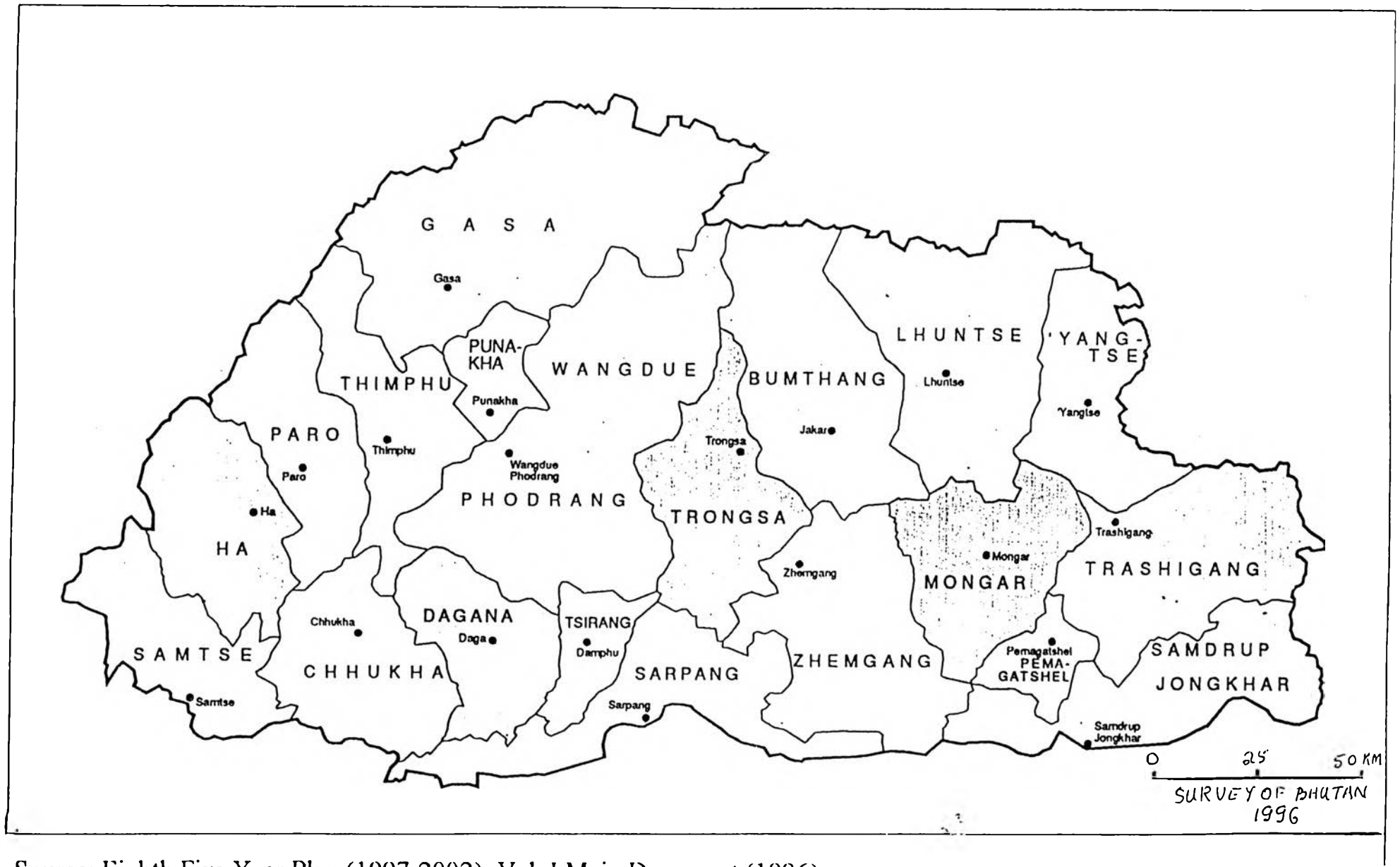
APPENDIX A

Map 1: Bhutan and its Neighboring Countries

Source: Eighth Five Year Plan (1997-2002), Vol. I Main Document (1997) Ministry of Planning, Royal Government of Bhutan, Thimphu.

