemistry equipment	1			1	1	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment		1		1	1	100
TOTAL	15	1	1	12	17	11 76

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Gostivar	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines	2			2	2	0 0
Aspirators	5	1		6	6	16 67
Balances					0	
Blood gas analyzers	1			1	1	0 0
Centrifuges	3	1		2	4	25
Colorimeters	3	3		5	6	50
Defibrillators	1	1		1	2	50
Diagnostic ultrasound					0	
Dialyzers	11	6			17	35 29
Diathermy	1	1		2	2	50
ECG monitors	3			2	3	0 0
EEG monitors	1			1	1	0 0
Electrical stimulators	5	1		5	6	16 67
Electrolyte analyzers					0	
Endoscopes					0	
ESUs	3			2	3	0 0
EYE					0	
Fetal monitors	1			1	1	0 0
Flame/spectro-photometers	2			2	2	0 0
Holter/telemetry					0	
Incubators	3			2	3	0 0
Microscopes	2			1	2	0 0
Nebulizers					0	
Patient monitors	1				1	0 0
pH meters		1		1	1	100
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	7			1	7	0 0
Therapeutic ultrasound	2		1	3	3	33 33
Thermostats/sterilizers	1			1	1	0 0
Ventilators					0	
Xray equipment	2	4		6	6	66 67
Misc clinical chemistry equipment	3			2	3	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	63	19	1	49	83	24 1

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Debar	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines	2			1	2	0 0
Aspirators		1		1	1	100
Balances					0	
Blood gas analyzers					0	
Centrifuges	1				1	0 0
Colorimeters	1				1	0 0
Defibrillators					0	
Diagnostic ultrasound	1				1	0 0
Dialyzers	14				14	0 0
Diathermy					0	
ECG monitors	2			2	2	0 0
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs	1				1	0 0
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	1				1	0 0
Holter/telemetry					0	
Incubators					0	
Microscopes	1			1	1	0 0
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	1				1	0 0
Ventilators					0	
Xray equipment		1	2	3	3	100
Misc clinical chemistry equipment					0	
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment	1				1	0 0
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	26	2	2	8	30	13 33

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Bitola	HOSPITAL	Regional Hospital including Polyclinic

EQUIPMENT	CONDITION U	R	T	AGE ≥10	U+R+T	%(R+T)
Anesthesia machines	9			8	9	0 0
Aspirators	13			7	13	0 0
Balances					0	
Blood gas analyzers	1			1	1	0 0
Centrifuges	9			6	9	0 0
Colorimeters	3				3	0 0
Defibrillators	3	1	1	3	5	40
Diagnostic ultrasound	1	1	1	1	3	66 67
Dialyzers	11			2	11	0 0
Diathermy					0	
ECG monitors	8			8	8	0 0
EEG monitors	2			1	2	0 0
Electrical stimulators	1			1	1	0 0
Electrolyte analyzers					0	
Endoscopes	5			5	5	0 0
ESUs	11	1	2	9	14	21 43
EYE	11			10	11	0 0
Fetal monitors	4			3	4	0 0
Flame/spectro-photometers	2	1		2	3	33 33
Holter/telemetry					0	
Incubators	6	1		7	7	14 29
Microscopes	5			5	5	0 0
Nebulizers					0	
Patient monitors			5	5	5	100
pH meters	1				1	0 0
Pulmonary function monitors		4		4	4	100
Pulse oximeters					0	
Radiant lamps	3	1		2	4	25
Therapeutic ultrasound					0	
Thermostats/sterilizers	10			7	10	0 0
Ventilators	5		1	3	6	16 67
Xray equipment	1	3	3	8	7	85 71
Misc clinical chemistry equipment	15	1	1	5	17	11 76
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment	7		1	5	8	12 5
Misc physical therapy equipment					0	
Misc radiology equipment	3			2	3	0 0
TOTAL	150	14	15	120	179	16 2

