American University of Armenia

Department of Public Health

QUALITATIVE STUDY OF THE MEDICAL WASTE MANAGEMENT IN SELECTED HOSPITALS IN YEREVAN

Research grant proposal

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Executive Summary

Medical waste is a growing problem in the world and in Armenia. Health care services, while working to reduce health problems, inadvertently create waste products, which may themselves be hazardous to human health and the environment. People at risk are hospital staff, patients, and those outside the hospital who handle such waste or are exposed to it as a consequence of careless management. According to the estimates of the World Health Organization (WHO), the proportion of hazardous waste in the hospital waste stream is between 10 and 25 percent. This waste contains health risks/threats such as *M. tuberculosis, HIV/AIDS, Hepatitis B, and Hepatitis C.* Poor management and improper discarding of medical waste in landfills lead to pollution of the environment with hazardous material, such as microbiological agents, toxic chemicals, pharmaceuticals, radioactive isotopes, and mercury.

To date, no studies of medical waste management have been conducted in Armenia. Therefore it is proposed to conduct a qualitative research in sex selected Yerevan hospitals and provide an answer to the question: What is the status of medical waste management practices in Yerevan hospitals?

The proposed research will be performed using two data collection techniques: 1) formal, focused, semi-structured key informant interviews including the use of questionnaire and 2) unstructured, direct, focused observations of the six facilities and their surrounding grounds. A preliminary pilot study substantiated the need for the proposed study.

Data analysis will be conducted using the statistical package, "ATLASti", a program especially developed for qualitative research. Results will be used to generate professional and political actions and changes. The overall estimated budget composes twelve thousand six hundred and eighty four US dollars ($ 12,684).

Background information

Medical waste is a growing problem in the world and in Armenia. Pursuing the aims of reducing health problems and eliminating potential risks to people's health, health care services inadvertently create waste that may itself be hazardous to human health and environment. If improperly disposed of this waste carries a higher potential for infection and injury than any other type of waste [1]. Institutions generating infectious and medical waste consider its management to be an intractable problem. Employees complain of inadequate training and threats to their health [2]. The total absence of management measures to prevent exposure to hazardous health-care waste results in the maximum health risk to the patients, health-care personnel, waste workers and general public [1].

The US Environmental Protection Agency (EPA) provides the following definition of medical waste: "Medical waste is generally defined as any solid waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals, including but not limited to:

- soiled or blood-soaked bandages
- culture dishes and other glassware
- discarded surgical gloves and lancets - after surgery
- needles - used to give shots or draw blood
- microbiological cultures, stocks, swabs used to inoculate cultures
- removed body organs, such as tonsils, appendix, limbs, etc." [3]

With the advent of disposable supplies and ever-increasing amount of hospital waste is generated. According to the International Network "Health Care Without Harm" (HCWH), since 1955, the amount of waste generated per hospital patient has more than doubled [4]. In the

delivery of health-care, American hospitals generate 4 billion pounds of waste each year [5]. According to the World Health Organization (WHO), health-care waste is hazardous by nature because of the following characteristics [1]:

- it contains infectious agents
- it is genotoxic
- it contains toxic or hazardous chemicals or pharmaceuticals
- it is radioactive
- it contains sharps

Different classifications for health-care waste exist in the world. Some classifications depend on how the particular waste is to be handled, treated, and disposed of [6]. According to another classifications health-care waste is divided into hazardous and non-hazardous categories or infectious and non-infectious [1,6]. Further division into subcategories also varies in different classifications [1,6]. "The term waste stream is used to distinguish a segregated waste type; sharps and flammable solvents are examples of two such waste streams" [2].

"Too often waste disposal is viewed as an isolated problem, such as the decision as to which receptacle to use for a handful of waste, or a full trash can waiting to be emptied, or an autoclave in need of maintenance" [11]. Another approach is to "manage waste through a pathway that includes generation, segregation, collection, storage, processing, transport, and treatment. Each step carries its own risk and costs. Thus, management requires analysis and active control from generation through disposal" [2].

There are several treatment and disposal technologies for medical waste, which health-care facilities may employ, depending on waste categories and local conditions. According to WHO the methods of choice are the following: 1) chemical disinfection; 2) wet and dry thermal

treatment; 3) autoclaving of highly infectious waste; 4) microwave irradiation; 5) encapsulation; 6) inertization; 7) safe burying; 8) land disposal (sanitary landfill and the sanitary sewer); and 9) incineration [1].

During the Soviet regime, Armenia had a set of regulations regarding procedures and practices of medical waste management. The primary methods of waste disposal were landfilling, incineration, recycling and reuse. The Ministries of Health and Nature Protection monitored that processes [7]. However, as a result of decentralization and the economic crisis of the last decade, many of the existing laws and regulation are no longer followed [7]. Armenian health officials have little information of what to be done with medical waste. In general, all types of waste are mixed, either being disinfected beforehand, or directly discarded. Afterwards, this mixed waste is dumped in the open, uncovered municipal landfill in Nubarashen, which is just 1km away from the residential areas and it's condition does not correspond to any sanitary hygienic norms [8].

Currently, no rules or regulations exist that clearly state the procedures on treatment and handling of various types of wastes originated in the course of health care activities [7]. According to the words of environmental health officials from the Republican Center of Hygiene and Epidemiological Surveillance, only four regulations on medical waste management remained in force in the Armenian Ministry of Health [7,8]. These documents are inherited from the Soviet period of time:

1. "Sanitary rules of organization, equipment and operation of hospitals, maternities, and other medical facilities". N 5179-90. (Issued in 1990). States: specific, pathologic, post surgery, and other hospital wastes should be centralized in one place and then burned in special incinerators.

2. Order of the MOH of ArmSSR and State Department of USSR N 2768/266, on organization of collection, storage and handing over to the aforementioned Department of the scrap and disposable medical equipment. (Issued in 1989).
3. "Sanitary rules of maintenance of the residential territories". N 42-128-4690. (Issued in 1988).
4. "Sanitary rules of collection, transportation, disinfections and burial of toxic industrial waste". N 3183-84. (Issued in 1984).

The aforementioned documents contain only general phrases but no concrete instructions or exact descriptions of waste management procedures.

From the perspective of public and environmental health risks medical waste can generally be classified as occupational and environmental. The risk associated with serious public health consequences and negative impact on the environment increases when there is inadequate and inappropriate handling of health care waste. The persons at risk are hospital staff, patients, and also those outside the hospital who either handle such waste or are exposed to it as a consequence of careless management [1]. Environmental risks include the possibility of a release of waste to groundwater, surface water, or air" [2].

Waste, generated in health-care facilities consists of the following categories: 1) general waste (food waste, paper, plastics, glass and fabrics), comparable to domestic waste; 2) infectious waste and sharps; 3) pharmaceutical waste; 4) chemical waste; 5) wastes with high heavy-metal content; 6) pressurized containers; 7) radioactive waste; and 8) cytotoxic waste [1]. The proportion of general health-care waste is between 75 and 90 percent of the total waste produced in health-care facilities. The remaining 10 to 25 percent of health care waste is regarded as hazardous, and may create a variety of health risks [1,9].

The rate of occupational injury and illness to healthcare workers in the US surpassed all injuries in other industries combined in 1991 [10]. "It is now more dangerous to work in a hospital than in construction and more dangerous to work in a nursing home than in a mine" [11]. Workers face a variety of occupational hazards in health care settings. The examples of infections caused by exposure to medical waste are the following: *gastrointestinal infections (such as Salmonellosis, Cholera); respiratory infections such as Tuberculosis; skin infections; Anthrax; Meningitis; HIV/AIDS; Septicemia; Bacteraemia; and Hepatitis A, B, C.*

Health-care workers may become exposed to pathogens through contact with infected patients or contaminated body secretions/fluids, or through needlestick injuries. Infection with any of these pathogens is potentially life-threatening [12]. The Centers for Disease Control estimates that as many as 18,000 health-care workers per year may be infected by viral hepatitis B (HBV), and nearly 10 percent of these become long-term carriers of the virus [2]. Occupational HIV infection has also been documented. According to the WHO, the cumulative recognition of occupational HIV infection by June 1996 had risen to 51 cases world wide [13].

Risk of infection after hypodermic needle puncture [1]

Infection	Risk of infection
HIV	0.3%
Viral hepatitis B	3%
Viral hepatitis C	3-5%

It is estimated that 600,000-800,000 needlestick injuries occur annually among health-care workers in the US [12]**.** However, no reliable data exists for handlers of infectious waste. There is no information about the number of needlestick injuries, which may occur outside the

health care facility when the used needles are disposed of carelessly without being disinfected or destroyed. “It is prudent to assume that waste handlers are at risk for the same diseases as health-care workers when the infectious agents for theses disease are present in the waste” [2].