APPENDIX B

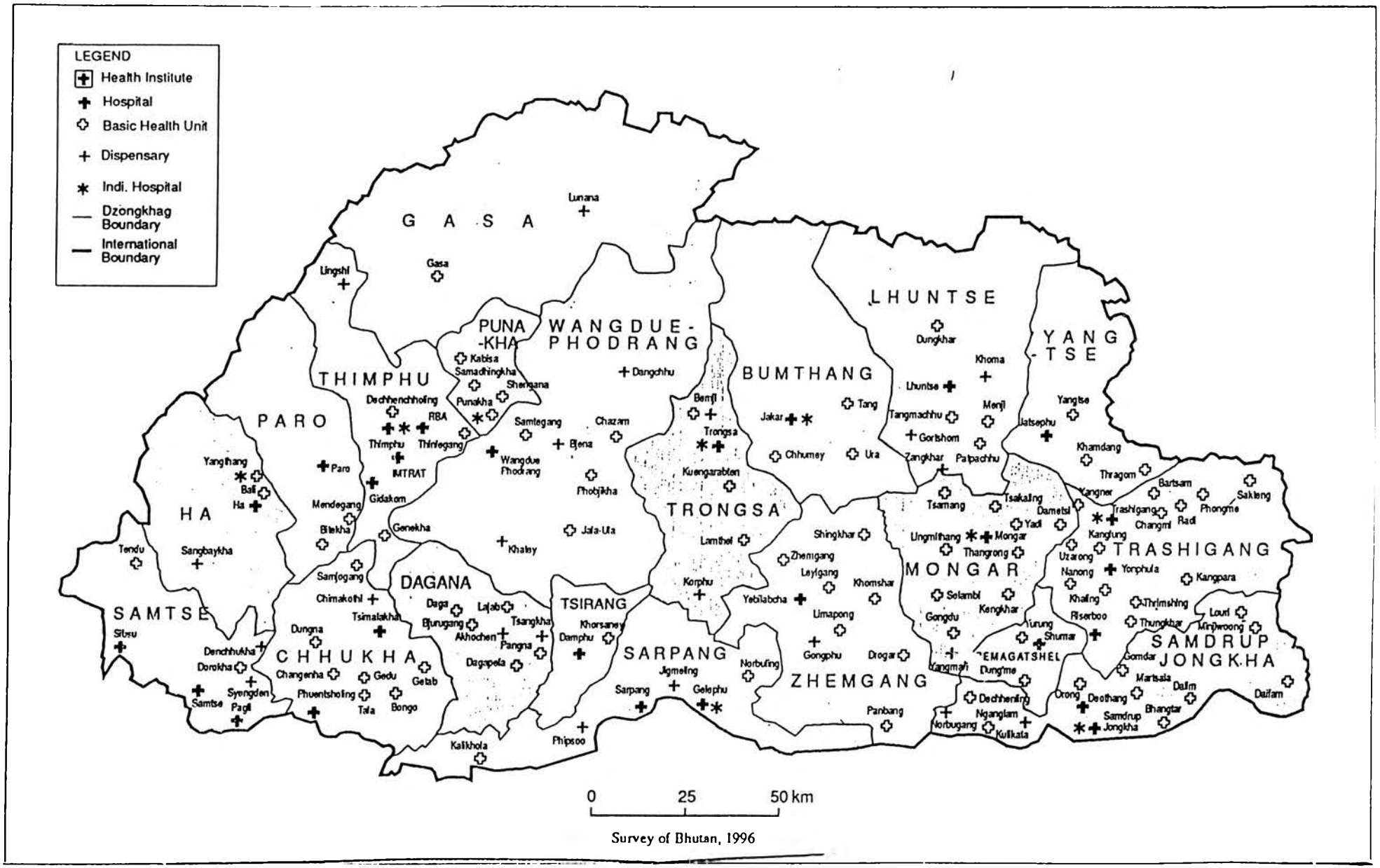
Map 2: Districts of Bhutan



Source: Eighth Five Year Plan (1997-2002), Vol. I Main Document (1996)
Ministry of Planning, Royal Government of Bhutan, Thimphu.

APPENDIX C

Map 3: Health Facilities in Bhutan



Source: Eighth Five Year Plan (1997-2002), Vol. I Main Document (1996)
Ministry of Planning, Royal Government of Bhutan, Thimphu.

APPENDIX D

Bhutan's Human Development Index: 1984 and 1994

	1984	1994
Life expectancy at birth (years)	47.4	66.0
Adult literacy rate (%)	28.0	46.0
Combined first, second and third level gross enrolment rate (%)	24.5	40.1
Real GDP per capita (PPP$)	1,652	2,418
Life Expectancy Index	**0.373**	**0.683**
Adult Literacy Rate	0.280	0.460
Combined Enrolment Index	0.245	0.401
Educational Attainment Index	**0.268**	**0.440**
GDP Index	**0.290**	**0.433**
HUMAN DEVELOPMENT INDEX	**0.310**	**0.510**

Source: Eighth Five Year Plan (1997-2002), Vol. I Main Document (1996), Ministry of Planning, Royal Government of Bhutan, Thimphu, Bhutan.

APPENDIX E

Manpower Requirements of Health Services

Categories	*Actual July 1966*	*8FYP Requirement 2002*
Doctors/ Expatrites	103	52
Drungtshos	22	8
DHSOs	21	00
Health Assistants	112	87
Basic Health Workers	145	69
GNMs	98	93
ANMs	102	35
Asstt. Nurses	140	83
Technicians	173	70
Indigeneuos Compounder	17	13
Programme Personnel	28	5
Teaching Faculty	13	5
Supportive Staff	630	93
Total	**1604**	**613**

Source: Eigthth Five Year Plan (1997-2002), Vol. I Main Document (1966), Ministry of Planning, Royal Government of Bhutan, Thimpu, Bhutan.

APPENDIX F

Results of 1984 & 1994 National Surveys

INDICATORS	1984	1994
Infant Mortality Rate per 1000 live births	142	70.7
Maternal Mortality Rate per 1000 live births	7.7	3.8
Crude Birth Rate per 1000 population	39.1	39.9
Crude Death Rate per 1000 population	19.3	9.0
Population Growth Rate (percent)	2.0	3.1
Life Expectncy at birth (years)	48	66

SOURCE: Eighth Five Year Plan (1997-2002), Vol. 1 Main Document, Ministry of Planning, Royal Government of Bhutan.

APPENDIX G

7 FYP GOALS AND ACHIEVEMENTS

7 FYP Goals	**Status as of start of 7 FYP**	**Achievenent**
Reduce IMR to 50/1000	142 (1984)	70.7
Reduce U5MR to 70/1000	195	96.9
Eradicate Polio	0 cases reported	No cases reported
Eradicate neonatal tetanus	8-14 cases/1000 reported	1 case in 1994
Reduce measles cases to 1/1000 populqtion	11 cases per 1000 people	0.24/1000 people
Reduce measles death by 50%		100% (1991)
Maintain atleast 85% immunization coverage	84% (1990)	89% (1995)
100% coverage of child-bearing age women with tetanus toxoid		60% (1995)
Reduce MMR to 358/100000	770	380
100% access to FP services and Education	CPR of 8.8 per 1000	18.8 (1994)
100% access to trained attendant during delivery	10 % access	15.1 trained delivery
100% access for referral of high risk pregnancies	5%	
Reduce severe & moderate malnutrition to 19%	38%	Estimated below 30%
Reduce LBW (<2.5Kgs) to insignificant level	36% (Hospital records)	15% (1994)
Virtual elimination of iron deficiency anaemia	68% (Pregnant women)	

Reduce Vit A deficiency to 14% in 0-5 children	Virtual elimination	Virtual elimination
Reduce IDD to minimum levels	20% in women & 14% in children	
Strengthen existing breast feeding practices (0-4 months infants)	95% breast fed for > 1 year	
Universal use of growth monitoring as a tool to nutritional status	90% access to PHC/road to health card	
Ensure adequate nutritional status of the populatuion	To be verified	
		58%
Increase access to safe drinking water to 60% (piped water)	25% access	
		70%
100% access to latrines (not necessarily sanitary)	62%	

source: Ministry of Health & Education.

APPENDIX H

1. PERSONAL TESTIMONIAL QUESTIONS (Letters)

To,

Gynae & Obstretician,

Monggar Regional Referral Hospital,

MONGGAR.

Dated 11 DEC 1996

Dear Dr. Johnathan,

As you know I am doing my thesis on Emergency Medical Services (EMS). I therefore, would like you to send me a brief write up on this issue by answering the following questions:-

1. What are the current problems and shortcomings in providing emergency medical care specially after OPD hours ?

2. With the existing system of providing EMS, what problems do you foresee if there is a major passenger bus accident in your area ?