U - Useable R - Reparable T - Trash AGE in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Titov Veles	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines	3	1		3	4	25
Aspirators	1	1			2	50
Balances					0	
Blood gas analyzers		2			2	100
Centrifuges	1			1	1	0 0
Colorimeters					0	
Defibrillators	2			2	2	0 0
Diagnostic ultrasound					0	
Dialyzers	7			7	7	0 0
Diathermy					0	
ECG monitors	8			2	8	0 0
EEG monitors			1	1	1	100
Electrical stimulators					0	
Electrolyte analyzers	1				1	0 0
Endoscopes		2		2	2	100
ESUs	1			1	1	0 0
EYE					0	
Fetal monitors	1				1	0 0
Flame/spectro-photometers	3	1	1	4	5	40
Holter/telemetry					0	
Incubators	5			3	5	0 0
Microscopes					0	
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	1			1	1	0 0
Therapeutic ultrasound					0	
Thermostats/sterilizers					0	
Ventilators	1				1	0 0
Xray equipment	3	1		4	4	25
Misc clinical chemistry equipment	1				1	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment	1				1	0 0
Misc radiology equipment	1			1	1	0 0
TOTAL	41	8	2	32	51	19 61

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Struga	HOSPITAL	Dialysis Center

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines	1			1	1	0 0
Aspirators	1			1	1	0 0
Balances					0	
Blood gas analyzers	1				1	0 0
Centrifuges	4	1		3	5	20
Colorimeters	4			4	4	0 0
Defibrillators	1				1	0 0
Diagnostic ultrasound		1		1	1	100
Dialyzers	34		13	10	47	27 66
Diathermy					0	
ECG monitors	4		1	3	5	20
EEG monitors					0	
Electrical stimulators	4			2	4	0 0
Electrolyte analyzers			1	1	1	100
Endoscopes					0	
ESUs	1				1	0 0
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	1			1	1	0 0
Holter/telemetry					0	
Incubators					0	
Microscopes	2				2	0 0
Nebulizers					0	
Patient monitors					0	
pH meters	1			1	1	0 0
Pulmonary function monitors	1			1	1	0 0
Pulse oximeters					0	
Radiant lamps	3			2	3	0 0
Therapeutic ultrasound	2			2	2	0 0
Thermostats/sterilizers					0	
Ventilators					0	
Xray equipment	1			1	1	0 0
Misc clinical chemistry equipment	5	1		1	6	16 67
Misc dialysis equipment					0	
Misc monitoring equipment	1				1	0 0
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	72	3	15	35	90	20

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Struga	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines	2			2	2	0 0
Aspirators					0	
Balances					0	
Blood gas analyzers					0	
Centrifuges	3				3	0 0
Colorimeters	6				6	0 0
Defibrillators		1			1	100
Diagnostic ultrasound	2			2	2	0 0
Dialyzers					0	
Diathermy					0	
ECG monitors	3	1	2	4	6	50
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes	1			1	1	0 0
ESUs	1			1	1	0 0
EYE					0	
Fetal monitors	2			2	2	0 0
Flame/spectro-photometers	1			1	1	0 0
Holter/telemetry					0	
Incubators	2			2	2	0 0
Microscopes	3			1	3	0 0
Nebulizers					0	
Patient monitors			3	3	3	100
pH meters	1			1	1	0 0
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	1			1	1	0 0
Therapeutic ultrasound					0	
Thermostats/sterilizers					0	
Ventilators	2			1	2	0 0
Xray equipment	1	1		2	2	50
Misc clinical chemistry equipment	2			2	2	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	33	3	5	26	41	19 51

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	Transfusology Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances					0	
Blood gas analyzers					0	
Centrifuges	7	4	6	12	17	58 82
Colorimeters					0	
Defibrillators					0	
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy					0	
ECG monitors					0	
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	1		1	1	2	50
Holter/telemetry					0	
Incubators					0	
Microscopes	1	1		2	2	50
Nebulizers					0	
Patient monitors					0	
pH meters		1		1	1	100
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	3	1		3	4	25
Ventilators					0	
Xray equipment					0	
Misc clinical chemistry equipment	2		3	4	5	60
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	14	7	10	23	31	54 84

