



American University of Armenia
Center for Health Services Research and Development



Nork Marash Medical Center

**LOST TO FOLLOW-UP PATIENTS
AT NORK MARASH MEDICAL CENTER
OUTPATIENT CLINIC**

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EXECUTIVE SUMMARY

Purpose. This project examined the factors and explored the reasons for drop out of patients from follow-up at the Yerevan Nork Marash Medical Center (NMMC).

Background information. A follow-up program is an integral aspect of high-quality care in any health care facility. One of the steps in establishing a comprehensive system for patient follow-up is the investigation of causes/determinants contributing to lost to follow-up. Prior research revealed that low perceived severity of illness, coupled with the costs and inconvenience of care, patient satisfaction, and the patient-provider communication skills influence the follow-up status of patients.

NMMC provides a wide range of cardiology and cardiovascular surgery services to both adult and pediatric populations of Armenia. Since March 2000 a collaborative project between the American University of Armenia and NMMC developed and implemented quality improvement program at NMMC. The hospital physicians identified lost to follow-up as one of the weak points in NMMC activities. The present study was carried out at NMMC Adult Cardiology and Arrhythmology Departments in order to examine the predictors for lost to follow-up and the underlying reasons.

Methods. The study was an analytical, cross-sectional group comparison (two groups) design. The first group was composed of patients remaining in the follow-up and the second group composed of lost to follow-up patients. Information on all patients admitted to the Outpatient Clinic's Adult Cardiology Department or Arrhythmology Department during data collection period was collected and entered into a developed patient information form. Patients who were present for their follow-up visit were contacted by telephone the next day and were administered the survey questionnaire (Questionnaire # 1). The criterion for considering a patient as lost to follow-up was the absence from a visit beyond one week of the recommended date for follow-up. Patients who did not come to follow-up were contacted after a week and administered another questionnaire (Questionnaire # 2).

Sample. The sample size was calculated estimating the prevalence of satisfaction as 90% in the group of patients remaining in the follow-up and to detect at least 25% lower satisfaction in the group of patients lost to follow-up. The fact that lost patients composed 20 % in the target population was also considered. Overall, 112 patients in the group of patients remaining in the follow-up and 30 patients lost to follow-up were interviewed.

Ethical considerations. The research proposal was reviewed and approved by the Institutional Review Board (IRB) within the College of Health Science at the AUA. Before the interview, oral consent was provided to patients.

Results. Two groups were similar with respect to distributions across age, gender and departments. There was a statistically significant association between the outcome (remain in follow-up or lost to follow-up) and type of secondary visit (secondary outpatient versus secondary post-surgical). There was no statistically significant difference by current health status. In the group of patients remaining in the follow-up, 94.5% were satisfied with services,

while in the group of patients lost to follow-up 89.7% were satisfied. Only type of visit was identified as a predictor of the outcome. The odds of outcome (remaining in follow-up versus lost to follow-up) was by 2.5 times higher in the group of patients with secondary post-surgical visit vs. patients with secondary outpatient visit (p value was 0.03).

The reasons for not coming to follow-up were explored among the 30 patients lost to follow-up. The results showed almost half of the lost patients (n=14) planned to come to follow-up later. Almost one-third of the lost patients pointed as a reason that they 'feel good and have no need to come to follow-up'. The time for recommended follow-up was inconvenient for 33.3% of the lost to follow-up patients.

Conclusions/Recommendations. The study showed that patient satisfaction was acceptable within the identified departments. Patients with secondary outpatient visits were more likely to drop out from follow-up than patients with secondary post-surgical visits. The examination of reasons for lost to follow-up from patients' perspective revealed the areas where some changes were needed.

Based on the obtained results NMMC is advised to:

- Develop standardized written follow-up protocols for post-surgical and ambulatory patients with different conditions.
- Develop an electronic database for patients' daily flow and follow-up in the Adult Cardiology Department.
- Establish a follow-up center in the hospital.
- Develop follow-up forms to include the information of many follow-up visits in one form.
- Conduct larger scale survey to measure the exact drop out rate and examine other predictors for lost to follow-up (patients' education, income, traveling time and/or distance, functional assessment for cardiovascular system).

INTRODUCTION

1.1 Background information

Quality is an attribute that medical care can have in varying degrees (1). By the 1980s an important term for addressing the quality of health care was *quality assurance*, which was replaced by the descriptive phrase *continuous quality improvement* in the early 1990s (2,3). *Continuous quality improvement* promotes a measurement and assessment cycle that allows for continuous and ongoing study and improvement of patient care processes (2). In this scope, performance improvement is one of the results of quality improvement (2).

Performance improvement can be reached through performance assessment/measurement. According to Joint Commission on Accreditation of Healthcare Organizations (JCAHO) the goal of performance measurement in health care is “to accurately understand the cause(s) of current performance so better results can be achieved through focused improvement actions” (2). JCAHO identifies nine dimensions of performance measurement, one of which is the *continuity*-“the degree to which the patient’s care is coordinated among disciplines, among organizations, and over time”(2). One of the aspects of continuity of care is the patients’ follow-up. A follow-up program is an integral aspect of high-quality care in any health care facility (4). This enables health care providers to have full information about both short and long-term effects/results of their prescribed treatment and to make relevant decisions.

One of the steps for establishing a comprehensive system for patient follow-up is the investigation of causes/determinants contributing to lost to follow-up. In reality, the underlying characteristics that predispose a patient to become lost to follow up are difficult to identify and control (5). The longer follow-up programs last, the greater the loss to follow-up, which may undermine attaining health care goals (6). Moreover, several studies identified causes of lost to follow-up (7-9). In a study of outpatients with essential hypertension from a medical clinic a subset of dropouts was interviewed (8). Patients who were less severely ill by several indicators were the most likely to drop out. The low perceived severity of illness, coupled with the costs and inconvenience of care and the lack of physician enthusiasm for the treatment of mild hypertension, leads to non-compliance with follow-up (8). In another study 91% of the participants mentioned “that they were asymptomatic” as the main reason why they had not returned (9).

Decisions about whether or not to comply often cannot be predicted by therapists or researchers, while they are rational from the patient’s perspective (10). Several studies measured the prevalence of compliance with recommendations, including follow-up, and identified the reasons for non-compliance for particular diseases (11-14). In two studies dealing with patients after percutaneous breast core biopsy, surgical or non-surgical follow-up was recommended to patients (15-16). The assessment of recommended follow-up revealed that the compliance was higher for patients receiving surgical recommendation than for patients receiving imaging surveillance recommendation (15-16). The role of patient satisfaction; the patient-provider communication skills; and understanding of the purpose, the time, and the place of follow-up by patients also have influenced the follow-up status of patients (17-18).

Health professionals need to understand reasons for non-compliance if they are to provide supportive care. The underlying reasons/causes for non-compliance should be studied for a particular setting (disease, population, and health care facility) to make appropriate recommendations and conclusions.