You may kindly post or fax me the write-up to the address given below. Thanks so much for taking the trouble.

Sincerely,

sd.

Dr. Nado.

Address:

THE COLLEGE OF PUBLIC HEALTH,

CHULALONGKORN UNIVERSITY, Institute Building 3, 10th Floor,

Chulalongkorn Soi 62, Phyathai Road, Bangkok 10330, THAILAND.

Tel. (662) 2188187-8, 2528958 Fax (662) 2556046

To,

District Medical Officer,

General Hospital,

Tashigang.

Dated. 14 DEC 1996

Dear Dr. Chencho,

I have chosen Emergency Medical Services (EMS) as my thesis topic for my MPH course. I would be grateful if you could kindly provide me with some information about managing emergency medical situations in your hospital. Kindly send me a brief write-up by answering the following questions:-

1. What are the current problems and shortcomings in providing emergency medical care specially after OPD hours?

2. Do you feel there is a need to establish an EMS system or change existing services, perhaps by opening an Emergency Department ?

3. What is your experience in providing EMS during major motor vehicle accidents ? What are the shortcomings? What would you suggest to improve the emergency medical care when major natural or man-made accidents occur?

You may kindly post or fax me your write-up to the address given below.Thanks so much for taking the trouble.

Sincerely,

sd.

Dr.Nado

ADDRESS

THE COLLEGE OF PUBLIC HEALTH, CHULALONGKORN UNIVERSITY, INSTITUTE BUILDING 3, 10th Floor, Chulalongkorn Soi 62, Phyathai Road, Bangkok 10330, THAILAND.

Tel. (662) 2188187-8, 2528958 Fax (662) 2556046

To,

The Program Director,

IECH BUREAU,

Health Division, THIMPHU.

Dated 14 DEC 1996

Dear Dr. Rinchhen,

I am doing my thesis on Emergency Medical Services (EMS). Therefore , I would be grateful if you could spare your time to write me a brief write-up by answering the following questions:-

1. What is your opinion about the current system of providing emergency medical care by the hospitals? Do you see the need to institute EMS system in our referral hospitals?

2. What role can IECH BUREAU play specially in regard to dissemination of information to general public about the provision of emergency medical care within the EMS system ?

You may kindly post or fax me the write-up to the address given below. Thanks so much for taking the trouble.

Sincerely,

sd.

Dr. Nado

ADDRESS:

THE COLLEGE OF PUBLIC HEALTH,

CHULALONGKORN UNIVERSITY, Institute Building 3, 10th Floor,

Chulalongkorn Soi 62, Phyathai Road, Bangkok 10330, THAILAND.

Tel. (662) 2188187-8, 2528958. Fax (662) 2556046

To,

The Dzongrab,

Dzongkhag Administration,

MONGGAR.

Date 14 DEC 1996

Dear Sir,

I am doing my thesis on Emergency Medical Services (EMS) system which I will be establishing in Monggar Hospital. Therefore, I would be grateful if you could write me a brief write-up about your opinion on EMS situation in Mongar by answering the following questions:-

1. What is your impression about the current system of emergency medical care provided by Mongar Hospital? What would you suggest to improve the services?

2. What would be the role of Dzongkhag Administration if a major motor vehicle accident (for example) has occurred in your area ?

You may kindly post or fax me the write-up to the address given below. Thanks so much for taking the trouble.

Faithfully,

sd.

Dr. Nado

ADDRESS:

THE COLLEGE OF PUBLIC HEALTH,

CHULALONGKORN UNIVERSITY, Institute Building 3, 10th floor,

Chulalongkorn Soi 62, Phyathai Road, Bangkok 10330, THAILAND.

Tel. (662) 2188187-8, 2528958 Fax (662) 2556046.

To,

The Superintendent,

Royal Bhutan Police,

MONGGAR.

Date 14 DEC 1996

Dear Sir,

I am doing my thesis on Emergency Medical Services (EMS) system which I will attempt to establish in Monggar Hospital. Your contribution in this area of our common interest and shared responsibilities will be of great help in preparing my thesis. I therefore, request you to kindly send me a brief write-up about the emergency medical situation in Monggar by answering the following questions:-

1. What is your impression about current system of providing emergency medical care in Monggar Hospital? What would you suggest to improve the EMS system ?

2. If an emergency medical situation has occurred, for instance, a major motor vehicle accident in your jurisdiction, what role can Police Force play independently and in coordination with the hospital authority ?

3. How should EMS system be coordinated with neighboring districts?

You may kindly post or fax me your write-up to the address given below. Thanks so much for taking the trouble.

Faithfully,

sd.

Dr. Nado

ADDRESS:

THE COLLEGE OF PUBLIC HEALTH,

CHULALONGKORN UNIVERSITY,Institute Building 3, 10th Floor,

Chulalongkorn Soi 62, Phyathai Road, Bangkok 10330, THAILAND.

Tel. (662) 2188187-8, 2528958 Fax (662) 2556046.

APPENDIX I

2. PERSONAL TESTIMONIAL (ANSWERS)

Johnathan ND ZI

Monggar Hospital

17th January, 1977

Dear Dr. Nado,

Many thanks for your letter dated 11 Dec. 1996. I also wish you a prosperous 1997. As for information on your thesis, I can say this:

Emergency Medical Services (EMS) at Monggar Referral Hospital, can be divided into those during and out of working hours (OPD)- 9.00 am to 4.00 p.m. from Monday to Friday; 9.00 am to 1.00 p.m. on Saturdays, and including Sundays and public holidays. They can further be divided into true emergencies and others. Others do include patients consulting regularly from far away distances who cannot reach the hospital POD before closing hours. However, this diagnosis can only be ruled out as from the emergency list after a careful assessment.

My discussion will focus mainly on Gynecological and obstretical emergencies. Most of these women will come complaining of pain, bleeding PV or fever.

Current problems and shortcomings include coming up with the diagnosis and therapeutics. The patient who usually is received in the ward duty room by the nurse-in-charge, will be attended to by a clinician. A high and good sense of judgment on the latter's side and a suspicion for certain rare pathologies in this environment which at times are life threatening can be life saving. Complementary ancillary investigations, however, are lacking, such as serologic/immunologic tests for specific antibody detection e.g. chlamydiae, sonography and laparoscopy.

The main therapeutic shortcoming is the lack of urgent blood replacement. Many a times emergencies present who require packed cells or whole blood transfusion. Donors may be unavailable or unwilling to donate blood for several hours or days. Truly a blood bank facility is yet to exist here, but patient party and the population at large through continuous education will come to understand that blood loss can only be replaced by blood, and this first should come from generous/sympathetic donors.