U - Useable R - Reparable T - Trash AGE in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	Gastroenterology Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances					0	
Blood gas analyzers					0	
Centrifuges					0	
Colorimeters					0	
Defibrillators	1				1	0 0
Diagnostic ultrasound	1	1	1	2	3	66 67
Dialyzers					0	
Diathermy					0	
ECG monitors	1	2		3	3	66 67
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes	12	3		15	15	20
ESUs	2			1	2	0 0
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry					0	
Incubators					0	
Microscopes					0	
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers					0	
Ventilators		1		1	1	100
Xray equipment					0	
Misc clinical chemistry equipment					0	
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment	7	3		9	10	30
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	24	10	1	31	35	31 43

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Ohrid	HOSPITAL	Institute for Orthopedics and Traumatology

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines	2	1		3	3	33 33
Aspirators	4			1	4	0 0
Balances					0	
Blood gas analyzers					0	
Centrifuges	2			2	2	0 0
Colorimeters	1			1	1	0 0
Defibrillators	1			1	1	0 0
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy	5	5		7	10	50
ECG monitors	2			1	2	0 0
EEG monitors					0	
Electrical stimulators	2			1	2	0 0
Electrolyte analyzers					0	
Endoscopes					0	
ESUs	2			1	2	0 0
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry					0	
Incubators					0	
Microscopes	2			2	2	0 0
Nebulizers					0	
Patient monitors	2			2	2	0 0
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	4			4	4	0 0
Therapeutic ultrasound					0	
Thermostats/sterilizers	3	1		1	4	25
Ventilators	1			1	1	0 0
Xray equipment	5	1		5	6	16 67
Misc clinical chemistry equipment	2			1	2	0 0
Misc dialysis equipment					0	
Misc monitoring equipment	2			1	2	0 0
Misc OR/ICU equipment	2			2	2	0 0
Misc physical therapy equipment	11	1		12	12	8 33
Misc radiology equipment					0	
TOTAL	55	9	0	49	64	14 06

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Prilep	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines	2	2		4	4	50
Aspirators	2			2	2	0 0
Balances					0	
Blood gas analyzers					0	
Centrifuges	4			2	4	0 0
Colorimeters					0	
Defibrillators					0	
Diagnostic ultrasound	1				1	0 0
Dialyzers	8				8	0 0
Diathermy					0	
ECG monitors	6	1		5	7	14 29
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes	5	7		11	12	58 33
ESUs	1	4		3	5	80
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	5	2		5	7	28 57
Holter/telemetry					0	
Incubators					0	
Microscopes	4			4	4	0 0
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	8	1		9	9	11 11
Ventilators					0	
Xray equipment	4	2		5	6	33 33
Misc clinical chemistry equipment	2	3		3	5	60
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	52	22	0	53	74	29 73

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Kavadarci	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines	3			3	3	0 0
Aspirators	4			4	4	0 0
Balances					0	
Blood gas analyzers					0	
Centrifuges	4	1		4	5	20
Colorimeters	1			1	1	0 0
Defibrillators	1	1		1	2	50
Diagnostic ultrasound					0	
Dialyzers	7				7	0 0
Diathermy					0	
ECG monitors	2	1		2	3	33 33
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs	1			1	1	0 0
EYE	3			3	3	0 0
Fetal monitors	1			1	1	0 0
Flame/spectro-photometers	5			3	5	0 0
Holter/telemetry					0	
Incubators	3			2	3	0 0
Microscopes	1			1	1	0 0
Nebulizers					0	
Patient monitors					0	
pH meters	1			1	1	0 0
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	4			2	4	0 0
Therapeutic ultrasound					0	
Thermostats/sterilizers	15			12	15	0 0
Ventilators					0	
Xray equipment	3				3	0 0
Misc clinical chemistry equipment	8		1	8	9	11 11
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	67	3	1	49	71	5 63