This project examined the factors and explored the reasons for drop out at the Yerevan Nork Marash Medical Center (NMMC). NMMC provides a wide range of cardiology and cardiovascular surgery services to both adult and pediatric populations (19). The hospital consists of an Outpatient Clinic with three Departments: Adult Cardiology, Pediatric Cardiology and Arrhythmology, Inpatient Clinic Surgical Department and Intensive Care Unit (ICU). The majority of patients are treated in outpatient settings alone, as their condition does not need hospitalization. In other cases, patients are seen in Inpatient Clinic or the Emergency Room prior to admission to the Outpatient Clinic, and/or follow-up (19).

Since March 2000, a collaborative project between the Center for Health Services Research and Development (CHSR) at the American University of Armenia (AUA) and the Nork Marash Medical Center (NMMC) developed and implemented a quality improvement program at NMMC (20). In the scope of this project, NMMC has undergone internal evaluation to assess the extent of its compliance with Joint Commission International Accreditation (JCIA) standards. The evaluation revealed that NMMC has the ability to generate all the clinical, financial, and utilization data needed to meet its managerial and other needs (20). In June 2001, under the framework of the AUA/NMMC project (ANP), a feasibility study for the establishment of a patient follow-up center at NMMC was conducted (4). NMMC staff previously identified the lack of standardized protocols for the follow-up of patients who undergo cardiac surgery at the hospital as a weakness (4). Although the study presented a feasibility and cost analysis of the establishment of a patient follow-up center (PFUC) at the NMMC, the center was not established because of the lack of finances. Furthermore, in July 2001 under the same framework of ANP a report on the Data Collection and Analysis in NMMC emphasized that “although the system is designed to capture the occurrence of the events of interest indefinitely after the patient’s discharge, there is a high rate of lost to follow-up, which makes it impossible to have a complete account of events that occur following discharge” (19). According to Outpatient Clinic’s physicians, the drop out rate at the Outpatient Clinic was about 15-20 % and there were some factors predisposing to the lost to follow-up such as patients’ health status and the cost of services. Also, patients themselves provided some reasons for drop out. Both the predisposing factors and the reasons for lost to follow-up need to be studied to make clear recommendations for improving the continuity of care at NMMC.

In 2003 ANP staff performed a study among patients treated in the Inpatient Clinic. One of the purposes of the study was to define the satisfaction of patients (mainly surgical) with doctors, nursing care and different services provided in Inpatient Clinic and Outpatient Clinic. The study revealed that about 96% of patients were satisfied by nursing and 92% by doctor care at Outpatient Clinic (unpublished data).

1.2 Aim/Research questions/ Objectives

Aim of the study. The present project examined the factors predisposing to drop outs from follow-up and explored the reasons for these losses at the Outpatient Clinic of NMMC.

Research questions. The research questions of the study were:

1. What are the characteristics of patients who return to follow-up compared with patients who do not return for follow-up (drop-out patients)?
2. What is the patient satisfaction in the Outpatient Clinic?
3. What are the predictors for the loss to follow up?
4. What are the major reasons for lost to follow-up from the patients' perspective?

Study objectives The main objectives of the study were:

1. Compare the characteristics of patients, who return for follow-up with those who drop out (age, gender, type of visit, etc.)
2. Provide data on patient satisfaction with the services provided at the Outpatient Clinic
3. Reveal the causes predisposing to drop out from follow-up
4. Explore the reasons of lost to follow-up among drop out patients
5. Reveal the obstacles and make recommendations to improve the follow-up service and, thus, the quality of health care and patient health outcomes at NMMC.

For the study, it was hypothesized that, in the Outpatient Clinic patient satisfaction would be 90% if measured for both surgical and non-surgical patients. It was also hypothesized, that there would be by 25% more satisfied patients in the group of patients who kept their follow-up visits, than in patients who were lost to follow-up (H_0).

2. METHODS

2.1. Study design

The study was an analytical, cross-sectional group comparison (two groups) design. The first group consisted of patients remaining in follow-up and the second group consisted of patients lost to follow-up. The study provided descriptive data regarding patients' age, gender, type of visit and current health status. These data were compared between the two groups of patients. The study analyzed the possible factors predisposing to lost to follow-up and explored the reasons.

The independent variables represented characteristics of patients who visit the Outpatient Clinic's Adult Cardiology or Arrhythmology Departments, such as their age, gender, current health status, the type of visit (post-surgical or ambulatory), and patient satisfaction. The dependent variable was the outcome of the visit in terms of the recommended visit for follow-up, whether it happened or did not happen.

2.2. Study protocol

Nurses in the Outpatient Clinic's Adult Cardiology Department maintain journals for follow-up day and time for every patient. When a patient comes to follow-up, nurses mark the visit in this journal. The journals also have information on whether the visit was supposed to be primary (the first visit of the patient) or secondary (a follow-up visit). In the Outpatient Clinic's Arrhythmology Department, the same mentioned information is kept in a separate electronic database.

Information on all patients admitted to the Outpatient Clinic's Adult Cardiology Department or Arrhythmology Department was collected and entered into a developed patient information form (Appendix 1). Patients' telephone numbers were taken from electronic databases of the Adult Cardiology and Arrhythmology Departments. Every day, the information of the previous day's visits was taken from the journals. Patients who were present on their follow-up visit, were contacted by telephone the next day and were administered the survey questionnaire (Questionnaire # 1, Appendix 2). The criterion for considering a patient as lost to follow-up was absence of a visit beyond one week of the recommended date for follow-up. Patients not coming to follow-up were contacted and administered a different questionnaire (Questionnaire # 2, Appendix 3). Patients who made unscheduled visit during these seven days were not considered as lost to follow-up and were not enrolled in the study. On the other hand, if during the phone conversation the lost patient mentioned that he/she planned to come to follow-up later, after one week of recommended date of follow-up, he/she was enrolled in the study. These patients were considered as lost to follow-up. This reason for loss to follow-up was included in the Questionnaire #2 as one of options in the question related to the reasons of not coming to follow-up visit. There were patients who made more than one visit during the data collection period. Each patient participated in the survey only once.

To survey patients remaining in the follow-up, all patients who met the eligibility criteria and need a follow-up visit in the specified department from June 13, 2003 to July 5, 2003 were contacted. Overall, 167 telephone numbers were used to survey 112 patients. Only 2 persons refused to participate. It was impossible to contact the patients using the remaining 53 telephone numbers. Data on lost patients were collected both retrospectively and prospectively. For this purpose the contacts of lost patients from June 2, 2003 to July 17, 2003 were used. Overall, 56 phone numbers were used to survey 30 patients. Only 4 patients refused to participate and it was impossible to contact patients through 22 phone numbers.

2.3. Study instruments

All study instruments were developed by ANP Project staff and revised by experts and ANP project coordinator. A patient information form was used to identify and contact study participants. This form included the name of patient, his/her telephone number, the date of recommended follow-up, age and gender, information if the patient came to follow-up visit or not and, finally the result of the interview. Two different questionnaires (Questionnaire # 1 & 2) were developed for patients remaining in the follow-up and patients lost to follow-up. The questionnaires were administered by telephone interview. The interviews lasted about 5 minutes for patients remaining in the follow-up (Questionnaire #1) and 7 minutes for patients lost to

follow-up (Questionnaire # 2). Oral consent to participate in the study was taken before the interview. Although two types of questionnaires were developed, they mostly included the same questions. There were questions related to patients' current health status, patient satisfaction, patient-provider communication skills, and perception of affordability of services. The main difference between the questionnaires was the question concerning the reasons for lost to follow-up included in the questionnaire developed for lost patients. This question had both open-ended and close-ended response options and aimed to catch all possible reasons for not coming to follow-up. Overall, there were 13 questions in Questionnaire # 1 and 14 in Questionnaire # 2.