Other logistics lacking which should be in place after reorganization include a casualty room with a nurse-in-charge and a compound nurse and staff to be on hand to attend the emergencies. Also there should be an increase in the number of medical technicians to cover the various services (Laboratory, X-Ray etc.) involved in handling emergencies throughout the 4 hours of the day.

I am available for further clarifications and assistance until April, 1997. I look forward to hearing from you. My warm regards and good luck.

Yours Sincerely,

sd.

Tashigang

Sunday, 05 January, 1997

Dr. Nado Zangpo,

The College of Public Health,

Chulalongkorn University.

Dear Dr. Nado,

Thank you very much for your letter. I am glad to know that you are busy. I hope I can be of help to you in preparing for your thesis. I think it is a good and relevant subject and may be we can get something out of it in the end.

I am furnishing below the information you have asked for:

At present, due to the small population and rarity of accidents etc., not much problems have been encountered.

Present set up is fine. There is no need for an Emergency Department considering the shortage of staff in general and also rare occurrence of emergencies.

Two major motor vehicle accidents have occurred at Tashigang in the past three years. Major shortcomings were : lack of proper equipment such as portable X-Ray machines, vehicles to transfer patients in cases that needed to be referred, appropriate staff like surgeon, anesthetist, and properly trained nursing staff. A referral center is either too far away (e.g. Thimphu) or the regional referral center itself is not equipped in terms of appropriate staff.

District level courses on emergency management for district level staff should be conducted regularly (yearly). EMS team should be set up at an appropriate place- which would mean the referral hospital where the team can move out at any time in case of major accidents in the region, instead of referring the critical patients. Most hospitals are adequately equipped to handle such situations, provided appropriate manpower is available. The team should provide backup and be prepared to take with them equipment which may not be available at the local hospital e.g. Boyle's apparatus, portable X-Rays, drugs. EMS team should comprise of a surgeon, an anesthetist, a General Duty Medical Officer (GDMO), and 2 nurses appropriately trained.

The referral hospital should accommodate patients that require care once the emergency situation is dealt with because the local hospital may not be in a position to handle such patients.

Referral center should be well equipped especially in terms of transport to enable the EMS team to move quickly and also help in the transport of patients.

The team should be prepared to move at short notice. Standbys should be identified and trained to replace a member in his/her absence.

Good communication should be maintained at all times between the referral center and the local hospital, and the center and between the team members and local staff..

In the chaos and rush of things , it is very important for the District Medical Officer to be cool and well organized. Delegation of responsibilities, mobilization of manpower, communication are not only time saving but also life saving.

I hope this will do. Please do write when you get time.

HAPPY NEW YEAR !

Regards,

sd.

Chencho

DMO, Tashigang.

Date: 17/01/1977

Dr. Nado,

The College of Public Health,

Chulalongkorn University.

Dear Dr. Nado,

I am sending herewith my personal comment on EMS. I hope the views will be of some food for thought in preparing your thesis.

Comments on Emergency Medical Services (EMS)

Although there is the need to explicitly define the term emergency before anything , I would like to consider that the word may have varied connotations depending on the level of health services being provided for the well being of the general people in a given country - in other words, level and quality of EMS in any given country is directly related to the level of development and the ability of the social service sectors in providing it.

While EMS in this context may be presented in different degrees and professionalism in most of the developing and developed countries, the situation may still be distinctly different in Bhutan or any other similar countries. In Bhutan, as you know, given the stage of development, its size, population, physical

topography, communication etc., the picture of EMS or any rudimentary emergency health services related to it may be presented in completely different manner in comparison with other countries.

Given the present types of emergencies that we face in our hospitals and keeping in mind our abilities and infrastructure, we could safely say that the current system of providing emergency medical care by our hospitals is in consonance with our present need.Of course, it is always desired to be better and there is room for improvement.

However, there are other related priority areas which require addressing to improve even the present system not directly the EMS but our own system of dealing with medical emergencies. The possible areas that require improvement are in human resource development, infrastructure, equipment, machines, tools, drugs, and other matters related to operational and administrative concerns (timeliness is most important). As such, our referral hospitals do not really merit starting EMS per se but improve and consolidate the present system in dealing with the kinds of medical emergencies.

The role of IECH BUREAU can be seen important in two areas in so far as the dissemination of information to the general public is concerned. Firstly, it can assist and facilitate in building an environment which is totally aware of the system. This should however, be planned and implemented well in advance of the operationalization of the system. Secondly, it can also be a partner on a

continuous basis by helping to disseminate crucial life saving information by making a well coordinated use of existing mass media, particularly the radio in our present context (and TV in future).

Above all, the development of communication networks, particularly the telecommunication with strategic linkages to all available Information Technologies (IT) in a decentralized manner is also very crucial to the establishment of the efficient EMS system.

Hope everything is going fine. I wish you a very happy Losar (Fire Ox Year). With regards,

sd.

Dr.Rinchhen Chophel

Programme Director

IECH BUREAU

Thimphu

To,

Doctor Nado,

District Medical Officer,

Monggar Hospital.

Dear Doctor,

It is nice to hear that you are doing thesis on Emergency Medical Services (EMS) system which you are trying to establish in Monggar Hospital, Monggar. I personally feel it wil be of great importance and service to the citizens. I wish you all the best. As desired by you I would like to express my opinion on EMS system as follows:

Despite the shortage of medical personnel, their efforts in attending emergencies is praise worthy. But sometimes it is sad to point out that almost all medical officers including specialists disappear either on leave or for some duties elsewhere. It would be nice if there is one medical officer in the hospital to attend emergencies only for 24 hours. Further, one ambulance has to be always on standby.

Usually police gets the first hand information regarding incidences like motor vehicle accidents, homicide etc., and police informs the medical officer to rush to the spot. But the doctor does not come to the site to take charge of the

situation. At times, even before police reaches the accident site, the villagers start the rescuing operations by using their own devices to help the victims, unaware of the drastic consequences resulting from improper handling. So, it is felt that First Aid Training be given to the villagers. Sometimes workshop/exercise on this activity can be conducted.

I further suggest that all doctors (except emergency medical officer) while in station should let the emergency duty staff know their whereabouts. Some doctors might feel that they can go anywhere and relax since they are not on duties. But I feel that doctors should be easily contacted during medical emergencies.

Thanking you,

Yours Faithfully,

sd.