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Gevgelija	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION U	R	T	AGE >10	U+R+T	%(R+T)
Anesthesia machines	1		1	1	2	50
Aspirators	5			2	5	0 0
Balances					0	
Blood gas analyzers					0	
Centrifuges	4			4	4	0 0
Colorimeters	3			3	3	0 0
Defibrillators					0	
Diagnostic ultrasound	1	1			2	50
Dialyzers	8				8	0 0
Diathermy					0	
ECG monitors	2	2		4	4	50
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs	2			2	2	0 0
EYE	6	2		8	8	25
Fetal monitors					0	
Flame/spectro-photometers	3	1		2	4	25
Holter/telemetry					0	
Incubators		1		1	1	100
Microscopes	3	1		4	4	25
Nebulizers					0	
Patient monitors					0	
pH meters	2			2	2	0 0
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	2			1	2	0 0
Therapeutic ultrasound					0	
Thermostats/sterilizers	15	3		18	18	16 67
Ventilators		1		1	1	100
Xray equipment	2		1	3	3	33 33
Misc clinical chemistry equipment	5	1		6	6	16 67
Misc dialysis equipment					0	
Misc monitoring equipment	1			1	1	0 0
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	65	13	2	63	80	18 75

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Tetovo	HOSPITAL	Special TB Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators	1				1	0 0
Balances					0	
Blood gas analyzers					0	
Centrifuges	1			1	1	0 0
Colorimeters	1			1	1	0 0
Defibrillators					0	
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy					0	
ECG monitors	1			1	1	0 0
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry					0	
Incubators					0	
Microscopes	1	1		2	2	50
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors		2		2	2	100
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	2			2	2	0 0
Ventilators					0	
Xray equipment	1			1	1	0 0
Misc clinical chemistry equipment	1			1	1	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	9	3	0	11	12	25

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Tetovo	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines	3			3	3	0 0
Aspirators	11	3		7	14	21 43
Balances					0	
Blood gas analyzers					0	
Centrifuges	7			2	7	0 0
Colorimeters	2	6		6	8	75
Defibrillators	2			1	2	0 0
Diagnostic ultrasound	2	1			3	33 33
Dialyzers	11				11	0 0
Diathermy	10		1	10	11	9 09
ECG monitors	7	1		6	8	12 5
EEG monitors	2	2		3	4	50
Electrical stimulators	2		1	3	3	33 33
Electrolyte analyzers					0	
Endoscopes	5	2	2	6	9	44 44
ESUs	3	1		1	4	25
EYE	5	4		7	9	44 44
Fetal monitors	1	1			2	50
Flame/spectro-photometers	5	1		3	6	16 67
Holter/telemetry					0	
Incubators	5				5	0 0
Microscopes	5	1		5	6	16 67
Nebulizers	4		1	1	5	20
Patient monitors					0	
pH meters	3			1	3	0 0
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	6			1	6	0 0
Therapeutic ultrasound					0	
Thermostats/sterilizers	9	4	1	13	14	35 71
Ventilators					0	
Xray equipment	8	2		6	10	20
Misc clinical chemistry equipment	5	1		6	6	16 67
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment	2			2	2	0 0
Misc radiology equipment					0	
TOTAL	125	30	6	93	161	22 36

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	Institute for Medical Rehabilitation

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances					0	
Blood gas analyzers					0	
Centrifuges					0	
Colorimeters					0	
Defibrillators					0	
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy	7	13		12	20	65
ECG monitors					0	
EEG monitors					0	
Electrical stimulators	4	4	1	9	9	55 56
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry					0	
Incubators					0	
Microscopes					0	
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	1			1	1	0 0
Therapeutic ultrasound					0	
Thermostats/sterilizers					0	
Ventilators					0	
Xray equipment					0	
Misc clinical chemistry equipment					0	
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment		6	6	12	12	100
Misc radiology equipment					0	
TOTAL	12	23	7	34	42	71 43

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	Institute for Hearing Speech and Voice Rehabilitation