Questionnaire # 1 was pretested in the Outpatient Clinic among 15 patients who were not enrolled in the study and came to their follow-up visit. After this procedure, necessary corrections were done.

2.4. Study population

The target population of the study consisted of patients from the Outpatient Clinic's Adult Cardiology Department and the Arrhythmology Department who needed follow-up. The study population consisted of patients who were enrolled in the study and expressed willingness to participate.

The eligibility criteria for participation in the study were as follows:

- Patients who were recommended to make a follow-up visit to the Adult Cardiology Department or the Arrhythmology Department of NMMC
- Patients aged more than 18 years
- Residents of Yerevan

The exclusion criteria were as follows:

- Patients who were already interviewed once

The sample size was calculated using the formula for two-sample comparison of proportions in the Stata statistical software (version 7.0). The prevalence of satisfaction was considered as 90% in the group of patients remaining in the follow-up and it was hypothesized to detect at least 25% lower satisfaction in the group of patients lost to follow-up considering that the lost patients composed 20 % in the target population. Considering the desirable 80 % power and alpha error of 0.05, the sample size was calculated as 112 patients in the group of patients remaining in the follow-up and 28 in the group of drop-out patients. The Stata output of the sample size calculation is presented in Appendix 4.

Finally, 112 patients remaining in the follow-up and 30 patients lost to follow-up were interviewed.

3. ETHICAL CONSIDERATIONS

The research proposal was reviewed and approved by the Institutional Review Board (IRB) within the College of Health Science at the AUA. Oral consent was provided to patients (Appendix 5). In those cases when the patient refused to participate, his/her willingness was

respected. The study possessed minimal risk for patients, as the probability and magnitude of expected harm or discomfort were equal and not greater than that of routine physical and psychological tests performed in ordinary patients' daily life. Although the collected data included the information on patients' names and telephone numbers, these data were not entered into the computerized database and were not analyzed.

4. STUDY LIMITATIONS

The study had some limitations. First of all, some of the possible predictors of the lost to follow-up were excluded from the study because these predictors were difficult to investigate. As stated before, only patients living in Yerevan were enrolled in the study. While selecting patients for the study it was revealed that in the group of patients lost to follow-up there were more patients from the regions than in the group of patients remaining in the follow-up. Data were not collected to approve that fact; this information can be checked in further studies. Patients living in the regions were excluded from the study because the phone survey was not the best one for them due to the lack of phone contacts in many regions and villages.

Another possible predictor could be traveling distance, but information on it from patient's perspective could be very subjective. The interval between the previous referral and the follow-up visit of interest also could be one of the predictors for drop out (if the interval is longer, the probability of drop out is higher). Unfortunately, this information was not in the database, and patients were not asked this question because the answers could not reflect the exact duration. On the other hand, some patients complained that sometimes the interval was too long.

All interviews were made by one investigator, which could lead to interviewer bias. Another possible limitation of the study could be recall bias.

5. DATA ANALYSIS

The investigator performed single data entry and data analyses using SPSS 11.0 statistical software. Patient information form data was entered in one database. From this database the results of the interviews (participate, refuse to participate, etc) and distribution of patients by departments were calculated. Both Questionnaires (#1 & # 2) were entered into another database. Because of time constrains, only range checking was used for data cleaning. For data analyses, the following statistical methods were used: frequencies, t-test for continuous data, chi-square test for dichotomous data, and simple and multiple logistic regression.

6. RESULTS

6.1. General characteristics

Age and gender. The two groups were similar with respect to age distribution (Table 1). The mean age of patients remaining in follow-up was 57.92 ranging from 19 to 83 years of age (SD

11.34). The mean age of the lost patients was 56.27 ranging from 28 to 77 years of age (SD 12.64). A t-test for mean age difference (assuming equal variances) revealed no statistically significant difference between the mean ages of two groups ($p=0.49$). A chi-square test of independence revealed that the groups were also similar with respect to gender distribution ($p=0.73$).

Table 1. General characteristics of study population

| General characteristics | Remain in the follow-up n=112 | Lost to follow-up n =30 | p-value |
|------------------------------------|----------------------------------|----------------------------|---------|
| Mean Age in years (SD) | 57.92 (11.34) | 56.27 (12.64) | 0.49 |
| Gender (%) | | | |
| <i>Male</i> | 60 (53.6) | 15 (50) | 0.73 |
| <i>Female</i> | 52 (46.4) | 15 (50) | |
| Departments (%) | | | |
| <i>Adult Cardiology</i> | 76 (67.9) | 25 (83.3) | 0.10 |
| <i>Arrhythmology</i> | 36 (32.1) | 5 (16.7) | |
| Type of secondary visit (%) | | | |
| <i>Outpatient visit</i> | 42 (37.5) | 18 (60) | 0.03* |
| <i>Post-surgical visit</i> | 70 (62.5) | 12 (40) | |

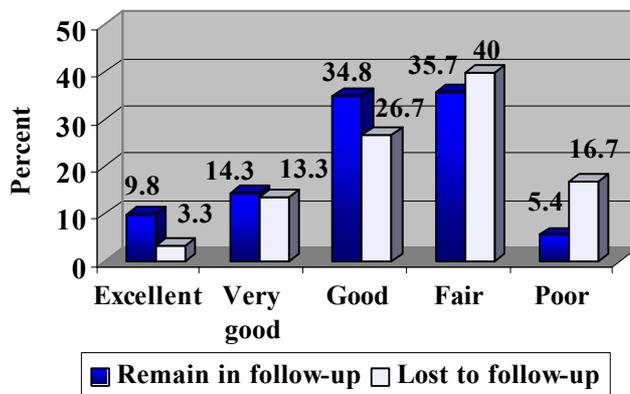
*Statistically significant difference ($p<.05$)

Departments. Among each group the distribution of patients across the departments was different (Table 1). In both groups there were more interviewed patients from the Adult Cardiology department than from Arrhythmology. This can be explained by the fact that usually more patients refer to the former than to the latter department during a day. Chi-square test showed that there is no statistically significant difference between the groups with respect to departments ($p=0.10$).

Type of secondary visits. In the follow-up group, there were more patients with secondary post-surgical visit than with secondary outpatient visit, while it was visa versa in the group of patients lost to follow-up (Table 1). The chi-square test for group homogeneity revealed that outcome was statistically associated with the type of visit ($p=0.03$).

Current state of health. In both groups, patients' current health status was assessed by one question with five response categories (Excellent, very good, good, fair, or poor). Another question was asked to reveal if there was a change in health after the last visit. In the group of patients remaining in the follow-up, the highest proportion of patients rated their health as 'fair', 35.7 % (Figure 1). The ratios between 'fair/poor' and 'good/very good/excellent' was 41.1 %: 58.9%. Among those with 'fair' health, 65% mentioned that their health has improved since their last visit.