Major Tashi

13/3/97

The role of Dzongkhag Administration

In case of a major motor vehicle accident in the area, the role of the Dzongkhag Administration would be:-

a) Soon after the receipt of the information, will rush to the site and organize the nearest dwellers to find out and evacuate the accident passengers to the road point.

b) Organize quickest mode of transport

c) Reach the accident victims to the nearest Dispensary/BHU/Hospital for providing first aid.

d) Reach the serious cases to bigger hospital

e) Visit accident site to find out the cause of the accident.

sd.

Tshewang Rabgay

APPENDIX J

INTERVIEW GUIDE FOR INDEPTH INTERVIEWS

1. FOR DZONGDA & DZONGRAB:

1.1. What problems do you see in the current system of providing emergency medical care from MRRH ?

1.2. As you know, during the occurence of road accidents, there is no system of despatching medical team to the site. What do you think should be the role of health providers during such emergencies ?

1.3. How can the district authority assist the hospital administration in responding to major emergency medical situations in the area ?

1.4.What can you suggest in order to improve the EMS system in MRRH ?

2. FOR S.P. & O.C. OF RBP

2.1. What problems do you see in the current system of providing emergency medical care from MRRH ?

2.2. As you know, there is no system of despatching medical team to the site during the occurrence of road accidents. What do you think should be the role of health providers during such emergencies ?

2.3. How can police force assist the hospital authority in responding to major emergency medical situations ?

2.4. Your organization is equipped with mobile wireless set communication facility. How can your organization coordinate this communication system with the hospital in times of emergencies ?

2.5. What can you suggest in order to improve the EMS system at MRRH ?

APPENDIX K

QUESTION GUIDES FOR FOCUS GROUP DISCUSSIONS

1. NOMINAL GROUP TECHNIQUE

1.1. FOR DOCTORS

What are the problems in providing emergency medical care during outpatient hours and when you are on emergency duty after outpatient hours and during off days ?

1.2. FOR NURSING STAFF

What are all the problems that you face in providing emergency medical care during your regular inpatient duty, and in particular, during your emergency ward duty period ?

2. FOCUS GROUP FOR VHWS & DYT MEMBERS

2.1. There are complaints saying that when serious patients are brought to the hospital, they are not given prompt treatment. What more can you say about it ?

2.2. Can you suggest as to how doctors and nurses should respond when serious patients are brought to the hospital ?

2.3. Patients from the villages are often reached to hospital in late stages, and when they finally die in hospital, villagers think it is no use taking patients to hospital. How can you and health staff convince your fellow villagers to bring the patients to hospital before it is too late ?

2.4. In remote villages there is the problem of communicating the emergencies to the hospital. What can be done to improve the communication system so that emergency care can be provided promptly ?

APPENDIX L

SELF-ADMINISTERED PATIENT SATISFACTION INTERVIEW QUESTIONNAIRE ON EMERGENCY MEDICAL CARE PROVIDED FROM MRRH

INSTRUCTIONS: Please rate the following services you received while in our Emergency Room. Circle the number that best represents your feeling. Skip anysection that does not apply to your visit. When you have completed the survey please mail it back in the enclosed envelop. Thank you.

A. GENERAL QUESTONS (FILL IN)

1. Date of your visit_____

2. Time of day you arrived (check one)

___8 AM - 10 AM ___10 AM - 12 AM

___12 AM - PM ___2 PM - 4 PM

___4 PM - 6 PM ___6 PM - 8 PM

___8 PM - 9 PM

3. How many hours did you spend in the Emergency Room ? _____

4. Were you treated by the doctor, nurse or any other staff ? (check one)

Doctor___

Nurse____

Other staff___

5.Was this your first visit to our Emergency Room as a patient

(Y/N)_____

6.Your sex ? (M/F)____

7. Your name ?_____

B. PLEASE CIRCLE ONE

	VERY POOR	POOR	FAIR	GOOD	VERY GOOD
NURSES					
1. Courtesy of the nurses	1	2	3	4	5
2. Degree to which the nurse took your problem seriously.....	1	2	3	4	5
3. Nurses' concern for privacy.....	1	2	3	4	5
4. Technical skill of nurses.....	1	2	3	4	5

OVERALL RATING OF CARE

1. Degree to which the staff cared
   about you as a person..... 1 2 3 4 5

2. Likelihood of recommending our
   Emergency Room to others..... 1 2 3 4 5

3. Overall, how well do you think we
   took care of your problem..... 1 2 3 4 5

DOCTOR

1. Waiting time in the Emergency Dpt.
   before seen by doctor..... 1 2 3 4 5

2. Courtesy of doctor..... 1 2 3 4 5

3. Degree to which doctor took
   your problem seriously..... 1 2 3 4 5

4. Doctor's concern for your privacy. 1 2 3 4 5

5. Doctor's concern to explain your

   tests and treatments..... 1 2 3 4 5

6. Advice given about caring for yourself

   at home or obtaining follow-up

   medical care..... 1 2 3 4 5

7. Name of the doctor who you saw ?

   _____

TEST

1. How well your blood was taken..... 1 2 3 4 5

2. Courtesy of the person who took

   your test..... 1 2 3 4 5

3. Waiting time before test results were

   given..... 1 2 3 4 5

4. Waiting time before x rays were taken.. 1 2 3 4 5

COMMENTS (DESCRIBE GOOD OR BAD EXPERIENCES)

_____

_____

_____

_____

NOTE: This questionnaire on patient satisfaction survey in Emergency Department is developed by the Brigham and Women Hospital Ambulatory Emergency Unit Survey. Following adaptations are made: (1) Emergency Room for Emergency Department, (1) Doctor, nurse or any other staff for Emergency Physician or any other Physician in question No. 1. Under general questions sub-head, and (3) Questions under registration sub-head are deleted.

APPENDIX M

Please assess the individual trainee for each session by the concerned resource person by grading 1 to 3 in the respective columns for the trainee's cognitive, affective, and psychomotor objectives.

DATES OF INSTRUCTION_____TO_____

NAME OF THE TRAINEE._____

SESSION	COGNITIVE	AFFECTIVE	PSYCHO-MOTOR	ASSESSED BY
AM				
PM				
AM				
PM				
AM				
PM				
AM				
PM				
AM				
PM				
AM				
PM				
AM				
PM				
TOTAL				

NOTE: Grade 1: Good Grade 2: Satisfactory Grade 3: Unsatisfactory

AM: Morning Session
PM: Afternoon Session

APPENDIX N

TRAINING PROGRAM EVALUATION FORM

The evaluation of the training program is meant for improving future trainig course. Please evaluate it as truly as possible, and do not write your name on the evaluation form.