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances					0	
Blood gas analyzers					0	
Centrifuges					0	
Colorimeters					0	
Defibrillators					0	
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy					0	
ECG monitors					0	
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE	1	1	1	3	3	66 67
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry					0	
Incubators					0	
Microscopes					0	
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers					0	
Ventilators					0	
Xray equipment					0	
Misc clinical chemistry equipment					0	
Misc dialysis equipment					0	
Misc monitoring equipment	34	4	4	32	42	19 05
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	35	5	5	35	45	22 22

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	Psychiatric Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators	2			2	2	0 0
Balances			1	1	1	100
Blood gas analyzers					0	
Centrifuges	4			4	4	0 0
Colorimeters	2			2	2	0 0
Defibrillators	1			1	1	0 0
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy					0	
ECG monitors	2			2	2	0 0
EEG monitors	1			1	1	0 0
Electrical stimulators	1			1	1	0 0
Electrolyte analyzers	1			1	1	0 0
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	2			1	2	0 0
Holter/telemetry					0	
Incubators					0	
Microscopes	1			1	1	0 0
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	3			3	3	0 0
Ventilators					0	
Xray equipment	2			2	2	0 0
Misc clinical chemistry equipment	1				1	0 0
Misc dialysis equipment					0	
Misc monitoring equipment	1			1	1	0 0
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	24	0	1	23	25	4

U - Useable R - Reparable T - Trash AGE in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	National Institute of Healthcare

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances					0	
Blood gas analyzers					0	
Centrifuges					0	
Colorimeters					0	
Defibrillators					0	
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy					0	
ECG monitors					0	
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry					0	
Incubators					0	
Microscopes					0	
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers					0	
Ventilators					0	
Xray equipment					0	
Misc clinical chemistry equipment	4		1	3	5	20
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	4	0	1	3	5	20

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	Skin and VD Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances					0	
Blood gas analyzers					0	
Centrifuges					0	
Colorimeters					0	
Defibrillators					0	
Diagnostic ultrasound	1			1	1	0 0
Dialyzers					0	
Diathermy					0	
ECG monitors					0	
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs	1			1	1	0 0
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry					0	
Incubators					0	
Microscopes	3			2	3	0 0
Nebulizers					0	
Patient monitors					0	
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	5			3	5	0 0
Therapeutic ultrasound					0	
Thermostats/sterilizers	5	1		6	6	16 67
Ventilators					0	
Xray equipment					0	
Misc clinical chemistry equipment					0	
Misc dialysis equipment					0	
Misc monitoring equipment	2				2	0 0
Misc OR/ICU equipment					0	
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	17	1	0	13	18	5 56

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	Institute for TB and Lung Diseases

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators	1				1	0 0
Balances	1			1	1	0 0
Blood gas analyzers	1			1	1	0 0
Centrifuges	2			1	2	0 0
Colorimeters	2			1	2	0 0
Defibrillators					0	
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy					0	
ECG monitors	1	1	1	2	3	66 67
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes	2			1	2	0 0
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	2			1	2	0 0
Holter/telemetry					0	
Incubators					0	
Microscopes	1			1	1	0 0
Nebulizers	2			1	2	0 0
Patient monitors					0	
pH meters					0	
Pulmonary function monitors	3	1		4	4	25
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	1			1	1	0 0
Ventilators					0	
Xray equipment	3	1		4	4	25
Misc clinical chemistry equipment	1			1	1	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment	3			1	3	0 0
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	26	3	1	21	30	13 33