Figure 1. Patients' current health status



In the group of patients lost to follow-up 40% rated their current health as 'fair'. The ratios between 'fair/poor' and 'good/very good/excellent' was 56.7%: 43.3%. Among those with 'fair' health 50% mentioned that their health now was better compared with the health before their last visit. There was no statistically significant difference between the group's current health status distribution as 'fair/poor' versus 'good/very good/excellent' (p value was 0.08).

A chi-square test was performed to find if the type of visit (secondary ambulatory versus secondary post-surgical) was independent from the patients' current health status. The result showed a statistically significant association between the type of visit and current health status (p=0.02) with reported better health of post-surgical patients.

6.2. Patient satisfaction

Patient satisfaction was calculated using the Likert-type summary scale. For this purpose the following questions were used: a) perception of affordability of services, b) overall satisfaction from services, c) patient-provider communication skills. New variables were created for all of these three questions to recode them. Patients' responses from 'excellent' to 'good' were given the value 1, while the responses 'fair' and 'poor' were given the value 0 (for questions b and c). The perception of affordability of services was recoded in such a way that the responses 'acceptable price' and 'inexpensive' took the value of 1 and the responses 'too expensive' and 'rather expensive' took the value of 0. Another variable was created where all the values of these three questions were summed. If the sum was 4 or 3 the patient was considered as satisfied, while patients with the values of 2, 1, and 0 were considered as not satisfied. Thus, 94.5% of patients remaining in the follow-up were satisfied with services (against hypothesized 90%), while in the group of patients lost to follow-up 89.7% were satisfied (against the hypothesized 65%) (Table 2). The difference of 4.8 % between the groups' satisfaction was not statistically significant (the hypothesis of existence of 25% difference in patient satisfaction was rejected).

Table 2. Patient satisfaction

| Study groups | Proportion of satisfied patients (%) | |
|--------------------------------|--------------------------------------|--------------|
| | Actual | Hypothesized |
| <i>Remain in the follow-up</i> | 94.5% | 90% |
| <i>Lost to follow-up</i> | 89.7% | 65% |

6.3. Predictors for lost to follow-up

The following variables were entered into the simple logistic regression model as possible covariates to the outcome (remain in the follow-up versus lost to follow-up): age, gender, department, current health status, type of visit, and patient satisfaction (Table 2). Only type of visit (secondary post-surgical versus secondary ambulatory) was the predictor of the outcome. The odds of outcome was 2.5 times higher in the group of patients with secondary outpatient visit vs. patients with secondary post-surgical visit (95 % CI: 1.096, 5.699). So, post-surgical patients were less likely to drop out from follow-up than patients with outpatient visit (p-value was 0.029).

Table 3. Simple logistic regression of follow-up status by different predictors

| Predictor variables | Odds ratio | Confidence Intervals | P-value |
|--|------------|----------------------|---------|
| Age | 0.988 | (0.955; 1.022) | 0.498 |
| Gender | | | |
| <i>Female (reference population)</i> | 1 | | |
| <i>Male</i> | 1.154 | (0.515; 2.584) | 0.728 |
| Department | | | |
| <i>Arrhythmology (reference population)</i> | 1 | | |
| <i>Adult Cardiology</i> | 0.422 | (0.149; 1.193) | 0.104 |
| Current state of health | | | |
| <i>Poor (reference population)</i> | 1 | | |
| <i>Fair</i> | 0.360 | (0.093; 1.390) | 0.138 |
| <i>Good</i> | 0.246 | (0.600; 1.008) | 0.51 |
| <i>Very good</i> | 0.300 | (0.060; 1.509) | 0.144 |
| <i>Excellent</i> | 0.109 | (0.010; 1.163) | 0.066 |
| Type of visit | | | |
| <i>Secondary outpatient visit (reference population)</i> | 1 | | |
| <i>Secondary post-surgical visit</i> | 2.499 | (1.096; 5.699) | 0.029* |
| Patient satisfaction | | | |
| <i>Not satisfied (reference population)</i> | 1 | | |
| <i>Satisfied</i> | 0.421 | (0.095; 1.870) | 0.255 |

*Statistically significant result ($p < .05$)

Further, multiple regression analyses of the outcome were performed in order to find the best model and to check for potential confounders and interactions. No any significant interaction between the covariates was found. In simple logistic regression model, the type of visit was statistically associated with follow-up status but in multiple regression model with current state of health and type of visit, the current state of health confounded this association making it statistically insignificant. Finally, the best model was not created because of the lack of more than one statistically significant variable.

6.4. Reasons for lost to follow-up from patients' perspective

The reasons for not coming to follow-up were explored among the 30 patients lost to follow-up. One question with 9 yes/no options and 4 'specify' options attended to capture all possible reasons. Most patients provided more than one reason. Almost half of the lost patients (n=14)

planned to come to follow-up later (Table 4). This result underlined the relativity of the definition of lost to follow-up stated for the study. On the other hand, although the option was given, these patients could not specify when they have planned their next follow-up visit (after one week, month, when they would find appropriate time or would feel bad, etc.).

Table 4. Reasons for not coming to follow-up

| Reasons for not coming to follow-up | Frequencies (%) |
|--|-----------------|
| I planned to come to follow-up later | 14 (46.7) |
| I feel good and have no need to come to follow-up | 11 (36.7) |
| The time was not convenient | 10 (33.3) |
| The recommended treatment did not help | 6 (20) |
| I'm not satisfied with the service | 6 (20) |
| The recommended treatment/diagnostic procedure was expensive | 5 (16.7) |
| It was difficult to reach the hospital | 5 (16.7) |
| I did not know that the follow-up visit was recommended | 5 (16.7) |
| I did not try the recommended treatment | 4 (13.3) |
| Other reason | 7 (23.3) |

Almost one-third of the lost patients stated that they ‘feel good and have no need to come to follow-up’. Among these patients, none reported current state of health as ‘*poor*’, but 4 patients (36.4%) reported it as ‘*fair*’. The time for recommended follow-up was inconvenient for 33.3% of patients. For 20% of lost patients, the recommended treatment did not help and/or they were not satisfied with the service. The recommended treatment was expensive for 16.7% of patients. Another 16.7% mentioned that it was difficult for them to reach the hospital and/or they did not know that a follow-up visit was recommended. The option of ‘I did not try the recommended treatment’ was reported by 13.3% of patients. Under the option of ‘other reason’ there were seven different reasons (23.3%).

6.5. Other results

The patients were asked questions related to the recommendations given by doctors during their last visit (Table 5). In the group of patients remaining in the follow-up 92 % were recommended to use drugs, 2.7% surgical intervention, 8 % diagnostic procedures, 38.4 % changes in diet for controlling blood cholesterol level, and 89.3 % were recommended to make regular follow-up visits.