COURSE:_____

DATE: From_____to _____

1. Please evaluate each of the following aspects of the training program by circling a number on the scale below:

A. EDUCATIONAL ASPECT:

	VERY GOOD	GOOD	SATIS-FACTORY	UNSATIS-FACTORY
Achievement of program objectives	4	3	2	1
Achievement of my personal objectives	4	3	2	1
Relevance of content for my job situation	4	3	2	1
Effectiveness of training				

methodology & techniques	4	3	2	1
Organization of program	4	3	2	1
Usefulness of program materials	4	3	2	1
Effectiveness of trainers	4	3	2	1

B. ADMINISTRATIVE ASPECTS:

Accommodations	4	3	2	1
Food & Refreshments	4	3	2	1
Administrative support	4	3	2	1
Social activities	4	3	2	1

2. The length of the program was : Too long___Too short___Just right__

(Please tick one only)

3. Please prioritize the five sessions that will be the mot relevant to your work.. (List the most relevant first.)

4. Please prioritize the five sessions that will be the least relevant to your work.. (List the relevant first.)

5. On which topics would you have preferred to spend more time ?

6. Which additional topics would you like to have included in the program ?

COMMENTS/SUGGESTIONS:

SOURCE: Wolf, Sattenfield & Binzen (1991).

Note: Few adaptations affected to this form are: (1) Location of the training course and name of the Course Director are deleted; (2) On the evaluation scale, "Excellent" is deleted, and "Fair" is substituted by "Satisfactory".

APPENDIX O

COURSE DESIGN FOR PRE-HOSPITAL CARDIAC AND TRAUMA CARE

LESSON 1: INTRODUCTORY

1.1 Overview of anatomy and physiology of body systems and their functions.

1.2 Introduction to Trauma.

OBJECTIVES:

A-Define trauma and list causes and consequences of trauma.

B-Define and locate surface landmarks of the body.

C-Name common structures and briefly describe functions of major body systems.

LESSON 2: PATIENT ASSESSMENT/MANAGEMENT

2.1 Scene evaluation

2.2 Conduct simultaneous ABCDE survey method including LOC .

2.3 Vital signs

2.4 Ventilatory support

2.5 Maintaining circulation

2.6 Control of external hemorrhage

2.7 Rapid packing of patient for transport

2.8 General assessment of whole system

2.9 Monitoring and reassessment

2.10 Trauma Triage

OBJECTIVES:

A-Demonstrate ABCDE method of initial assessment including LOC and auscultation.

B-Define roles of safety, scene and situation.

C-Demonstrate skills in taking pulse, blood pressure including capillary refill.

D-Demonstrate starting of life line to maintain circulation.

E-Identify life threatening conditions and demonstrate packaging for immediate transportation.

F-Define trauma triage

G-Understand monitoring and reassessment techniques.

LESSON 3: MANAGEMENT OF AIRWAY CONTROL

3.1 Manual

3.2 Mechanical

3.3 Transtracheal

3.4 Suctioning

3.5 Oxygenation and Ventilation

3.6 Manual immobilization techniques

OBJECTIVES:

A-Demonstrate manual and mechanical airway management techniques.

B-Understand ventilation methods.

C-Demonstrate skills in ventilation methods.

D-Demonstrate immobilization techniques during airway management.

E-Perform step-by-step management of the airway.

LESSON 4: SHOCK/FLUID RESUSCITATION

4.1 Primary survey - Assessment of Perfusion, Skin color, Skin Temperature, Capillary refilling time, Blood Pressure.

4.2 Management of Airway, Ventilation, Circulation and Conservation of body heat.

OBJECTIVES:

A-Understand the importance of maintaining the Airway.

B-Understand the importance of recording Temperature, Pulse and Respiration.

C-Describe signs and symptoms of shock.

D-List the indications for intravenous fluid therapy.

E-Understand the importance of body heat conservation in a patient of shock due to hypoperfusion.

F-Describe the indications of the continuing dehydration and understand the urgency for immediate transportation.

LESSON 5: HEAD/SPINAL TRAUMA

5.1 Initial Assessment of Ventilation, Blood Pressure and Pulse.

5.2 Neurological examination - AVPU (Primary Survey), Glascow coma Scale (Secondary Survey), Motor Functions, Deformities and Paralysis.

5.3 Management and transportation.

5.4 Immobilization skills.

OBJECTIVES:

A-Understand the need for initial assessment using ABCDE method and record vital signs.

B-Explain the need for hyperventilation in head injury patient.

C-Describe the signs of increased and progressively increasing Intracranial Pressure.

D-Define Cushing's Triad.

E-Describe Glascow Coma Scale and its interpretation.

F-Describe four specific signs or symptoms of spinal trauma.

G-Demonstrate the examination of motor functions extremities.

H-Identify the need for rapid transport of head injury victim.

I-Demonstrate immobilization skills of spinal injury victims.

LESSON 6: EXTREMITY TRAUMA

6.1 Management of shock due to external hemorrhage.

6.2 Signs and Symptoms

6.3 Splinting Techniques

6.4 Management of fracture of femur

6.5 Amputation management

OBJECTIVES:

A-Classify four groups of patients with extremity injuries in order of priority management.

B-Understand the need for management of hemorrhage and shock.

C-Recognize signs and symptoms of common fractures.

D-Describe management of open wounds.

E-Demonstrate management skills of femur fracture.

F-Demonstrate skills in splint application techniques.

G-Describe the management of amputed limbs.

LESSON 7: THERMAL TRAUMA

7.1 Initial assessment of scene, safety and situation

7.2 Degree of burns

7.3 Lung injury by smoke inhalation

7.4 Management of airway and circulation

7.5 Pain relief

7.6 Wound Care

OBJECTIVES:

A-Understand initial assessment of scene, safety and situation.

B-Define the principles of priority care for burn victims.

C-Define the degree of burns.

D-Describe the signs of lung injury due to smoke inhalation.

E-Justify the use of dry and wet dressings of burn wounds.

F-Administer analgesic injections.

LESSON 8: ONE-RESCUER and TWO-RESCUER CPR

8.1 Review of anatomy and physiology of heart and lungs

8.2 Angina pectoris/heart attack/sudden death

8.3 Introduction to CPR

8.4 One-rescuer and Two-rescuer CPR techniques

8.5 Practice Lab

OBJECTIVES:

A-Recapitulate the anatomy and physiology of heart and lungs, and their functions.