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Kriva Palanka	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines	1			1	1	0 0
Aspirators	2			2	2	0 0
Balances	2			1	2	0 0
Blood gas analyzers					0	
Centrifuges	3			1	3	0 0
Colorimeters	2			2	2	0 0
Defibrillators					0	
Diagnostic ultrasound	2				2	0 0
Dialyzers					0	
Diathermy					0	
ECG monitors	1	1		1	2	50
EEG monitors	1			1	1	0 0
Electrical stimulators	2				2	0 0
Electrolyte analyzers	1				1	0 0
Endoscopes					0	
ESUs	1			1	1	0 0
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	2				2	0 0
Holter/telemetry					0	
Incubators					0	
Microscopes	1			1	1	0 0
Nebulizers					0	
Patient monitors					0	
pH meters	1				1	0 0
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound	2			1	2	0 0
Thermostats/sterilizers	10			7	10	0 0
Ventilators	1	1		2	2	50
Xray equipment				2	0	
Misc clinical chemistry equipment	3	1		1	4	25
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment	3			2	3	0 0
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	41	3	0	26	44	6 82

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Kumanovo	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION U	R	T	AGE >10	U+R+T	%(R+T)
Anesthesia machines	4			4	4	0 0
Aspirators	6	1			7	14 29
Balances	1			1	1	0 0
Blood gas analyzers					0	
Centrifuges	5			3	5	0 0
Colorimeters	2			1	2	0 0
Defibrillators	4			2	4	0 0
Diagnostic ultrasound	1				1	0 0
Dialyzers	12			11	12	0 0
Diathermy	6			6	6	0 0
ECG monitors	8			2	8	0 0
EEG monitors					0	
Electrical stimulators	9			3	9	0 0
Electrolyte analyzers					0	
Endoscopes	3			1	3	0 0
ESUs	2				2	0 0
EYE	4			4	4	0 0
Fetal monitors	3	1			4	25
Flame/spectro-photometers	4	1		2	5	20
Holter/telemetry					0	
Incubators	9				9	0 0
Microscopes	7			5	7	0 0
Nebulizers					0	
Patient monitors	7	1		3	8	12 5
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	1			1	1	0 0
Therapeutic ultrasound	3			2	3	0 0
Thermostats/sterilizers	21			16	21	0 0
Ventilators					0	
Xray equipment	2	1		3	3	33 33
Misc clinical chemistry equipment	4			4	4	0 0
Misc dialysis equipment					0	
Misc monitoring equipment	2			1	2	0 0
Misc OR/ICU equipment					0	
Misc physical therapy equipment	1				1	0 0
Misc radiology equipment					0	
TOTAL	131	5	0	75	136	3 68

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Strumica	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines	5			3	5	0 0
Aspirators	10			2	10	0 0
Balances	1			1	1	0 0
Blood gas analyzers	2			2	2	0 0
Centrifuges	6			2	6	0 0
Colorimeters	5	4		9	9	44 44
Defibrillators					0	
Diagnostic ultrasound	2				2	0 0
Dialyzers	9				9	0 0
Diathermy	3			3	3	0 0
ECG monitors	4			2	4	0 0
EEG monitors					0	
Electrical stimulators	3				3	0 0
Electrolyte analyzers					0	
Endoscopes	2			2	2	0 0
ESUs	3			1	3	0 0
EYE					0	
Fetal monitors	2			1	2	0 0
Flame/spectro-photometers	4	1		5	5	20
Holter/telemetry					0	
Incubators	3	2		3	5	40
Microscopes	5			5	5	0 0
Nebulizers					0	
Patient monitors		2			2	100
pH meters					0	
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	5			4	5	0 0
Therapeutic ultrasound	3			3	3	0 0
Thermostats/sterilizers	13	1		8	14	7 14
Ventilators	2			2	2	0 0
Xray equipment	1	3		4	4	75
Misc clinical chemistry equipment	4	2		4	6	33 33
Misc dialysis equipment					0	
Misc monitoring equipment		1		1	1	100
Misc OR/ICU equipment		1			1	100
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	97	17	0	67	114	14 91

U - Useable R - Reparable T - Trash AGE in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Demir Hisar	HOSPITAL	Hospital for Mental Illness