The environmental risks of disposal practices are well known. "Even small amounts of laboratory solvents, when disposed of in a landfill, can leach into drinking water” [2]. Wastewater from health-care establishments is of a similar quality to urban wastewater, but may also contain various potentially hazardous components, like microbiological agents, hazardous chemicals, pharmaceuticals, and radioactive isotopes [1,14]. Certain infections may pose a significant risk to the general public and to hospital patients. For instance, uncontrolled discharges of sewage from field hospitals treating cholera patients have been strongly implicated in cholera epidemics in some Latin American countries [1].

Another source of risk to human health and environment due to health care activities is mercury containing equipment, like thermometers, blood pressure devices, batteries, and fluorescent lamps [15]. Mercury is a potent neurotoxin, which easily crosses the placenta and enters the developing fetal brain, impairing normal development through a variety of mechanisms [16]. If a mercury-containing device is broken, mercury spills on the floor, and if not properly collected, it remains on the premises and slowly evaporates. Eighty percent of the inhaled mercury may be absorbed into the bloodstream [17]. If disposed in the landfills or discharged to the sewer system, mercury can remain in the environment for an indefinite time. It bio-accumulates as it passes up the food chain accumulating in the muscle tissues of animals, especially fish, thereby leading to human exposure [18]. Mercury exposure can cause tremors, impaired vision and hearing, paralysis, insomnia, emotional instability, neurological deficit

during fetal development, attention deficit, and developmental delay [16]. Recent studies suggest that mercury may have no threshold below which adverse effects do not occur [15].

There is a way to reduce the risk to human health and environment, which are posed by the different components of the medical waste. A good and comprehensive waste management plan, including proper procedures for the handling, transport and storage of infectious and other medical waste can address occupational risks. To minimize environmental risks, this type of management plan, according to US EPA should consider the following options: waste elimination or reduction at the source, waste separation and concentration, waste exchange, incineration or treatment and secure land disposal [19]. One of the conditions necessary to develop a proper waste management policy is to know the type of waste generated, the point of its generation, and disposal practices [6]. A medical waste survey can provide such information through qualitative and quantitative assessment of the waste and evaluation of existing waste management practices.

Neither the evaluation of the situation regarding medical waste management nor the assessment of hazards of medical waste on human health and environment has been performed in Armenia so far. Because of this it is reasonable to start with a qualitative study, investigating the practices of waste handling in the hospitals of Yerevan. Investigation of the medical waste management issues in the hospitals of Yerevan will reveal the real situation and identify necessary interventions and changes and, as a result, will evolve a need-based waste management scheme.

Pilot study

To obtain preliminary data on the current conditions of medical waste management in the Yerevan hospital system and to test the study instrument (guide for key-informant interview) a pilot study was conducted in one of the biggest multi-profile hospitals in Yerevan. The data collection techniques, similar to those proposed in the project, were used to gather data.

In order to have an access to the hospital a letter of support was composed and the AUA MPH faculty approved it. Before the pilot study started the questionnaire was pretested in one of the Yerevan maternity hospitals. As a result, the guide was edited. Some additional changes were also made after the termination of the pilot study.

Six key informants (Hospital Epidemiologist, Physician form the Department of Urology, Chief nurse of Toxicology Department, Head of Abdominal Surgery Department, Chief nurse of Hematology Department, Physician from the Department of Pulmonology) were identified according to the criteria proposed for the final study. It took 40 - 45 minutes to conduct each interview. Prior to starting the interview the participants were provided a consent form in Armenian.

Information obtained through interviews was sorted according to the domains of the questionnaire [Appendix IV]. Based on that data, some general conclusions about medical waste management in the surveyed hospital can be drawn.

It was determined that no rules or regulations exist regarding waste treatment and disposal methods in the hospital. In addition, the hospital does not have an individual responsible for medical waste management. Personnel have very limited knowledge about medical waste categories and appropriate ways of treatment and disposal. Subsequently, no segregation is done and nearly all waste generated in the various hospital units is directly thrown into two big trash

containers placed next to the hospital building. Body organs/tissues after surgery are sent to the pathological laboratory. Needles and syringes are discarded without being shredded or damaged, and in some cases without prior disinfection. The liquid waste is poured directly to the sewer system.

Mercury-containing equipment is commonly used in the hospital. When such devices are broken, mercury is collected without any precautionary measures and thrown away with the rest of the waste.

Personnel handling medical waste (usually junior nurses - "sanitarka") use no protective clothes, except for gloves, which, in turn, are not always available. The staff of the hospital has very little knowledge about the measures required in case of accidents, such as infectious waste spill, exposure to hazardous wastes, needle stick injuries, etc. Antiseptics are not always available in the departments.

Waste from the containers is picked up daily or every two days by the municipal service hauler. Then it is transported to the municipal landfill in Nubarashen and disposed of there.

In discussing hospital waste issues, the lack of rules and regulations, lack of control and monitoring by the Ministry of Health, as well as the poor socioeconomic situation in the country were usually mentioned by key informants as primary factors underlying poor waste management.

As a possible way of improvement, it was suggested that the Ministry of Health allocate more funds to the health care system, promulgate the appropriate instructions and conduct continuous monitoring. The necessity of personnel training was also indicated as a desirable improvement.

Although the information obtained through the pilot study can not be generalized for the entire Yerevan hospital system, however, the results suggest some ideas and preliminary notions about the current situation regarding medical waste management. Apart from that, these data can serve as a reference point and further justification of the proposed large-scale study.

Specific aims and objectives of the study

To date, no studies of medical waste management have been conducted in Armenia. According to health officials, very little attention has been paid to the problem at hospital and administrative levels. Based on that fact and on the results of the pilot study, it is proposed jointly by the principal investigator and the Center of Health Services Research and Development (CHSR) of the American University to conduct a qualitative study of the issue. There is acting agreement between the principal investigator (Project Coordinator) and CHSR about the cooperation in performance of the proposed project.

The main aim of the study is to reveal the real situation and obtain sufficient information about medical waste management in Yerevan hospitals to conduct further quantitative research. The objectives of the study are as follows:

- ✓ to disclose current waste management patterns practiced in Yerevan hospitals.
- ✓ to discover the knowledge and attitudes of hospital personnel toward the issue of the medical waste management.
- ✓ to identify the medical waste stream composition and procedures
- ✓ to identify hospital waste management practice documents.
- ✓ to define the variables that influence hospital waste stream practices.

The research question is: What is the current situation and practices of health care waste handling in hospitals of Yerevan?

It is expected that results of the study will be used to generate professional and political actions and changes in hospital waste management.

Methods

A qualitative study of the medical waste management practices in selected Yerevan hospitals is proposed. Restriction of the study to only one city is explained by the fact that the Yerevan hospital system represents the largest cross-section of all health care facilities in Armenia. Hospitals in Yerevan provide the whole scope of medical services and a higher bed occupancy rate as compared to regional hospitals. Thus, it is reasonable to assume that Yerevan hospital system generates waste of various categories and in larger amounts.

Design

The following two data collection techniques are proposed for the study: formal, focused, semi-structured key informant interviews and unstructured, direct, focused observation of the waste handling practices in departments and hospital surrounding.

The focus of the interviews and observation is to obtain information about medical waste management practices, the knowledge of personnel involved, and what guidelines regarding the hospital waste management policy exist.

The study instrument is a key informant interview guide based on the specific objectives of the study [Appendix IV]. It contains 38 open-ended questions and requires 40 – 45 minutes for completion. The guide includes questions aimed at identification of responsible persons and those who are involved in decision making and the practices of medical waste management. The

guide is designed to test the knowledge of hospital personnel regarding medical waste management practices. The instrument also includes questions about health care workers' perceptions of the existing problems with the hospital waste management and their suggestions. The information obtained may be used later on as baseline information for conducting quantitative research of the medical waste composition and the amounts generated, as well as for recommendation for the promulgation of appropriate guidelines/laws.