Table 5. Recommendations given during the last visit by doctors

| Recommendations | Remain in the follow-up (%) n=112 | Lost to follow-up (%) n=30 |
|--------------------------------------|--------------------------------------|-------------------------------|
| Drugs | 92.0 | 96.7 |
| Surgical intervention | 2.7 | 6.7 |
| Diagnostic procedure | 8.0 | 6.7 |
| Changes in diet* | 38.4 | 16.7 |
| Make regular follow-up visits | 89.3 | 96.7 |

* Statistically significant result ($p < .05$)

The recommendations given to patients lost to follow-up were the follows: 96.7 % were recommended to use drugs, 6.7% surgical intervention, 6.7 % diagnostic procedure, 16.7% changes in diet for controlling blood cholesterol level, and 96.7 % were recommended to perform regular follow-up visits. There were no statistically significant differences between the groups' distribution across the given recommendations besides the recommendation for dietary changes. In the group of patients who remained in the follow-up more patients were recommended to keep a diet to control their cholesterol level (p value of difference was 0.026).

In the group of patients remaining in the follow-up 35.7 % paid for their last visit; for 63.4% it was free of charge or covered by hospital insurance; and 0.9 % did not remember whether they paid. Among the lost to follow-up patients, 33.3 % mentioned that a payment was due for the visit they had missed, 59.5 % mentioned that the missed visit should be free of charge or covered by hospital insurance, and 13.3 % did not know. The groups were homogenous with respect to this distribution and the payment was not associated with the follow-up status.

An open-ended question was asked to the patients whether they have a recommendation to make the services provided by NMMC Outpatient Clinic better. There were 18 responses in the group of patients remaining in the follow-up and 8 responses in the lost to follow-up group. The responses were analyzed together. Most of the responses were related to the cost of services as 15 patients recommended decreasing the charges to make the services more affordable. There were 4 responses with the recommendation to shorten the waiting time in the Outpatient Clinic and 2 responses to shorten the time of 6 months post-surgical follow-up period.

6. DISCUSSION

Overall, the process of data collection and the data analyses allowed having more comprehensive understanding of the patients' flow in the Outpatient Clinic, defining the obstacles, and ways to overcome them.

During the data collection process, the mechanism for making follow-up appointments differed between the two departments of the Adult Outpatient Clinic. In the Adult Cardiology Department, the nurses used hand written journals to indicate the recommended follow-up days, which created difficulties in data collection and, possibly, in performance of the department. Sometimes, it was difficult to read the names of patients, or identify if they were patients with primary or secondary visits. At the Arrhythmology Department, the days of recommended follow-up were directly entered into a database. Every day the schedule of patients was printed and used by the staff. It was very easy to obtain the information on the type of visit, purpose of follow-up, the time, and the outcome of follow-up (rescheduled, canceled or performed follow-up) from the database. In both departments, after a cardiologist assigns a follow-up visit, the nurses give a small piece of paper to the patient with the day and time of the follow-up appointment. In the case if patient loses this small paper the chance to miss the visit may increase.

The comparison of groups by their age, gender distribution, and distribution between the departments did not show any statistically significant difference. Although not statistically

significant, drop out patients reported poorer health than patients who remained in the follow-up. This finding could be explained by the fact that there were more post-surgical patients with reported better health in the group of patients who remain in the follow-up than in the other group. The small sample size of patients lost to follow-up could be another possible explanation for this result.

Analysis of the data revealed that patients with secondary outpatient (non surgical) visits were more likely to drop out than patients with secondary post-surgical visits. One of the possible explanations for this observation could be by the high perceived severity of post-surgical condition both by patients and doctors. On the other hand, this result needs to be explored over time, after six months of surgery with the covered insurance.

The analysis of reasons for lost to follow-up showed that the highest frequency had the option of *'I planned to come to follow-up later'* (46,75 %). This was likely a polite excuse and was not seen as a predictive of an actual follow-up visit. The most frequent reason for lost to follow-up were that patients were asymptomatic and/or the time of recommended follow-up was inconvenient for them. The influence of patients' self-assessed current health status on their decision about follow-up visit was seen in other studies also (8-9). This result could be explained by the fact that patients accepted follow-up visit mostly as a treatment measure not as a preventive one. To have a comprehensive patient follow-up system, the involvement of both patients and physicians is an important factor.

Another major reason for lost to follow-up was that the time of recommended follow-up was not convenient (for 33.3% of lost patients). This could be explained by the fact that the time was not discussed enough with patients and/or, in the case of any inconvenience, they had no flexibility to change their appointment. Usually the physicians just mention the time period of the recommended follow-up visit (in one week/month or after 6 months, etc) and after that nurses, based on the journal of follow-up visits, make the appointment. Once a patient missed the visit, the new visit could not be scheduled for another three-four weeks, which increased the risk of being lost to follow-up for a long time.

Twenty percent of lost patients were not satisfied with services. This finding contradicted the high patient satisfaction calculated in this group of patients (89.7%). Possibly, more than the three questions of the questionnaire on patient satisfaction (affordability of services, overall satisfaction and patient-provider communication skills) should be used to define satisfaction.

Although the affordability of services was not identified as a predictor for loss to follow-up, among lost patients 16.7 % noted the recommended diagnostic procedure/treatment was expensive and was one of the reasons for not showing. Moreover, among the recommendations for improving services explored among all participants most of the responses were to make the services more affordable. Another point was that the data collection process showed that the most sensitive question for almost all patients was the assessment of affordability of services. Generally, the participants tried to answer this question by comparing the costs with the costs of services abroad considering the Armenian prices lower although not very affordable for them.

8. CONCLUSION AND RECCOMENDATIONS

The study revealed high patient satisfaction in the selected departments and in both groups of patients. There was no statistically significant difference between the levels of patient satisfaction across groups as hypothesized. Only the type of visit was the predictor for lost to follow-up: patients with secondary outpatient visits were more likely to drop out than post-surgical patients. The reasons for lost to follow-up were explored among 30 lost patients. Most frequently patients felt good and had no need to come to the scheduled visit. For one-third of lost patients the time of recommended follow-up visit was not convenient. The study can serve as a ground for larger studies on loss to follow-up.

Based on the obtained results NMMC is advised to:

- Develop standardized, written follow-up protocols for post surgical patients (different for different surgical interventions) and for ambulatory patients (different for different diagnosis). The protocols should be distributed to the patients after the surgery or their first ambulatory visit. The protocols should include information on appropriate follow-up schedule, the way of rescheduling, and underline the importance of follow-up as a preventive measure. The protocols should be consistent with the clinical guidelines of the NMMC.
- Develop an electronic database for patients' daily flow and follow-up in the Adult Cardiology Department. For this purpose the practice of Arrhythmology Department could be used.
- Establish a follow-up center in the hospital. This would enable to find actively lost patients, collect information on their current health status and their needs. One of the possible strategies to decrease lost to follow-up could be the notification of patients about the recommended visit two-three days before using telephone or mail.
- Discuss the question of affordability of services with Hospital Board and to develop new strategies to make the services more affordable.
- Develop a follow-up form where the doctors will write their recommendations (drugs, diet, etc) under which the nurses will write the follow-up date and time. In one form more than one follow-up visit information could be included (5 to 6). The form will be given to the patient and will include also the contact telephone number and the name of the cardiologist.
- Conduct a large survey to measure the exact drop out rate and examine other predictors for lost to follow-up. For this purpose, it is recommended to include patients from regions also using as a mean of contact both telephone and mail. This could permit comparing the drop out rates for patients from Yerevan and other regions. More variables should be included in the survey like patients' education, income, and traveling time and/or distance to have all possible predictors and confounders. To assess patients' current health status, a functional assessment tool for cardiovascular system could be used. Qualitative research methods are suggested to explore more reasons for not coming to follow-up.