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators	1			1	1	0 0
Balances	3			3	3	0 0
Blood gas analyzers					0	
Centrifuges	3			3	3	0 0
Colorimeters	1			1	1	0 0
Defibrillators					0	
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy					0	
ECG monitors	1			1	1	0 0
EEG monitors	1			1	1	0 0
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	1	1		2	2	50
Holter/telemetry					0	
Incubators					0	
Microscopes	2			2	2	0 0
Nebulizers					0	
Patient monitors					0	
pH meters	1	1		2	2	50
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	4			2	4	0 0
Ventilators					0	
Xray equipment					0	
Misc clinical chemistry equipment	13	1		14	14	7 14
Misc dialysis equipment					0	
Misc monitoring equipment	1			1	1	0 0
Misc OR/ICU equipment					0	
Misc physical therapy equipment	4			4	4	0 0
Misc radiology equipment					0	
TOTAL	36	3	0	37	39	7 69

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Otesevo	HOSPITAL	Hospital for Nonspecific Respiratory Diseases

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators	1			1	1	0 0
Balances	2			2	2	0 0
Blood gas analyzers	1	1		2	2	50
Centrifuges	1			1	1	0 0
Colorimeters	2			2	2	0 0
Defibrillators					0	
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy	2			1	2	0 0
ECG monitors	1	1		2	2	50
EEG monitors					0	
Electrical stimulators	2	1			3	33 33
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers	1			1	1	0 0
Holter/telemetry					0	
Incubators					0	
Microscopes	1			1	1	0 0
Nebulizers	7	1		5	8	12 5
Patient monitors					0	
pH meters					0	
Pulmonary function monitors	2	1		2	3	33 33
Pulse oximeters					0	
Radiant lamps	2				2	0 0
Therapeutic ultrasound	1				1	0 0
Thermostats/sterilizers	2			2	2	0 0
Ventilators					0	
Xray equipment	2			2	2	0 0
Misc clinical chemistry equipment	3			3	3	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment	2			1	2	0 0
Misc radiology equipment			1	1	1	100
TOTAL	35	5	1	29	41	14 63

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Ohrid	HOSPITAL	Hospital for Diagnosis and Treatment of Cardiovascular Diseases

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances					0	
Blood gas analyzers					0	
Centrifuges					0	
Colorimeters					0	
Defibrillators	1				1	0 0
Diagnostic ultrasound	2	1		2	3	33 33
Dialyzers					0	
Diathermy					0	
ECG monitors	7	2		7	9	22 22
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry	1	2		3	3	66 67
Incubators					0	
Microscopes					0	
Nebulizers					0	
Patient monitors	5	1		5	6	16 67
pH meters					0	
Pulmonary function monitors	2	1		1	3	33 33
Pulse oximeters					0	
Radiant lamps					0	
Therapeutic ultrasound					0	
Thermostats/sterilizers	1			1	1	0 0
Ventilators					0	
Xray equipment					0	
Misc clinical chemistry equipment					0	
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment					0	
Misc physical therapy equipment	7			7	7	0 0
Misc radiology equipment					0	
TOTAL	26	7	0	26	33	21 21

U - Useable R - Reparable T - Trash AGE in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Ohrid	HOSPITAL	Pediatrics Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators					0	
Balances	1			1	1	0 0
Blood gas analyzers					0	
Centrifuges	2			2	2	0 0
Colorimeters	2			1	2	0 0
Defibrillators		1		1	1	100
Diagnostic ultrasound					0	
Dialyzers					0	
Diathermy		1		1	1	100
ECG monitors	1	3	1	5	5	80
EEG monitors					0	
Electrical stimulators	3			1	3	0 0
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry					0	
Incubators					0	
Microscopes	2			2	2	0 0
Nebulizers	3	5		13	8	62 5
Patient monitors		1		1	1	100
pH meters					0	
Pulmonary function monitors		1		1	1	100
Pulse oximeters					0	
Radiant lamps	5	1		6	6	16 67
Therapeutic ultrasound	1				1	0 0
Thermostats/sterilizers	2	1		3	3	33 33
Ventilators	1			1	1	0 0
Xray equipment					0	
Misc clinical chemistry equipment					0	
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment	3			3	3	0 0
Misc physical therapy equipment	4	2		4	6	33 33
Misc radiology equipment					0	
TOTAL	30	16	1	46	47	36 17