B-Recognize signs and symptoms of angina pectoris, heart attack and sudden death.

C-Understand the response needs to cardiac and respiratory emergencies.

D-Define indications for BLS.

E-Determine the assessment of airway, breathing and circulation.

F-Demonstrate preparatory steps for CPR.

G-Demonstrate skills in performing CPR techniques of both One-rescuer and Two-rescuer methods.

H-Understand the need for monitoring the victim.

LESSON 9: FOREIGN BODY AIRWAY OBSTRUCTION (FBAO)

9.1 Sign / symptoms of FBAO

9.2 Heimlich maneuver method of FBAO

9.3 Chest Thrust method of FBAO

9.10 Finger sweep method of FBAO

9.11 Practice Lab

OBJECTIVES:

A-Describe signs and symptoms of FBAO.

B-Demonstrate the techniques of Heimlich maneuver method of management of FBAO.

C-Demonstrate the techniques of chest thrust and finger sweep methods of the management of FBAO.

NOTE: The learning objectives which the trainees must fulfill at the end of each lesson are a combination of the cognitive (perception), affective (emotional feelings) and psychomotor (physical action) nature.

APPENDIX P

IN-SERVICE EMS TRAINING PROGRAM SCHEDULE FOR NURSES AND PARAMEDICS OF MONGGAR REGIONAL REFERRAL HOSPITAL, MONGGAR DZONGKHAG

	MORNING SESSION		AFTERNOON SESSION	
NO. OF DAYS	SUBJECTS	RESOURCE PERSON	SUBJECTS	RESOURCE PERSON
DAY 1	Lesson 1 & 2: Introductory/ Anatomy & Physiology/ Patient Assessment/ Management	Surgical Specialist	Lesson ! & 2 continued with Simulation Practice	Surgical Specialist
Day 2	Lesson 3&4: Management of Airway Control/Shock/Fluid Resuscitation	Anesthesiologist	Lesson 3 & 4 continued with Simulation Practice	Anesthesiologist
Day 3	Lesson 5: Head/Spinal Trauma	Medical Specialist	Lesson 5 continued with Simulation Practice	Medical Specialist
Day 4	Lesson 6: Extremity Trauma	General Duty Medical Officer	Lesson 6 continued with Simulation Practice	General Duty Medical Officer
Day 5	Lesson 7: Thermal Trauma	General Duty Medical Officer	Lesson 7 continued with simulation Practice	General Duty Medical Officer
Day 6	Lesson 8: Review of Anatomy & Physiology of Heart & Lungs	Surgical Specialist	Lesson 8 continued with Simulation Practice	Anesthesiologist
Day 7	Lesson 9 : Foreign Body Airway Obstruction with simulation practice	Medical Specialist	Lesson 9 continued. Special Resuscitation/ Orientation to Recording, Reporting formats	General Duty Medical Officer

APPENDIX Q

Fifteen Elements of EMS as identified by the Emergency Medicl Services System act of 1973 in the Title XII to the Public Health Service Act of US.

1. Manpower
2. Training
3. Communications
4. Transportations
5. Facilities
6. Critical care units
7. Public Safety Agencies
8. Consumer Participation
9. Access to Care
10. Patient transfer
11. Coordinated patient record keeping
12. Public information and education
13. Review and evaluation
14. Disaster plan
15. Mutual aid

SOURCE: Jenkins A. L., & Van de LEUV, J. H., (1978). Emergency Department Organization and Management. (2nd ed.). Saint Louis: Mosby

APPENDIX R

The list of core corriculum of the Emergency Department Nurses Association (EDNA) of US.

1. Clinical assessment and priority setting
2. Psychologic intervention
3. Fluid and electrolytes
4. Shock syndrome
5. Legal considerations
6. Respiratory emergencies
7. Cardiovascular emergencies
8. Neurologic emergencies
9. Eye emergencies
10. Ear, Nose, and Throat emergencies
11. Abdominal emergencies
12. Genitourinary emergencies
13. Obstretic and gynecological emergencies
14. Drug-related emergencies
15. Thermal emergencies
16. Medical emergencies
17. Pediatric emergencies
18. Surface emergencies
19. Orthopedic emergencies
20. Multiple trauma

21. Pharmacology

23. Patient and family teaching

24. Acquisition and maintenance of supplies

25. Community - emergency department relations

26. Team management and personnel

SOURCE: Jenkins, A. L., & Van de LEUV, J. H., (1978). Emergency Department Organization and Management. (2nd ed.). (p. 45). Saint Louise: Mosby.

APPENDIX S

The list of topics under different skills for nursing in-service program as prepared by the Emergency Department Nurses Association (EDNA)

TRIAGE SKILLS:

1. Sorting patients in order of priority
2. Ordering relevant laboratory tests, x-ray films, and so forth, for waiting patients
3. Telephone answering and screening of calls, as well as limited telephone advice
4. Participation in disaster problems as assistant coordinator

EXAMINATION SKILLS:

1. Cardiorespiratory examination to ascertain the degree of cardiorespiratory distress (cyanosis, stridor, retraction, wheezes, rales, shock syndrome)
2. Neurologic examination to determine signs of significant head injury or signs of deteriorating mental state from any cause (pupillary signs, Babinski reflex, respiratory pattern, pain receptivity, paresis, neck stiffness)

3. Multiple trauma examination to determine degree of initial concern and need for expeditious care or laboratory tests (neck trauma, chest trauma, or the possibility of blunt abdominal injury; initial examination and splinting of multiple extremity injuries; and so forth)
4. Extremity examination for purposes of determining what kinds of radiographs to request in single extremity trauma

CRITICAL CARE SKILLS:

1. Capacity to independently direct a cardiopulmonary resuscitation team
2. Administration of intravenous procedures, including central venous pressure lines and local special techniques (subclavian, and so forth)
3. Airway care including endotracheal intubation
4. Use of key cardiac drugs , especially lidocaine, atropine, morphine, and oxygen
5. Recognition of life threatening arrhythmias

SPECIFIC EMERGENCY SKILLS:

1. Eye: irrigation of chemical burns; removal of contact lenses
2. Ear, nose, and throat: control of simple epistaxis, including pressure and positioning
3. Respiratory: intermittent positive pressure breathing, humidification, postural drainage
4. Cardiac: electrocardiographic technique; recognition and treatment of life threatening arrhythmias (ventricular trachycardia, ventricular fibrillation, standstill, and severe bradycardia); assistance in transthoracic pacing and cardioversion
5. Plastic repair: suturing (where medical staffs approve); wound care, including treatment of simple burns and application of various burn dressings
6. Surgery: procedures approved by local medical staffs
7. Orthopedics: application of splints and assorted orthopedic appliances

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SOURCE: Jenkins, A. L., & Van de LEUV, J. H., (1978). Emergency Department Organization and Management. (2nd ed.). (pp. 67-68). Saint Louis: Mosby.