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Appendix 1. Patient Information Form

| ID | Name | Status | Departments | Telephone # | Follow-up date | Result | Other |
|-----|------|--------|-------------|-------------|----------------|--------|-------|
| 1. | | | | | | | |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. | | | | | | | |
| 7. | | | | | | | |
| 8. | | | | | | | |
| 9. | | | | | | | |
| 10. | | | | | | | |
| 11. | | | | | | | |
| 12. | | | | | | | |
| 13. | | | | | | | |
| 14. | | | | | | | |
| 15. | | | | | | | |

Status: Remain in follow-up -1, lost to follow-up-2

Departments: Adult Cardiology-1, Arrhythmology-2

Results:

1. Participate
2. Refuse to participate
3. Have unscheduled visit
4. Impossible to contact
5. Other

Appendix 2. QUESTIONNAIRE – 1. Remain in follow-up

Consent form:

ID ___

Interview date __/__/__

Age __ Gender 1. Male 2. Female

| | |
|--|--|
| <p>1. Overall how would you rate your current state of health now?</p> <p>Excellent.....1 Very good.....2 Good.....3 Fair.....4 Poor.....5</p> | <p>2. Compared to your health before your previous visit to Outpatient Clinic at NMMC, how would rate your health now?</p> <p>Much better now.....1 Somewhat better now.....2 About the same.....3 Somewhat worse now.....4 Much worse now.....5</p> |
| <p>3. From your previous visit till now have you visited another health care facility for any heart related events?</p> <p>1. Yes 2.No (If No, go to the Q # 5)</p> | <p>4. What facility have you visited?</p> <p>_____</p> |
| <p>5. What was the reason of your last visit to Outpatient Clinic? (Check only one response)</p> <p>a. Secondary outpatient visit b. Secondary post-surgical visit</p> | <p>6. What primary treatment/diagnostic procedure was recommended to you during your previous visit to Outpatient Clinic? (Check all that apply)</p> <p>a. Conservative (drugs) b. Surgical intervention c. Diagnostic procedure d. Periodic follow-up e. Changes in diet f. Nothing was suggested g. Don't know h. Other_____</p> |
| <p>7. Who examined you during your previous visit to Outpatient Clinic? (Check all that apply)</p> <p>a. Doctor b. Resident c. Nurse d. Don't know/ Don't remember/ Was not introduced</p> | <p>8. Did you pay for your last visit to Outpatient Clinic?</p> <p>1. Yes 2. No, it was covered by hospital insurance 3. No, it was free of charge 88. Don't know If Yes, how much? _____ drams</p> |

| | |
|--|--|
| <p>9. What is your perception of affordability of services provided at NMMC?</p> <p>Too expensive.....1 Rather expensive.....2 Acceptable price.....3 Inexpensive.....4</p> | <p>10. How would you assess the overall service provided at Outpatient Clinic?</p> <p>Excellent.....1 Very good.....2 Good.....3 Fair.....4 Poor5</p> |
| <p>11. How would you assess the patient-provider communication skills of health care providers at Outpatient Clinic?</p> <p>Excellent.....1 Very good.....2 Good.....3 Fair.....4 Poor5</p> | <p>12. Would you refer to this Outpatient Clinic again if needed?</p> <p>1. Yes 2. No 88. Don't know</p> |
| <p>13. What would you recommend to make services better at Outpatient Clinic at NMMC?</p> <hr/> <hr/> | |

Thank you for your participation!

Հարցաթերթիկ –1 (Հնտագ ա այցին ներկայացողների համար)

Համաձայնություն:

Տարբերակման համարը ___

Հարցազրույցի ամսաթիվը ___/___/___ Տարիքը ___ Սեռը 1.Արական 2.Իգ ական

| | |
|--|--|
| <p>1. Ընդհանուր առմամբ Դուք ինչպե՛ս կգ նահատեիք Ձեր առողջական վիճակը հիմա:</p> <p>Գերազանց.....1 Շատ լավ.....2 Լավ.....3 Միջին.....4 Վատ.....5</p> | <p>2. Ինչպե՛ս կգ նահատեիք Ձեր առողջությունը հիմա համեմատած Ձեր առողջության հետ մինչև Ձեր նախորդ այցը ՆՄԲԿ-ի Ամբուլատոր Կլինիկա:</p> <p>Շատ ավելի լավ, քան մինչև այցը1 Որոշ չափով ավելի լավ, քան մինչև այցը ...2 Այժմ գ ընթե՛ն նույնը, ինչ մինչև այցը3 Որոշ չափով ավելի վատ, քան մինչև այցը...4 Շատ ավելի վատ, քան մինչև այցը5</p> |
| <p>3. Ձեր նախորդ այցից հետո մինչև հիմա Դուք այցելի՞լ եք այլ բուժհաստատություն սրտի հետ կապված այլ խնդիրով:</p> <p>1. Այո 2. Ոչ (Եթե ոչ, անցիր հարց # 5)</p> | <p>4. Ի՛նչ հաստատություն եք այցելել:</p> <p>_____</p> |
| <p>5. Ո՛րն էր Ձեր Ամբուլատոր Կլինիկա կատարած նախորդ այցի նպատակը: (Նշել միայն մեկ պատասխան)</p> <p>a. Կրկնակի ամբուլատոր այց b. Կրկնակի հետ-վիրահատական այց</p> | <p>6. Ի՛նչ առաջնակի բուժում/ախտորոշիչ միջամտություն էին խորհուրդ տվել Ձեզ Ձեր Ամբուլատոր Կլինիկա կատարած նախորդ այցի ժամանակ: (Նշել բոլոր հնարավոր պատասխանները)</p> <p>a. Դեղորայքի ընդունում b. Վիրահատական միջամտություն c. Ախտորոշիչ միջամտություն d. Կանոնավոր հետագ ա այցելություն e. Փոփոխություններ սննդակարգ ում f. Ոչինչ խորհուրդ չի տրվել g. Չեմ հիշում h. Այլ</p> |
| <p>7. Ո՛վ քննեց Ձեզ Ձեր Ամբուլատոր Կլինիկա կատարած նախորդ այցի ժամանակ: (Նշել բոլոր հնարավոր պատասխանները)</p> <p>a. Բժիշկը b. Ռեզիդենտ/պրակտիկանտ c. Բուժքույրը d. Չեմ իմանում/Չեմ հիշում/ Չներկայացավ</p> | <p>8. Դուք վճարե՞լ եք Ձեր Ամբուլատոր Կլինիկա կատարած նախորդ այցի համար:</p> <p>1. Այո 2. Ոչ, այն ծածկվել էր հիվանդանոցային ապահովագրությանը 3. Ոչ,այն ձրի էր 88. Չեմ հիշում Եթե այո, ապա ինչքա՛ն դրամ</p> <p>_____</p> |