Sampling

Considering the objectives of the study, its design, as well as time and cost-effectiveness, it is proposed to conduct a qualitative study in selected Yerevan hospitals. From the standpoint of feasibility, it is reasonable to choose hospitals not randomly, but according to the following criteria:

- the bed capacity of the hospital
- bed occupancy rate
- profile of provided services
- the type of infrastructure (American or European versus Armenian)
- private versus state sector

Based on these criteria, it is proposed to conduct a study in the following 6 Yerevan hospitals: 1) a large multi-profile hospital; 2) a children infectious hospital; 3) a maternity hospital; 4) the Institute of Oncology; 5) Nork Marash Medical Center (NMMC) or European Medical Center; and 6) the Institute of Proctology (as a private hospital). It is assumed that each of the proposed hospitals will be representative for that type of healthcare facilities.

In each of the hospitals, 6-7 key informants will be identified and interviewed. The criteria for key informant identification are health care providers who are presumably involved in

medical waste management (chief nurses, heads of the departments, chief doctor or administrative deputy and hospital epidemiologist) and who have at least 5 years of work experience. That number is based on the criteria of key informant and on the assumption that this is a representative cross-section of the people who should be aware of the guidelines concerning medical waste management. At the beginning of each interview, the interviewer will explain the purpose of the study and provide the participant with a consent form.

In the multi-profile hospital, it is advisable to interview personnel of the laboratory and the following departments: Internal Medicine (or any other therapeutic department), General Surgery, Toxicology, and Pathological Anatomy. These are the departments where the bulk of the medical waste is generated.

Direct observations of the involved staff's daily activities will be conducted in the places of waste generation and collection (usually the operating theatre, dressing rooms, wards, and laboratories) and also at the points of its disposal (nearby the trash containers). Observations are very conducive to understand the actual behavior and practices, allow to learn things that participant is not willing or not able to report, and to see things that may routinely escape conscious awareness among the study participants.

In order to have access to the chosen healthcare facilities a letter of support from the MOH is required.

Data analysis

The data analysis will be performed according to accepted qualitative research techniques. The information obtained will be grouped according to the study objectives and topics of the study instrument. Findings will be discussed and interpreted by the Project Manager. In addition, the statistical package "ATLASti" will be used to process data and analyze

the results of the study in format more conducive to further quantitative research. Statistical analysis of the data will be done in the Center of Health Services Research and Development of the American University.

Field notes collected during observations will be expanded and coded with interpretations and labeling of what was observed. Afterwards, retrieving and analyzing of that information will be done.

Based on the study results conclusions will be generated and appropriate actions recommended.

Time frame of the project

The proposed duration of the study is 4 months [Appendix I]. It will start with the hiring personnel and training them to conduct the key informant interviews and do observations of the medical waste handling practices in the selected hospitals. It is better to hire persons with basic knowledge of qualitative research technique. It is proposed to hire AUA/MPH students or graduates as interviewers and train them during three days. All preparatory activities will be completed within a month. Afterwards, the interviews with key-informants will start. Overall, there will be 42 key-informant interviews. Each interview will take 45 minutes. However, only 2 interviews will be performed per day, as the raw notes should be expanded and that will take several days. It is planned to have a total of 3 interviewers, each assigned two hospitals. Overall, data collection will be completed within a period of one month. Coding and data entry will begin after completion of the interviews and observations and will last one month. The final stage of the project is the data analysis and elaboration of appropriate recommendations.

Personnel Responsibilities

- The Project Coordinator is responsible for the entire study management. He/She will also perform data analysis and submit the final report.
- The Project Assistant is responsible for training the interviewers, monitoring their performance and facilitation in the process of data coding and entry into computer.
- The Interviewers will conduct key informant interviews and direct observations and will make expanded notes and submit them to the Project Coordinator.
- CHSR staff will perform data coding and entry into computer.
- CHSR Consultant provides a final review of the project.

Budget

The overall estimated budget is twelve thousand six hundred and eighty four US dollars ($12,684). The budget includes the following categories:

- Personnel costs
- Materials and Supplies
- Operating costs
- Computer processing of the data
- Unexpected needs
- Administrative expenses

The estimated expenditures for implementing the proposed study are given in the Budget table [Appendix II].

Limitations

- Due to the lack of official information the number and type of hospitals proposed for the study are based on the assumption that each of those hospitals is representative for the corresponding type of health-care facility. The assumption itself is based on the work experience of the Project Coordinator.
- Weakness of the study instrument (instrument bias). The questionnaire was formulated to obtain information on medical waste management in hospital departments rather than in more specialized units, such as laboratories, where specific categories of waste are generated. According to the study design the questionnaire should be uniform to be used in all structures of health care facility.
- Interviewer bias could arise due to the different skills of the interviewers, regardless of training.

Human subject and ethical considerations

The proposal was submitted to the Institutional Review Board/Committee on Human Research of the American University of Armenia and obtained its approval. The proposed study possesses minimal risk for participants. However, the information provided by the respondents will undoubtedly be sensitive, therefore all necessary measures will be undertaken to protect the confidentiality. For identification only the hospital codes, general job description of the study subjects and their ID numbers will be used. Only the principal investigator/Project Coordinator and CHSR staff will have access to the data. The data will be stored at the CHSR for a three-year period. The data set can serve as a source of information for later research on the same topic.

To address ethical issues, study participants will be provided with oral consent. [Appendix III].

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Appendix I

Time frame

Activities Planning for 2002	**Months**			
	1st	2nd	3rd	4th
Personnel hiring				
Purchase of supplies, preparation of training materials. Obtaining Letter of support from MOH				
Copying of study instruments and materials; logistics				
Training of the interviewers				
Conducting interviews and observation				
Data interpretation, sorting, coding and entry into computer				
Data Analysis				
Report preparation				

Appendix II

Budget

Item	Unit	Rate (USD)	Months	Total
Personnel salaries (NET)				
Project Coordinator (full-time position)	1	550	4	2,200
Project Assistant (full-time position)	1	400	4	1,600
Interviewer	3	200	1	600
CHSR Consultant / Primary investigator (revision of the project)	1	300	2 days only	600
Subtotal				***5,000***
Salary taxes:				
20% income tax/employee				1,000
4% pension tax/employee				200
15% pension tax/employer				750
9% fringe benefit for local staff				396
28% fringe benefit for US citizens				168
Subtotal				***7,514***
Materials and Supplies				
Office supplies	1	30	4	120
Copying of training materials: handouts	1	20	1	20
Copying of study instruments and materials	1	10	3	30
Per diem for training participants	5	cost/person/day 5 USD	3 days only	75
Subtotal				***245***
Operating costs				
Travel: taxi fee per 1 hospital visit for 3 interviewers	10	7	1	210
Communications	1	40	4	160
Subtotal				***370***
Computer processing of the study data				
Data entry (CHSR)	2	24 USD per day	15 working days	720

Grand Subtotal				***8,849***
Miscellaneous	5% of the grand subtotal			443
Total				**9,292**
Administrative fee	36.5% of the total			3,392
GRAND TOTAL				**12,684**

Appendix III

Consent protocol

The Public Health Department of the American University of Armenia is conducting a qualitative study regarding the situation with medical waste management in the hospitals of Yerevan. The study is aimed at determining the patterns and practices of treating and disposing various types of medical wastes, which originated in the health care facilities during routine activity. It is also proposed to ascertain if there are any special rules and regulations for which the management of wastes in hospitals is organized and implemented. Key staff within the selected Yerevan hospitals will be interviewed. Both male and female hospital workers dealing with waste management issues may participate in this study. The interview will take place only once and will last about one hour. The interview may be stopped by the investigator, if necessary.

Your participation in the study and your opinion are highly valuable and important for us.

Explanation of Research Project

RISKS/DISCOMFORTS:

There is no known risk for the participants of the study. The research possesses no risk, discomfort and inconvenience other then those encountered in your daily life. Some of the information you disclose may be sensitive and every attempt will be made to keep it confidential.

BENEFITS:

You will not directly benefit from the participation in this study. However, the information provided by you may help to reveal the actual situation with medical waste management and determine existing problems. This information will be also used for future improvements.

CONFIDENTIALITY:

The information that you provided will be kept confidential. Although the researcher is interested in your profession, your anonymity is protected because you are not required to provide your name and or job position. The researcher will not use them in the study. Your responses will be accessible only for the faculty in the Master of Public Health program at the American University of Armenia.

VOLUNTARINESS:

You are free in your decision about participation in this study. You have the right to stop the interview at any moment or to skip any question you consider inappropriate. Your refusal to participate in the study or your decision to withdraw from at any time will not influence your job.

WHOM TO CONTACT:

You can ask the person in charge any questions you may have about this research, now or

in the future. The researchers will answer your questions. The results of the study are public information. The final report from the study will be available in the Pubic Health reference library on the 4th floor of the AUA.