APPENDIX T

LIST OF ITEMS ESSENTIAL FOR EQUIPING THE AMBULANCE

1. Portable suction apparatus with wide-bore tubing and rigid pharyngeal suction tip
2. Hand operated bag-mask ventilation with adult-, child-, and infant size masks. Clear masks are preferable. Valves must be operable in cold weather, and unit must be capable of use with oxygen supply.
3. Oropharyngeal airways in adult, child, and infant sizes
4. Mouth-to-mouth artificial ventilation airways for adults and children
5. Portable oxygen equipment with adequate tubing and and semi-open, valveless, transparent masks in adult, child, and infant sizes
6. Mouth gags, either commercial or made of three tongue blades tapped together and padded
7. Sterile intravenous agents, preferably in plastic bags with administration kits
8. Universal dressings, approximately 10 inches by 36 inches, compactly folded and packaged in convenient size
9. Sterile gauze pads, 4 inches by 4 inches
10. Soft roller self-adhering type bandages, 6 inches by 5 yards
11. Roll of aluminium foil, 18 inches by 25 feet, sterilized and wrapped
12. Two rolls of plain adhesive tape, 3 inches wide

13. Two sterile burn sheets
14. Hinged half-ring lower extremity traction splint (ring 9 inches in diameter, over-all length of splint 43 inches) with commercial limb support slings, padded ankle hitch, and traction strap
15. Two or more padded boards, 4 and half feet long by 3 inches wide, two or more similarly padded boards, 3 feet long, of material comparable to four-plywood for coaptation splinting of leg or thigh
16. Two or more 15-inch by 3-inch padded wooden splints for fractures of the forearm (By local option, similar splint of card-board, plastic, wire ladder, or canvas slotted lace-on may be carried in place of the above)
17. Uncomplicated inflatable splints in addition to Item 16 above or as substitute for the short boards
18. Short and long spine boards with accessories
19. Triangular bandages
20. Large size safety pins
21. Shears for bandages
22. Sterile obstretical kits
23. Poison kit
24. Blood pressure manometer, cuff, and stethoscope

SOURCE: Jenkins, A. L., & Van de LEUV, J. H., (1978). Emergency Department Organization and Management. (2nd ed.). (pp.232-234). Saint Louis: Mosb

APPENDIX U

THE LIST OF MINIMUM EQUIPMENT REQUIRED FOR THE EMERGENCY ROOM.

EQUIPMENT:

1. Sufficient monitoring equipment, both battery (for transferring patients) and line, stationary and moveable, with defibrillators and write-outs
2. Refrigerator
3. Ice machine
4. Blanket and solution warmer
5. Automatic rotating tourniquet
6. ECG machine
7. Wall suction, as well as portable suction
8. Wall oxygen as well as portable oxygen
9. Cast cart, on wheels
10. Table
11. Gurney
12. Wheel chair with leg extension
13. Blood pressure cuffs, thermometers, and stethoscope

SUPPLIES:

1. Traction splints
2. Back board
3. Intravenous fluids
4. Blood expanders
5. Medications
6. Emergency trays
7. linens
8. Sand bags

SOURCE: Jenkins, A. L., & Vand de LEUV, J. H., (1978). Emergency Department Organization and Management. (2nd ed.). (p. 43). Saint Louis: Mosby.

APPENDIX V : Diagnose Organization Capability

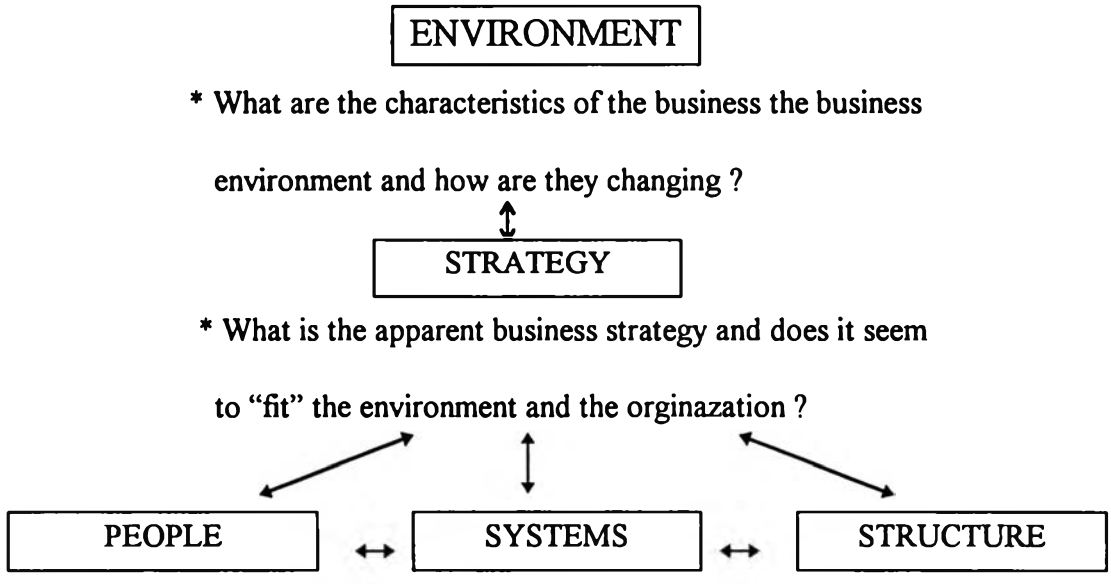

Figure : Organizing for change

SOURCE: Clarke, L. (1994). The Essence of Change. Organizing for Change. (p. 29). New York: Prentice Hall.

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1991 Diploma in Sexually Transmitted Diseases (DIP.STD) from Prince of Songhla University, Hatyai, Thailand.

AREA OF INTEREST

Health Systems Development

WORK EXPERIENCE

1988 District Medical Officer (DMO), Pemagatsel District, Eastern Bhutan.

1985 District Medical Officer (DMO), Monggar Regional Referral Hospital, Monggar, Eastern Bhutan.