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Kicevo	HOSPITAL	Regional Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	≥10	U+R+T	%(R+T)
Anesthesia machines					0	
Aspirators	6	2	1	4	9	33 33
Balances	1	1		2	2	50
Blood gas analyzers					0	
Centrifuges	4			2	4	0 0
Colorimeters	2	1	1	4	4	50
Defibrillators	1				1	0 0
Diagnostic ultrasound	1				1	0 0
Dialyzers					0	
Diathermy					0	
ECG monitors	3				3	0 0
EEG monitors					0	
Electrical stimulators					0	
Electrolyte analyzers					0	
Endoscopes					0	
ESUs					0	
EYE					0	
Fetal monitors					0	
Flame/spectro-photometers					0	
Holter/telemetry					0	
Incubators	1				1	0 0
Microscopes	4			4	4	0 0
Nebulizers					0	
Patient monitors					0	
pH meters	1			1	1	0 0
Pulmonary function monitors					0	
Pulse oximeters					0	
Radiant lamps	2			1	2	0 0
Therapeutic ultrasound					0	
Thermostats/sterilizers	10	2	1	11	13	23 08
Ventilators	1			1	1	0 0
Xray equipment	3	2		5	5	40
Misc clinical chemistry equipment	4			5	4	0 0
Misc dialysis equipment					0	
Misc monitoring equipment					0	
Misc OR/ICU equipment	1				1	0 0
Misc physical therapy equipment					0	
Misc radiology equipment					0	
TOTAL	45	8	3	40	56	19 64

U - Useable **R** - Reparable **T** - Trash **AGE** in years

Project HOPE - Macedonia
March 18 - April 1, 1994

CITY	Skopje	HOSPITAL	University Hospital

EQUIPMENT	CONDITION			AGE		
	U	R	T	>10	U+R+T	%(R+T)
Anesthesia machines	21	3		9	24	12 5
Aspirators	5		3	4	8	37 5
Balances					0	
Blood gas analyzers	2		1	3	3	33 33
Centrifuges	34	1	1	20	36	5 56
Colorimeters	3				3	0 0
Defibrillators	3	6	1	6	10	70
Diagnostic ultrasound	11	4		7	15	26 67
Dialyzers	23		9	4	32	28 13
Diathermy					0	
ECG monitors	27	7	5	24	39	30 77
EEG monitors	11			8	11	0 0
Electrical stimulators	1	1		2	2	50
Electrolyte analyzers	1			1	1	0 0
Endoscopes	5	1		4	6	16 67
ESUs	16	1		5	17	5 88
EYE					0	
Fetal monitors	5		1	1	6	16 67
Flame/spectro-photometers	10	4	1	11	15	33 33
Holter/telemetry	5			5	5	0 0
Incubators	22	3		12	25	12
Microscopes	25	1		21	26	3 85
Nebulizers	1		2	3	3	66 67
Patient monitors	19			4	19	0 0
pH meters	1			1	1	0 0
Pulmonary function monitors	1	3	1	5	5	80
Pulse oximeters	1				1	0 0
Radiant lamps	12			2	12	0 0
Therapeutic ultrasound	1	1		3	2	50
Thermostats/sterilizers	7			4	7	0 0
Ventilators	16		1	2	17	5 88
Xray equipment	18	10	6	34	34	47 06
Misc clinical chemistry equipment	45	6	8	44	59	23 73
Misc dialysis equipment	1	1			2	50
Misc monitoring equipment	6	1		3	7	14 29
Misc OR/ICU equipment	20	7	1	16	28	28 57
Misc physical therapy equipment	4			2	4	0 0
Misc radiology equipment	4	2	2	6	8	50
TOTAL	387	63	43	276	493	21 5

U - Useable **R** - Reparable **T** - Trash **AGE** in years

APPENDIX A

APPENDIX A

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