If you want to talk to anyone other then the researcher about this study, you are welcomed to call the person in charge of the study, Mr. Michael Thompson, Associate Director, MPH Program. **[Michael Thompson]** at **[phone number: (374 1) 51 25 92 /e-mail: mthompso@aua.am]**.

In addition, if you believe you have not been treated fairly or think you have been hurt by joining the study, you should contact the AUA at (374 1) 51 25 12.

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Ð ³û ³ë ï ³ÝÇ ²Ù»ñÇÏû ³Ý Ð ³Ù ³Éë ³ñ ³ÝÇ Ð ³ë ³ñ ³Ï ³Ï ³Ý ²éáÕç ³ å ³ÑáõÃû ³Ý µ ³ÅÇÝÁ Ý»ñÏ ³ûáõÙë ³Ýó ¿ Ï ³óÝáõÙ ºñ¨ ³ÝÇ ÑÇí ³Ý¹ ³ÝáóÝ»ñáõÙ µÅßÏ ³Ï ³Ý Ã ³ ÷áÝÝ»ñÇ Ñ» ï Ï ³ å í ³ Í Çñ ³ íÇ× ³ ÏÇ áñ ³ Ï ³ Ï ³Ý Ñ» ï ³½á ï áõÃûáõÝ: Ð» ï ³½á ï áõÃû ³Ý Ýå ³ ï ³ ÏÝ ¿ µ ³ó ³Ñ ³û ï »É ÑÇí ³Ý¹ ³ÝáóÝ»ñÇ ³éûñû ³ ³ßË ³ ï ³ÝùÇ ÁÝÃ ³óùáõÙ ³é ³ç ³ó ³ Í ï ³ñµ»ñ ï »ë ³ÏÇ Ã ³ ÷áÝÝ»ñÇ Ñ» ï í ³ñÙ ³Ý åñ ³Ï ï ÇÏ ³Ý ¨ ·áñÍáÕ Ï ³ñ·Á:
Ð» ï ³½á ï áõÃûáõÝÁ ÝáõûÝå»ë áõÕÕí ³ Í ¿ µ ³ó ³Ñ ³û ï »Éáõ Ã» ÇÝãåÇëÇ
ù ³Õ ³ù ³Ï ³ÝáõÃûáõÝ ¨ Ï ³ÝáÝÝ»ñ »Ý ÁÝ¹ áõÝí ³ Í ÑÇí ³Ý¹ ³ÝáóÝ»ñáõÙ, áñáÝó
Ñ ³Ù ³Ó ³ûÝ Ï ³½Ù ³ Ï»ñå íáõÙ ¨ Ï ³ ï ³ñíáõÙ ¿ µÅßÏ ³Ï ³Ý Ã ³ ÷áÝÝ»ñÇ Õ»Ï ³ í ³ ñáõÙÁ:
Ð ³ñó ³½ñáõÛóÇÝ Ù ³ëÝ ³ Ïó»Éáõ »Ý ÁÝ ï ñí ³ Í ÑÇí ³Ý¹ ³ÝáóÝ»ñÇ ³ßË ³ ï áÕÝ»ñÁ:
Ð ³ñó ³½ñáõÛóÁ ï »ÕÇ ÏáõÝ»Ý ³ ÙÇ ³ûÝ Ù»Ï ³Ý · ³Ù ¨ Ï ï ¨Ç Ù»Ï Å ³Ù:
²ÝÑñ ³Å»ß ï áõÃû ³Ý ¹ » å ùáõÙ Ñ» ï ³½á ï áÕÁ Ï ³ñáÕ ¿ ÁÝ¹Ñ ³ ï »É Ñ ³ñó ³½ñáõÛóÁ:
Ò»ñ Ù ³ëÝ ³ ÏóáõÃûáõÝÁ Ï ³Ù ³ íáñ ¿: ¸áõù Çñ ³ íáõÝù áõÝ»ù ã å ³ ï ³ëË ³Ý»É ó ³ÝÏ ³ó ³ Í Ñ ³ñóÇÝ ¨ / Ï ³Ù ó ³ÝÏ ³ó ³ Í å ³ÑÇÝ Ññ ³Å ³ñí»É Ñ ³ñóÙ ³ÝÁ Ù ³ëÝ ³ Ïó»Éáõó:
Ò»ñ Ù ³ëÝ ³ ÏóáõÃûáõÝÁ Ñ» ï ³½á ï áõÃû ³Ý Ù»ç ¨ å ³ ï ³ëË ³ÝÝ»ñÁ ß ³ ï ³ñÅ»ù ³ íáñ »Ý Ù»½ Ñ ³Ù ³ñ:

èÇë Ï/ú ·áõ ï

Ð ³ñó ³½ñáõÛóÇÝ Ù ³ëÝ ³ Ïó»ÉÁ ãÇ »ÝÃ ³ ¹ñáõÙ ³ í»ÉÇ Ù»Í éÇë Ï Ï ³Ù ³ÝÑ ³ñÙ ³ñáõÃûáõÝ, ù ³Ý Ñ ³Ý¹ Çå áõÙ ¿ Ó»ñ ³éûñû ³ Ïû ³Ýùáõù:
Ø ³ëÝ ³ Ïó»Éáí Ñ ³ñó ³½ñáõÛóÇÝ ¹ áõù ã»ù ë ï ³Ý ³Éáõ ³ÝÙÇç ³ Ï ³Ý û ·áõ ï : ê ³ Ï ³ûÝ Ò»ñ Ù ³ëÝ ³ ÏóáõÃûáõÝÁ Ïû ·ÝÇ µ ³ó ³Ñ ³û ï »É Çñ ³ íÇ× ³ ÏÁ µÅßÏ ³Ï ³Ý Ã ³ ÷áÝÝ»ñÇ Õ»Ï ³ í ³ ñÙ ³Ý Ñ ³ ñóáõÙ ¨ µ ³ó ³Ñ ³û ï »É ·áÛáÃûáõÝ áõÝ»óáÕ å ñáµÉ»ÙÝ»ñÁ: Ò»ñ ÏáÕÙÇó ï ñí ³ Í ï »Õ»ÏáõÃûáõÝÝ»ñÁ Ï ³ ñáÕ »Ý ¹ Ç ï ³ ñÏ í»É Ñ ³ ñóÇ Ñ» ï ³ · ³ µ ³ ñ»É ³ íÙ ³Ý Ñ ³Ù ³ ñ:

¶ ³Õ ï ÝÇáõÃûáõÝÁ

ê ï ³ó í ³ Í ï »Õ»ÏáõÃûáõÝÝ»ñÇ í»ñ ³ µ»ñû ³É · ³Õ ï ÝÇáõÃûáõÝÁ ³ å ³ Ñá í í»Éáõ ¿: âÝ ³û ³ Í Ñ» ï ³½á ï áõÃû ³Ý Ñ ³Ù ³ ñ Ï ³ ñ¨áñ ¿ ÇÙ ³Ý ³É Ò»ñ Ù ³ëÝ ³ · » ï áõÃûáõÝÁ, ë ³ Ï ³ûÝ áã Ò»ñ ³ÝáõÝÁ ¨ áã Ò»ñ å ³ß ï áÝÁ ã»Ý å ³Ñ ³Ýç íáõÙ: Ò»ñ å ³ ï ³ëË ³ÝÝ»ñÁ Ù ³ ï ã»ÉÇ ÏÉÇÝ»Ý ÙÇ ³ûÝ Ð ³û ³ë ï ³ÝÇ ²Ù»ñÇÏû ³Ý Ð ³Ù ³Éë ³ñ ³ÝÇ Ð ³ë ³ñ ³Ï ³Ï ³Ý ²éáÕçå ³ÑáõÃû ³Ý µ ³ÅÝÇÝ:

Ò»ñ Ù ³ëÝ ³ ÏóáõÃûáõÝÁ ëáõûÝ Ñ ³ñó ³½ñáõÛóÇÝ Ï ³Ù ³ íáñ ¿: ¸áõù Çñ ³ íáõÝù áõÝ»ù ãå ³ ï ³ëË ³Ý»É ó ³ÝÏ ³ó ³ Í Ñ ³ñóÇÝ ¨/Ï ³Ù ¹ ³ ¹ ³ ñ»óÝ»É Ñ ³ñó»ñÇÝ å ³ ï ³ëË ³Ý»ÉÁ ó ³ÝÏ ³ó ³ Í å ³ÑÇÝ: Ò»ñ ³ûë Ñ ³ñó ³½ñáõÛóÇÝ Ù ³ëÝ ³ Ïó»Éáõ Ù»ñÅáõÙÁ í ï ³Ý · ãÇ Ý»ñÏ ³û ³óÝáõÙ áã ³ÝÙÇç ³ Ï ³Ýáñ»Ý Ò»ñ ¨ áã Ò»ñ Ý»ñÏ ³ûÇë ³ßË ³ ï ³ÝùÇ Ñ ³Ù ³ñ:

ºÃ» Ò»½ Ùá ï Ý»ñÏ ³ûáõÙë Ï ³Ù Ñ» ï ³ · ³ûáõÙ Ï Í ³ · »Ý Ñ ³ñó»ñ Ñ» ï ³½á ï áõÃû ³Ý í»ñ ³ µ»ñû ³É Ñ» ï ³½á ï áÕÁ å ³ ï ñ ³ë ï ¿ å ³ ï ³ëË ³Ý»É Ýñ ³Ýó: Ð» ï ³½á ï áõÃû ³Ý ³ñ¹ûáõÝùÝ»ñÁ Ñ ³ë ³ñ ³ Ï ³ Ï ³Ý ï »Õ»ÏáõÃûáõÝÝ»ñ »Ý: Ð» ï ³½á ï áõÃû ³Ý í»ñçÝ ³ Ï ³Ý

½»ÏáõÛóÁÙ³ï ã»ÉÇ ÏÉÇÝÇ Ð³ë³ñ³Ï³Ï³Ý²éáÕç³å³ÑáõÃÛ³Ý·ñ³¹³ñ³ÝáõÙ,
²Ù»ñÇÏÛ³Ý Ð³Ù³Éë³ñ³ÝÇ ãáññáñ¹Ñ³ñÏáõÙ:

ºÃ» ¸áõù ó³ÝÏáõÃÛáõÝ ÏáõÝ»Ý³ù ½ñáõó»É Ñ» ï ³½á ï áõÃÛ³Ý í»ñ³µ»ñÛ³É ³ÛÉ ³ÝÓÇ
Ñ» ï , ¸áõù Ï³ñáÕ »ù ¹ÇÙ»É Ñ» ï ³½á ï áõÃÛ³Ý Õ»Ï³í³ñÇÝª
Ø³ÛùÉ ÂáÙ÷ëáÝ, Ð³ë³ñ³Ï³Ï³Ý²éáÕç³å³ÑáõÃÛ³Ý µ³ÅÝÇ ÷áË ï Ýûñ»ÝÇÝ:
Ñ»é³ Ëáëª 51 25 92, ¿É. ÷áë ï mthompso@aua.am
ºÃ» ¸áõù Ï³ñÍáõÙ »ù, áñ Ò»½ Ñ» ï í³ñí»É »Ý ³Ý³ñ¹³ñ³óÇ Ï³ñáÕ ½³Ý·³Ñ³ñ»É
Ñ» ï »¨Û³É Ñ»é³ Ëáë³Ñ³Ù³ñáí 51 25 12:

Appendix IV
Guide for Key-Informant Interview
With Health Care Providers

Note to interviewer: *This guide is designed for 40 - 45 minutes interview with health care providers (physicians and nurses) of Yerevan hospitals. Do not read items written in italic out loud.*

I. Introduction

- *Thank the informant for agreeing to participate in the interview.*
- *Introduce yourselves.*
- *Explain the purpose of the research. (To obtain information about waste management practices in Yerevan hospitals).*
- *Describe the process of the interview. Say that the interview will last 40 - 45 min.*
- *Explain that the project will do everything to insure the confidentiality of the interview.*

II. Warming up questions

1. How long you have been working as a physician/nurse and in this clinic?

2. What is the number of beds in your hospital?

3. How many patients do you usually have per week in your department/clinic?

4. How many and what kind of departments are there in your hospital?

III. Personnel involved in the management of hospital waste

5. Please tell who are the designated person(s) responsible for organization and management of waste collection, handling, storage, and disposal at the hospital administration and departmental level?

6. Who removes the waste, generated in the department? (designation of the hospital staff member).

7. What kind of protective measures (clothing, gloves, etc.) do nurses or other staff members take who deal with various types of waste use?

8. What do you know about the types of medical waste?
   Probe: which waste do you consider as infectious, pathological, sharps, pharmaceutical, chemical and waste having high content of heavy metals?

Probe: What types of waste are generated in your unit?

9. Please describe whether the staff members are trained to separate infectious waste by type and route of disposal (type of training, who receives, who provides, how often).

IV. Hospital waste management policy

10. What do you know about the protocols/documents, outlining the hospital waste management policy?

11. Who makes the waste disposal decisions (individual or committee)?

12. What are the basis of waste disposal decisions? (cost, convenience, other)

13. What kinds of manuals or instructions are available on the management of different types of hospital wastes? (hazardous, infectious, radioactive etc.)?
Probe: Does your hospital have a plan for the inventory, handling, storage and use of hazardous materials, including infectious, and the control and disposal of hazardous materials and waste?

V. Collection and segregation of waste

14. Please describe what kinds of containers are used in the hospital for infectious, pathologic and other types of waste? How often these containers are emptied?
Probe: are the containers distinguished by size, color, and shape?

15. How is your facility's waste stream separated? By type (e.g. cardboard, wrapping materials, office paper, food waste, infectious and hazardous waste, etc.)?
Probe: Where does the segregation take place (i.e. in operating room, laboratory, etc.)?

16. What have you heard about the red bags? Are they used in your facility?

17. What kind of mercury-containing products are used in your facility? Describe how fluorescent lamps are currently disposed. How many thermometers are usually being broken in the department during the week/month? How do you collect the spilled mercury?

18. What kind of protective measures do you undertake to prevent puncture by sharps?

19. What kind of measures do you undertake in case of some incidents, like infectious waste spill, exposure to some hazardous wastes, needle stick injuries, etc.?

VI. Storage, treatment and processing of waste

20. What kind of on-site waste treatment technology is available in your hospital? (Autoclave, microwave, chemicals, crematorium).

21. What are the procedures of waste disinfections in your unit?
Probe: please describe how sharps, infectious and pathologic materials, and other wastes are disinfected?
Probe: are the syringes and needles shredded before being discarded?

22. Where is the waste destined for treatment/disposal being stored? Inside or outside the hospital? Is this area secure and of adequate size? Who has access to it? For how long is the infectious and pathologic waste stored? Is it refrigerated?

23. Specify type of equipment/process used (e.g., autoclave, incinerator) for treatment of infectious and pathologic waste.

24. What is the proportion of disposable versus reusable materials in your facility/department? Is some of this waste sent for recycling?

VII. Transportation and disposal of waste

25. Are segregation distinctions that are made in the hospital maintained throughout the transportation, treatment and disposal process, or is waste mixed up as it works through the system?

26. What happens with waste after sterilization or disinfection? What happens to the waste once it is collected by the hospital?
Probe: are any of infectious wastes discarded without treatment?

27. What is done with liquid waste?

28. Describe please the size and condition of containers or waste receptacles, where the waste either treated or untreated is collected to be then removed?

29. Is waste removal from the hospital territory organized by Municipal Sanitary Facility, or does the hospital have its own service?

30. How often is waste removed from the containers? Is the track, which picks up the waste open or closed?

31. What is the final destination and type of the hospital waste disposal? (Incineration, municipal landfill/sanitary landfill, other. Specify).

32. Do the waste removal services know what is in the trash that they pick up?

VIII. Problems and Possible Changes

33. How would you characterize the changes that occurred in the hospital policy and practice of medical waste management after the collapse of the USSR?

34. Please describe any problems, which your hospital has experienced with infectious/ bio-hazardous waste? (e.g., problems with, needlesticks, spills, ergonomics, volume, with solid waste current hauler).