| | |
|---|--|
| <p>9. Ինչպե՛ս եք Դուք ընկալում ՆՄԲԿ-ի ծառայությունների մատչելիությունը:</p> <p>Շատ թանկ.....1 Բավականին թանկ.....2 Ընդունելի արժեքի.....3 Ոչ թանկ.....4</p> | <p>10. Ինչպե՛ս կգ նահատենիք Ամբուլատոր Կլինիկայի ծառայությունները ընդհանուր առմամբ:</p> <p>Գերազանց1 Շատ լավ2 Լավ3 Միջին4 Վատ5</p> |
| <p>11. Ինչպե՛ս կգ նահատենիք Դուք հիվանդ-աշխատող փոխհարաբերությունները Ամբուլատոր Կլինիկայի բուժաշխատողների կողմից:</p> <p>Գերազանց1 Շատ լավ2 Լավ3 Միջին4 Վատ5</p> | <p>12. Անհրաժեշտության դեպքում Դուք կրկին կդիմե՛ի՝ ք այս Ամբուլատոր Կլինիկա:</p> <p>1. Այո 2. Ոչ 88. Չգ իտեմ</p> |
| <p>13. Ի՛նչ խորհուրդ կտայիք ՆՄԲԿ-ի Ամբուլատոր Կլինիկայի ծառայությունները լավացնելու համար:</p> <p>_____</p> <p>_____</p> | |

Շնորհակալություն մասնակցության համար

Appendix 3. QUESTIONNAIRE – 2. Lost to follow-up

Consent form:

ID _ _ _

Interview date _ _ / _ _ / _ _

Age _ _

Gender 1. Male 2. Female

| | |
|---|--|
| <p>1. Overall how would you rate your current state of health now?</p> <p>Excellent.....1 Very good.....2 Good.....3 Fair.....4 Poor.....5</p> | <p>2. Compared to your health before your last visit to Outpatient Clinic at NMMC, how would rate your health now?</p> <p>Much better now.....1 Somewhat better now.....2 About the same.....3 Somewhat worse now.....4 Much worse now.....5</p> |
| <p>3. From your last visit till now have you visited another health care facility for any heart related events?</p> <p>1.Yes 2.No (If No, go to the Q # 5)</p> | <p>4. What facility have you visited?</p> <p>_____</p> |
| <p>5. What was the reason of your last visit to Outpatient Clinic? (Check only one response)</p> <p>a. Secondary outpatient visit b. Secondary post-surgical visit</p> | <p>6. What primary treatment/diagnostic procedure was recommended to you during your last visit to Outpatient Clinic? (Check all that apply)</p> <p>a. Conservative (drugs) b. Surgical intervention c. Diagnostic procedure d. Periodic follow-up e. Changes in diet f. Nothing was suggested g. Don't know h. Other_____</p> |
| <p>7. Who examined you during your last visit to Outpatient Clinic? (Check all that apply)</p> <p>a. Doctor b. Resident c. Nurse d. Don't know/ Don't remember/ Was not introduced</p> | <p>8. Please, tell if the payment was supposed for visit to Outpatient Clinic, which you have missed?</p> <p>1. Yes 2. No, it was supposed to be covered by hospital insurance 3. No, it was supposed to be free of charge 88. Don't know It Yes, how much? _____ drams</p> |

| | |
|--|--|
| <p>9. What is your perception of affordability of services provided at NMMC?</p> <p>Too expensive.....1 Rather expensive.....2 Acceptable price.....3 Inexpensive.....4</p> | <p>10. How would you assess the overall service provided at Outpatient Clinic?</p> <p>Excellent.....1 Very good.....2 Good.....3 Fair.....4 Poor5</p> |
| <p>11. How would you assess the patient-provider communication skills of health care providers at Outpatient Clinic?</p> <p>Excellent.....1 Very good.....2 Good.....3 Fair.....4 Poor5</p> | <p>12. Would you refer to this Outpatient Clinic again if needed?</p> <p>1. Yes 2. No 88. Don't know</p> |
| <p>13. What are the main reasons you did not come to follow-up? (Check all that apply)</p> <p>a. The recommended treatment did not help b. The recommended treatment/diagnostic procedure was expensive c. The time was not convenient Specify _____ d. It was difficult to reach the hospital Specify _____ e. I feel good and have no need to come to follow-up. f. I was not satisfied from the service. g. I did not tried the recommended treatment h. I did not know that follow-up visit was recommended i. I planned to come to follow-up later Specify _____ j. Other reason _____</p> | |
| <p>14. What would you recommend to make services better at Outpatient Clinic at NMMC?</p> <p>_____</p> <p>_____</p> | |

Thank you for your participation!

Հարցաթերթիկ –2 (Հնտագ ա այցին չներկայացած հիվանդներ)

Համաձայնություն:

Տարբերակման համարը ___

Հարցագրույցի ամսաթիվը ___/___/___ Տարիքը ___ Սեռը 1.Արական 2.Իգ ական

| | |
|--|---|
| <p>1. Ընդհանուր առմամբ Դուք ինչպե՛ս կգ նահատեիք Ձեր առողջական վիճակը հիմա:</p> <p>Գերազանց.....1 Շատ լավ.....2 Լավ.....3 Միջին.....4 Վատ.....5</p> | <p>2. Ինչպե՛ս կգ նահատեիք Ձեր առողջությունը հիմա համեմատած Ձեր առողջության հետ մինչև Ձեր վերջին այցը ՆՄԲԿ-ի Ամբուլատոր Կլինիկա:</p> <p>Շատ ավելի լավ, քան մինչև այցը1 Որոշ չափով ավելի լավ, քան մինչև այցը ...2 Այժմ գ ընթե՛ն նույնը, ինչ մինչև այցը3 Որոշ չափով ավելի վատ, քան մինչև այցը...4 Շատ ավելի վատ, քան մինչև այցը5</p> |
| <p>3. Ձեր վերջին այցից հետո մինչև հիմա Դուք այցելե՛լ եք այլ բուժհաստատություն սրտի հետ կապված որևէ խնդիրով:</p> <p>1.Այո 2.Ոչ (Եթե ոչ, անցիր հարց # 5)</p> | <p>4. Ի՛նչ բուժհաստատություն եք այցելել:</p> <p>_____</p> |
| <p>5. Ո՛րն էր Ձեր Ամբուլատոր Կլինիկա կատարած վերջին այցի նպատակը: (Նշել միայն մեկ պատասխան)</p> <p>a. Կրկնակի ամբուլատոր այց b. Կրկնակի հետ-վիրահատական այց</p> | <p>6. Ի՛նչ առաջնակի բուժում/ախտորոշիչ միջամտություն էին խորհուրդ տվել Ձեզ Ձեր Ամբուլատոր Կլինիկա կատարած վերջին այցի ժամանակ: (Նշել բոլոր հնարավոր պատասխանները)</p> <p>a. Դեղորայքի ընդունում b. Վիրահատական միջամտություն c. Ախտորոշիչ միջամտություն d. Կանոնավոր հնտագ ա այցելություն e. Ոչինչ խորհուրդ չի տրվել f. Չեմ հիշում g. Այլ _____</p> |
| <p>7. Ո՛վ քննեց Ձեզ Ձեր Ամբուլատոր Կլինիկա կատարած վերջին այցի ժամանակ: (Նշել բոլոր հնարավոր պատասխանները)</p> <p>a. Բժիշկը b. Ռեզիդենտ/պրակտիկանտ c. Բուժքույրը d. Չեմ իմանում/Չեմ հիշում/Չներկայացավ</p> | <p>8. Խնդրում եմ ասացեք, արդյոք Դուք պետք է վճարեի՛ք Ամբուլատոր Կլինիկայի այն այցի համար, որին Դուք չներկայացաք:</p> <p>1. Այո 2. Ոչ, այն ծածկվելու էր հիվանդանոցային ապահովագ բությամբ 3. Ոչ,այն ձրի էր լինելու 88. Չգ իտեմ Եթե այո, ապա ինչքա՛ն _____ դրամ</p> |