35. What are in your mind the main weaknesses/problems with medical waste management in general?

36. What would you suggest to improve the current situation?

37. What kind of obstacles do you anticipate in this process?

38. Is there something else regarding the subject, which was left out, but in your mind should be discussed?

Conclusion

- *Thank the informant for participation in the interview.*
- *Ask if she has any questions.*

àõÕ»óáõÛóª µáõÅ³ßË³ ï áÕÝ»ñÇ Ñ» ï Ñ³ñó³½ñáõÛóÇ Ñ³Ù³ñ

ÜßáõÙª Ñ³ñó³½ñáõÛó ³Ýó Ï³óÝáÕÇÝ: *²Ûë áõÕ»óáõÛóÁ Ý³Ë³·Íí³Í¿ 40 - 45 ñáå» ï¨áÕáõÃÛ³Ùµ ºñ¨³ÝÇ ÑÇí³Ý¹³ÝáóÝ»ñÇ µáõÅ³ßË³ ï áÕÝ»ñÇ Ñ» ï Ñ³ñó³½ñáõÛóÇ Ñ³Ù³ñ: Ü»ñ³ÍáõÃÛ³Ý¨í»ñç³µ³ÝÇ óáõóáõÙÝ»ñÁ µ³ñÓñ³Ó³ÛÝ ã»Ý Ï³ñ¹³óíáõÙ:*

I. Ü»ñ³ÍáõÃÛáõÝ

- *ÞÝáñÑ³Ï³ÉáõÃÛáõÝ Ñ³Ûï Ý»ù ï»Õ»Ï³ÏóÇÝ Ñ³ñó³½ñáõÛóÇÝ Ù³ëÝ³Ïó»Éáõ Ñ³Ù³Ó³ÛÝáõÃÛ³Ý Ñ³Ù³ñ*
- *Ü»ñÏ³Û³ó»ù*
- *´³ó³ïñ»ù Ñ» ï³½áï áõÃÛ³Ý Ýå³ï³ÏÁ / ï»Õ»ÏáõÃÛáõÝÝ»ñ Ñ³í³ù»É ºñ¨³ÝÇ ÑÇí³Ý¹³ÝáóÝ»ñáõÙ Ã³÷áÝÝ»ñÇ Õ»Ï³í³ñÙ³Ý åñ³Ï ï ÇÏ³ÛÇ í»ñ³µ»ñÛ³É/*
- *ÜÏ³ñ³·ñ»ù Ñ³ñó³½ñáõÛóÇ ÁÝÃ³óùÁ: Üß»ù, áñ Ñ³ñó³½ñáõÛóÁ Ï ï ¨Ç 40 - 45 ñáå»*
- *´³ó³ïñ»ù, áñ ³Ù»Ý ÇÝã Ï³ñíÇ Ñ³ñó³½ñáõÛóÇ ·³Õ ï ÝÇáõÃÛáõÝÁ ³å³ÑáíÉáõ Ñ³Ù³ñ*

II. êÏ½µÝ³Ï³Ý Ñ³ñó»ñ

1. ÆÝãù±³Ý Å³Ù³Ý³Ï »ù ¸áõù ³ßË³ ï áõÙ áñå»ë µÅÇßÏ/µáõÅùáõÛñ ³Ûë ÑÇí³Ý¹³ÝáóáõÙ:
2. ø³Ý±Ç Ù³Ñ×³Ï³ÉáõÝÇ ÑÇí³Ý¹³ÝáóÁ:
3. ÆÝãù±³Ý ÑÇí³Ý¹¿ ÁÝ¹áõÝíáõÙ ëáíáñ³µ³ñ Ò»ñ µ³Å³ÝÙáõÝùÁ/ÑÇí³Ý¹³ÝáóÁ ß³µ³Ãí³ ÁÝÃ³óùáõÙ:
4. ÆÝãù±³Ý¨ ÇÝã ï ÇåÇ µ³Å³ÝÙáõÝùÝ»ñ Ï³Ý Ò»ñ ÑÇí³Ý¹³ÝáóáõÙ:

III. ÐÇí³Ý¹³ÝáóáõÙ Ã³÷áÝÝ»ñÇ Õ»Ï³í³ñÙ³Ý Ù»ç ÁÝ¹·ñÏí³Í³ÝÓÝ³Ï³½ÙÁ

5. ÊÝ¹ñáõÙ »Ù³ë»ù áíù»±ñ »Ý Ò»ñ ÑÇí³Ý¹³ÝáóáõÙ å³ï³ëË³Ý³ï áõ³ÝÓÇù, áñáÝù ½µ³ÕíáõÙ »Ý µÅßÏ³Ï³Ý Ã³÷áÝÝ»ñÇ Ñ» ï Ï³åí³Í³ßË³ï³ÝùÝ»ñÇ Ï³½Ù³Ï»ñåÙ³Ùµ, µ³Å³ÝÙáõÝùÇ¨ ÑÇí³Ý¹³ÝáóÇ Ù³Ï³ñ¹³Ïáí:
6. à±íù»ñ »Ý Ñ»é³óÝáõÙ µ³Å³ÝÙáõÝùÇó ûñí³ ÁÝÃ³óùáõÙ ³é³ç³óí³Í/Ïáõï³Ïí³Í Ã³÷áÝÝ»ñÁ:
7. ÆÝãåÇë±Ç å³ßï å³ÝÇã ÙÇçáóÝ»ñ /Ñ³·áõë ï, Ó»éÝáóÝ»ñ, ¨³ÛÉÝ/ »Ý û·ï³·áñÍáõÙ µáõÅ. ùáõÛñ»ñÁ, Ï³Ù³ÛÉÏ³ï³ÍáÕ³ÝÓÇù, áíù»ñ·áñÍ áõÝ»Ý ï³ñµ»ñ ï»ë³ÏÇ Ã³÷áÝÝ»ñÇ Ñ» ï:
8. Æ±Ýã·Ç ï»ù µÅßÏ³Ï³Ý Ã³÷áÝÝ»ñÇ ï»ë³ÏÝ»ñÇ Ù³ëÇÝ:
   úñÇÝ³Ïª à±ñ Ã³÷áÝÝ»ñÝ »Ý Ñ³Ù³ñíáõÙ ÇÝý»ÏóÍ³Í, å³ÃáÉá·ÇÏ, ¹»Õ³·áñÍ³Ï³Ý, Í³ÏáÕ, ùÇÙÇ³Ï³Ý, ¨Í³Ýñ Ù» ï³ÕÝ»ñ å³ñáõÝ³ÏáÕ:
   úñÇÝ³Ïª Æ±Ýã ï»ë³ÏÇ Ã³÷áÝÝ»ñ »Ý ³é³ç³ÝáõÙ Ó»ñ µ³Å³ÝÙáõÝùáõÙ:
9. ÊÝ¹ñáõÙ »Ù ÝÏ³ñ³·ñ»ù, »ñµ¨Çó¿ Ï³ï³ñáÕ³ÝÓÇù ³Ýó»±É »Ý áñ¨» áõëáõóáõÙ Ã» ÇÝãå»ë »Ý ï³ñµ»ñ³ÏáõÙ ÇÝý»Ïóí³Í Ã³÷áÝÝ»ñÁ Áë ï ï»ë³ÏÇ¨

³ñï ³Ý»ï »Éáõ áõÕÇÝ»ñÇ /áõëáõóÙ³Ý ï»ë³ÏÁ, áí¿ áõëáõóí»É, áí¿ ³Ýó Ï³óñ»É, ÇÝã Ñ³×³Ë³Ï³ÝáõÃÛ³Ùµ/:

IV. ÐÇí³Ý³Ý¹³ÝáóÇ Ã³÷áÝÝ»ñÇ Õ»Ï³í³ñÙ³Ý ù³Õ³ù³Ï³ÝáõÃÛáõÝÁ

10. Æ±Ýã·Çï»ù¸áõù åñáïáÏáÉÝ»ñÇ/÷³ëï³ÃÕÃ»ñÇ Ù³ëÇÝ, áñáÝù³ñï³óáÉáõÙ »Ý ÑÇí³Ý¹³ÝáóÇ ù³Õ³ù³Ï³ÝáõÃÛáõÝÁ µÅßÏ³Ï³Ý Ã³÷áÝÝ»ñÇ Õ»Ï³í³ñÙ³Ý í»ñ³µ»ñÛ³É:
11. à±í¿ ÁÝ¹áõÝáõÙ Ã³÷áÝÝ»ñÇ Ñ»é³óÙ³Ý í»ñ³µ»ñÛ³É áñáßáõÙÝ»ñ/³ÝÑ³±ï Ã» ÏáÙÇï»/:
12. Æ±ÝãÝ¿ ÁÝÏ³Í Ã³÷áÝÝ»ñÇ Ñ»é³óÙ³Ý áñáßáõÙÝ»ñÇ ÑÇÙùáõÙ/³éÅ»ùÁ, Ñ³ñÙ³ñáõÃÛáõÝÝ»ñÁ¨³ÛÉÝ/:
13. ÆÝãåÇë±Ç Ó»éÝ³ñÏÝ»ñ Ï³Ù áõÕ»óáõÛó»ñ/Ññ³Ñ³Ý³·Ý»ñ Ï³Ý ÑÇí³Ý¹³Ýáó³ÛÇÝ Ã³÷áÝÝ»ñÇ ï³ñµ»ñ ï»ë³ÏÝ»ñÇ Ñ» ï í³ñÙ³Ý í»ñ³µ»ñÛ³É /íï³Ý·³íáñ, ÇÝý»Ïóí³Í, é³¹Çá³Ï ïÇí¨³ÛÉÝ/:
úñÇÝ³Ïª àõÝ±Ç³ñ¹Ûáù Ò»ñ ÑÇí³Ý¹³ÝáóÁ íï³Ý·³íáñ¨ ÇÝý»Ïóí³Í ÝÛáõÃ»ñÇ Ñ» ï Ï³åí³Í³ßË³ï³ÝùÝ»ñÇ í»ñ³µ»ñÛ³É åÉ³Ý, Ñ³ßí³éÙ³Ý, å³Ñå³ÝÙ³Ý, ÏáÝ ï ñáÉÇ áõ Ñ»é³óÙ³Ý Ñ³Ù³ñ:

V. ²ÕµÇ Ñ³í³ùáõÙÁ¨ ï³ñµ»ñ³ÏáõÙÁ

14. ÊÝ¹ñáõÙ »Ù ÝÏ³ñ³·ñ»ù, Ç±Ýã ïÇåÇ ÏáÝ ï »ÛÝ»ñÝ»ñ »Ý û·ï³·áñÍíáõÙ ÑÇí³Ý¹³ÝáóáõÙ ÇÝý»Ïóí³Í, å³ÃáÉá·ÇÏ¨³ÛÉ ïÇåÇ Ã³÷áÝÝ»ñÇ Ñ³Ù³ñ: Æ±Ýã Ñ³×³Ë³Ï³ÝáõÃÛ³Ùµ »Ý¹³ï³ñÏíáõÙ ÏáÝ ï »ÛÝ»ñÝ»ñÁ: **úñÇÝ³Ï**ª î³ñµ»ñíáõ±Ù »Ý ÏáÝ ï »ÛÝ»ñÝ»ñÁ ã³÷á, ·áõÛÝáí¨ Ó¨áí:
15. ÆÝãå»±ë »Ý Ò»ñ ÑÇí³Ý¹³ÝáóáõÙ Ã³÷áÝÝ»ñÁ ï³ñµ»ñ³Ïíáõ Ù/÷³Ã»Ã³ÝÛáõÃ»ñ, ·ñ³ë»ÝÛ³Ï³ÛÇÝ ÃÕÃ»ñ, ÙÃ»ñ³ÛÇÝ Ã³÷áÝÝ»ñ, ÇÝý»Ïóí³Í, íï³Ý·³íáñ, ëï íñ³ñ³ÃÕÃ»¨³ÛÉÝ/:
úñÇÝ³Ïª àñï»±Õ »Ý ï³ñµ»ñ³Ïíáõ Ù Ã³÷áÝÝ»ñÁ /íÇñ³Ñ³ï³ñ³Ý, É³µáñ³ïáñÇ³,¨³ÛÉÝ/:
16. Æ±Ýã »ùÉë»É Ï³ñÙÇñ å³ÛáõëÏ³ÏÝ»ñÇ Ù³ëÇÝ: ú·ï³·áñÍíáõ±Ù »Ý ¹ñ³Ýù ³ñ¹Ûáù Ò»ñ ÑÇí³Ý¹³ÝáóáõÙ:
17. Æ±Ýã ïÇåÇ ëÝ¹ÇÏ å³ñáõÝ³ÏáÕ³å ñ³ÝùÝ»ñ »Ý û·ï³·áñÍíáõÙ Ò»ñ ÑÇí³Ý¹³ÝáóáõÙ: ÆÝãå»±ë »Ý áãÝã³óíáõÙ ýÉáõáñ»ëó»Ý ï É³Ùå»ñÁ: êáíáñ³µ³ñù³Ý±Ç ç»ÑÙ³ã³÷¿ Ïá ï ñíáõÙ ß³µ³Ãí³, Ï³Ù³Ùëí³ ÁÝÃ³óùáõÙ: ÆÝãå»±ë¿ Ñ³í³ùíáõÙ Ã³÷í³Í ëÝ¹ÇÏÁ:
18. ÆÝãåÇë±Ç å³ßï å³ÝÇã ÙÇçáóÝ»ñ »ù û·ï³·áñÍáõÙ Í³ÏáÕ³é³ñÏ³Ý»ñÇó å³ßï å³Ýí»Éáõ Ñ³Ù³ñ:
19. ÆÝãåÇë±Ç ÙÇçáóÝ»ñ »Ý Ó»éÝ³ñÏíáõÙ ³ÛÝ¹»å»ñáõÙ, »ñµ ÇÝý»Ïóí³Í Ã³÷áÝÁ Ã³÷íáõÙ¿, Ï³Ù³ßË³ï³ÏÇóÁ »ÝÃ³ñÏíáõÙ¿ íï³Ý·³íáñ ÝÛáõÃÇ /ùÇÙÇ³Ï³Ý ÝÛáõÃ»ñÇ, é³¹Çá³Ïï Çí¨³ÛÉÝ/ ³½¹»óáõÃÛ³ÝÁ, Ï³Ù û·ï³·áñÍí³Í Ý»ñ³ñÏÇãáí íÝ³ëíáõÙ¿¨³ÛÉÝ:

VI. Â ³ ÷áÝÝ»ñÇ å ³Ñå ³ÝáõÙÁ ¨ ÙÛ³ ÏáõÙÁ

20. ÆÝãåÇë±Ç ï»ËÝÇÏ ³Ï ³Ý ÙÇçáóÝ»ñ »Ý û·ï ³ ·áñÍ íáõÙ Ã³ ÷áÝÝ»ñÇ ÙÛ³ ÏÙ³Ý Ñ³Ù³ñ ÑÇí ³Ý¹³ Ýáóáõ Ù/³ í ï áÏÉ³ í, microwave, ùÇÙÇÏ³ ï Ý»ñ, ³Õµ³ûñÇãÝ»ñ, ¨ ³ÛÉÝ/:
21. ÆÝãå»±ë »Ý ³Ë ï ³Ñ³Ý íáõÙ Ã³ ÷áÝÝ»ñÁ Ò»ñ µ³Å³ÝÙáõÝùáõÙ:
úñÇÝ³Ïª ÆÝãå»±ë »Ý ³Ë ï ³Ñ³Ý íáõÙ ÇÝý»Ïóí³Í, å³ÃáÉá·ÇÏ ¨ ³ÛÉ ÝÛáõÃ»ñÁ
úñÇÝ³Ïª Ïá ï ñíáõ±Ù »Ý ÙÇ³Ýí³ · û·ï ³ ·áñÍÙ³Ý Ý»ñ³ñÏÇãÝ»ñÇ ³ë»ÕÝ»ñÁ Ã³ ÷ í»Éáõó ³é³ç:
22. àñï »±Õ¿ å³Ñ»ë ï ³ íáñíáõÙ ³ÕµÁ Ùß³ ÏáõÙÇó/³ñ ï ³Ý» ï »Éáõó ³é³ç /ÑÇí ³Ý¹³ ÝáóÇ Ý»ñëáõ±Ù, Ã» ¹ñëáõÙ/: ä³Ñå ³Ýíáõ±Ù¿ ³ñ¹ÛáùïÛ³ñ³óùÇ ³Ýí ï ³Ý· ·á ï ÇÝ ¨ ³ßË³ ï ³ ÏóÇ ³Ýí ï ³Ý·áõÃÛáõÝÁ: à±í áõÝÇ Ùáõ ï ùÇ ÃáõÛÉ ï íáõÃÛáõÝ: àñù³±Ý Å³Ù³Ý³Ï¿ å³Ñå ³ÝíáõÙ ÇÝý»Ïóí³Í ¨ å³ÃáÉá·ÇÏ ³ÕµÁ: ¸ñíáõ±Ù »Ý ³ñ¹Ûáù áñ¨¿ ï »ë³ÏÇ Ã³ ÷áÝÝ»ñ ë³éÝ³ñ³Ý:
23. ÆÝãåÇë±Ç ë³ñù³ íáñáõÙÝ»ñ »Ý û·ï ³ ·áñÍ íáõÙ ÇÝý»Ïóí³Í Ï³Ù å³ÃáÉá·ÇÏ Ã³ ÷áÝÝ»ñÇ Ùß³ ÏÙ³Ý Ñ³Ù³ñ/³ í ï áÏÉ³ í ¨ ³Õµ³³ûñÇã/:
24. ÆÝãåÇëÇ±Ý¿ Ò»ñ ÑÇí ³Ý¹³ ÝáóáõÙ Ñ³ñ³µ»ñ³ ÏóáõÃÛáõÝÁ ÙÇ³Ýí³ · ¨ µ³½Ù³Ýí³ · û·ï ³ ·áñÍÙ³Ý ³ åñ³ÝùÝ»ñÇ ÙÇç¨:
úñÇÝ³Ïª áõÕ³ñ ï áõ±Ù »ù ³ñ¹Ûáù áñ¨¿ Ã³ ÷áÝÝ»ñ í»ñ³Ùß³ ÏÙ³Ý:

VII. Â ³ ÷áÝÝ»ñÇ ÷áË³¹ñáõÙÁ ¨ áãÝã³óáõÙÁ

25. ä³Ñå ³Ýíáõ±Ù¿ ³ñ¹Ûáù ÑÇí ³Ý¹³ ÝáóáõÙ ï ³ñµ»ñ³ Ï í³Í ³ÕµÇ ï ³ñµ»ñ³ Ï í³Í ï »Õ³ ÷áËáõÙÁ, Ùß³ ÏáõÙÁ, ³ñ ï ³Ý» ï áõÙÁ, Ã»± ³ÙµáÕç ³ÕµÁ Ë³éÝíáõÙ¿:
26. Æ±Ýã¿ ï »ÕÇ áõÝ»ÝáõÙ ³ÕµÇ Ñ» ï Ù³Ýñ»³½»ñíáõÙÇó ¨ ³Ë ï ³Ñ³ÝáõÙÇó Ñ» ï á: Æ±Ýãå»ë¿ Ñ»é³óíáõÙ ³ÕµÁ ÑÇí ³Ý¹³ ÝáóÇ ï ³ñ³ÍùÇó:
úñÇÝ³Ïª ÈÇÝáõ±Ù »Ý ³ñ¹Ûáù ¹»åù»ñ»ñµ ÇÝý»Ïóí³Í Ã³ ÷áÝÝ»ñÁ Ã³ ÷íáõÙ »Ý ³é³Ýó Ý³ËÝ³Ï³Ý Ùß³ ÏÙ³Ý:
27. ÆÝãå»±ë »Ý Ñ»é³óíáõÙ/áãÝã³óíáõÙ Ñ»ÕáõÏ Ã³ ÷áÝÝ»ñÁ:
28. ÜÏ³ñ³ ·ñ»ù, ËÝ¹ñ»Ù, ã³ ÷Á ¨ íÇ× ³ÏÁ ³ÛÝ ÏáÝ ï »ÛÝ»ñÝ»ñÇ, áñáÝó Ù»ç Ñ³í³ùíáõÙ »Ý Ùß³ Ï í³Í ¨ ãÙß³ Ï í³Í Ã³ ÷áÝÝ»ñÁ:
29. ²ÕµÇ Ñ»é³óáõÙÁ ÑÇí ³Ý¹³ ÝáóÇ ï ³ñ³óùÇó Ï³ï ³ñíáõÙ¿ ø³Õ³ù³ÛÇÝ ÎáÙáõÝ³É Ì³é³ÛáõÃÛáõÝÝ÷ñÇ ÏáÕÙÇ±ó, Ã» ÑÇí ³Ý¹³ ÝáóÁ áõÝÇ ñÇ ë»÷³Ï³Ý Í³é³ÛáõÃÛáõÝÝ»ñÁ:
30. Æ±Ýã Ñ³×³Ë³Ï³ÝáõÃÛ³Ùµ¿ Ñ»é³óíáõÙ ³ÕµÁ ÏáÙáõÝ³É Í³é³ÛáõÃÛáõÝÝ»ñÇ ÏáÕÙÇó: ÆÝãå»±ë¿ ï »Õ³ ÷áËáõÙ ³Õµ³ï ³ñ Ù»ù»Ý³Ý Ã³ ÷áÝÝ»ñÁª µ³ó Ã» ÷³Ï íÇ×³ÏáõÙ:
31. Æ í»ñçá, áñ ï »±Õ »Ý Ã³ÕíáõÙ Ï³Ù áãÝã³óíáõÙ ÑÇí ³Ý¹³ Ýáó³ÛÇÝ Ã³ ÷áÝÝ»ñÁ:
32. ¶Ç ï »±Ý ³ñ¹Ûáù ³ÕµÁ Ñ»é³óÝáÕ Í³é³ÛáõÃÛáõÝÝ»ñÁ Ã» ÇÝã ï »ë³ÏÇ Ã³ ÷áÝÝ»ñ »Ý ï »Õ³ ÷áËáõÙ: /²Õµ³³ûñÇã, ù³Õ³ù³ÛÇÝ ³Õµ³ÏáõÛ ï Ï³Ù ³Õµ³µÉáõñ, Ñ³ ïáõÏ ë³ÝÇ ï ³ñ³Ï³Ý ³Õµ³ÏáõÛ ï, áõñÇß: ´³ó³ ï ñ»ù:/

VIII. äñáµÉ»ÙÝ»ñ ¨ ÑÝ³ñ³ íáñ ÷á÷áËáõÃáõÝÝ»ñ

33. ÆÝãå»±ë ÏµÝáõÃ³·ñ»ù ÑÇí³Ý¹³Ýáóáõù µÅßÏ³Ï³Ý Ã³÷áÝÝ»ñÇ í»ñ³µ»ñÛ³É ù³Õ³ù³Ï³ÝáõÃÛ³Ý, ·áñÍ³éáõÃÛ³Ý ¨ Õ»Ï³í³ñÙ³Ý Ñ»ï Ï³å³í³Í ÷á÷áËáõÃÛáõÝÝ»ñÁ, êêÐØ-Ç ÷Éáõ½áõÙÇó Ñ»ïá:
34. ÊÝ¹ñáõÙ »Ù, ÝÏ³ñ³·ñ»ù ³ÛÝ åñáµÉ»ÙÝ»ñÁ, áñ áõÝÇ Ò»ñ ÑÇí³Ý¹³ÝáóÁ ÇÝý»Ïóí³Í, Ï³Ù µÇá-íï³Ý·³íáñ Ã³÷áÝÝ»ñÇ Ñ»ï Ï³å³í³Í /ûñÇÝ³Ï³ Ã³÷áÝÝ»ñÇ Ñ»ï ³ßË³ï áÕ ³ÝÓÝ³Ï³½ÙÇ, Ã³÷áÝÝ»ñÇ Í³í³ÉÇ, ÑÝ³ñ³íáñ íÝ³ëí³ÍùÝ»ñÇ, Ï³Ý Ã³÷áÝÝ»ñÇ Ñ»é³óÙ³Ý Ñ³ñó»ñáõÙ/:
35. à±ñáÝù »Ý Ò»ñ Ï³ñÍÇùáí ÑÇÙÝ³Ï³Ý åñáµÉ»ÙÁ ¨ Ã»ñáõÃÛáõÝÝ»ñÁ Ï³å³í³Í µÅßÏ³Ï³Ý Ã³÷áÝÝ»ñÇ Õ»Ï³í³ñÙ³Ý Ñ»ï ÁÝ¹Ñ³Ýáõñ ÑÇí³Ý¹³Ýáó³ÛÇÝ Ñ³Ù³Ï³ñ·áõÙ:
36. Æ±Ýã Ï³é³ç³ñÏ»ù ¸áõù íÇ×³ÏÁµ³ñ»É³í»Éáõ Ýå³ï³ÏáíÍ:
37. ÆÝãåÇë±Ç ³ñ·»ÉùÝ»ñ ¨ ËáãÝ¹á ï Ý»ñ »ù ¸áõù Ï³ÝË³ï »ëáõÙ ³Ûë åñáó»ëÝ»ñÇ ÁÝÃ³óùáõÙ:
38. Î±³ ³ñ¹Ûáù áñ¨¿ Ñ³ñó, áñÁ ÙÝ³ó Ù»ñ áõß³¹ñáõÃÛáõÝÇó ¹áõñë:

ì »ñç³µ³Ý

- *ÞÝáñÑ³Ï³ÉáõÃÛáõÝ Ñ³Û ï Ý»ù Ñ³ñó³½ñáõÛóÇ Ù³ëÝ³ÏóÇÝ:*
- *Ð³ñóñ»ù, ³ñ¹Ûáù áõÝ±Ç Ý³ Ñ³ñó»ñ Ã» áã:*