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| <p>9. Ինչպե՛ս եք Դուք ընկալում ՆՄԲԿ-ի ծառայությունների մատչելիությունը:</p> <p>Շատ թանկ.....1 Բավականին թանկ.....2 Ընդունելի արժեք.....3 Ոչ թանկ.....4</p> | <p>10. Ինչպե՛ս կգ նահատե՛իք Ամբուլատոր Կլինիկայի ծառայություններն ընդհանուր առմամբ:</p> <p>Գերազանց1 Շատ լավ2 Լավ3 Միջին4 Վատ5</p> |
| <p>11. Ինչպե՛ս կգ նահատե՛իք Դուք հիվանդ-աշխատող փոխհարաբերությունները Ամբուլատոր Կլինիկայի բուժաշխատողների կողմից:</p> <p>Գերազանց1 Շատ լավ2 Լավ3 Միջին4 Վատ5</p> | <p>12. Անհրաժեշտության դեպքում Դուք կրկին կդիմե՛ի՞ք այս Ամբուլատոր Կլինիկա:</p> <p>1. Այո 2. Ոչ 88. Չգ իտեմ</p> |
| <p>13. Որո՞նք են պատճառները, որ Դուք չներկայացաք Ձեր հետագ ա այցին: (Նշել բոլոր հնարավոր պատասխանները)</p> <p>a. Առաջարկված բուժումը չօգ նեց b. Առաջարկված բուժումը /ախտորոշիչ միջամտությունը թանկ էր c. Ժամանակը հարմար չէր Բացատրել _____ d. Հիվանդանոց հասնելը դժվար էր Բացատրել _____ e. Լավ եմ գգ ում և կարիք չունեմ հետագ ա այցին գ ալու f. Գոհ չեմ ծառայությունից g. Առաջարկված բուժումը չփորձեցի h. Ես չգ իտեմի, որ հետագ ա այց էր նշանակվել i. Ես պլանավորել էի ավելի ուշ գ ալ հետագ ա այցի Բացատրել _____ j. Այլ պատճառ _____</p> | |
| <p>14. Ի՞նչ խորհուրդ կտայիք ՆՄԲԿ-ի Ամբուլատոր Կլինիկայի ծառայությունները լավացնելու համար:</p> <p>_____</p> <p>_____</p> | |

Ծնորհակալություն մասնակցության համար

Appendix 4. Stata output for sample size calculation

```
. sampsi 0.90 0.65, p(0.8) r(0.25)
Estimated sample size for two-sample comparison of proportions
Test Ho: p1 = p2, where p1 is the proportion in population 1
           and p2 is the proportion in population 2
Assumptions:
    alpha = 0.0500 (two-sided)
    power = 0.8000
    p1 = 0.9000
    p2 = 0.6500
    n2/n1 = 0.25
Estimated required sample sizes:
    n1 = 112
    n2 = 28
```

Appendix 5. Consent form

American University of Armenia
Department of Public Health
INSTITUTIONAL REVIEW BOARD/COMMITTEE ON HUMAN RESEARCH
CONSENT FORM TEMPLATE

Research on Lost to Follow-up of Patients at Nork Marash Medical Center

Hello! I'm Lusine Abrahamyan. I'm from American University of Armenia. I'm doing a study as a part of my course assignment. The aim of this study is to explore the causes predisposing to losses to follow-up at Nork Marash Medical Center. Your telephone number was taken from that center, but this is an independent investigation. You have been contacted because I had the information that you have been recommended a follow up ____later after your last visit to this hospital. I'm interested if you have already visited the hospital for the follow-up? (Select the appropriate questionnaire depending on the answer).

I'm going to ask you some questions related to your health, the services provided in this hospital *and the reason why you did not go there for follow-up* (for only drop-out patients). I want to assure you that your answers will contribute to the further development of follow-up service in this hospital. This will take from you at about 5-7 minutes. You can refuse to participate or to answer any question you feel uncomfortable. This is voluntary survey and you can stop the interview at any time you want. Every effort will be made to protect the confidentiality of the information provided insofar as it is legally possible. It will not affect on your further treatment at this hospital. I can provide you the contact of a person you will be interested in the research or in the case of any question (Michael Thompson, American University of Armenia. Telephone (374 1) 51 25 12).

Հայաստանի Ամերիկյան Համալսարան
Հանրային Առողջապահության Ֆակուլտետ
Համաձայնություն

Բարև Ձեզ: Ես Լուսինե Աբրահամյանն եմ՝ Հայաստանի Ամերիկյան Համալսարանի Հանրային Առողջապահության Ֆակուլտետի ուսանող: Ես կատարում եմ հետազոտություն որպես իմ ուսումնական ծրագրի մաս: Հետազոտության նպատակն է ուսումնասիրել Նորթ Մարաշ Բժշկական կենտրոնում հիվանդների հետագա և այցերի պակասին նպաստող պատճառները: Ձեր հեռախոսահամարը վերցվել է կենտրոնից, սակայն սա անկախ հետազոտություն է: Ձեզ զանգ ահարել եմ, որովհետև ունեի տեղեկություն, որ Ձեզ խորհուրդ է տրվել հետագա և այց կատարել հիվանդանոց Ձեր վերջին այցելությունից _____ հետո: Ինձ հետաքրքրում է, արդյոք Դուք կատարե՞լ եք Ձեր հետագա և այցը հիվանդանոց: (Ընտրել համապատասխան հարցաթերթիկը կախված պատասխանից):

Ես կկամենայի հարցնել Ձեզ Ձեր առողջության, հիվանդանոցում մատուցված ծառայությունների վերաբերյալ և Ձեր հետագա և այցին չներկայանալու պատճառների մասին (այս մասը հարցնել միայն հետագա և այցին չներկայացածներին): Ես հավաստիացնում եմ Ձեզ, որ Ձեր պատասխանները կնպաստեն այս հիվանդանոցում հետագա և այցերի ավելի արդյունավետ կազմակերպմանն ու զարգացմանը: Հարցերին պատասխանելը Ձեզանից կպահանջի 5-7 րոպե ժամանակ: Հարցազրույցին մասնակցելը կամավոր է և Դուք կարող եք մերժել Ձեր մասնակցությունը: Ինչպես նաև, կարող եք չպատասխանել ցանկացած հարցի, որը Ձեզ հաճելի չէ կամ դադարեցնել հարցազրույցը ցանկացած պահի: Ամեն ջանք կգործադրվի Ձեր տրամադրած տեղեկատվության գաղտնիությունը պահպանելու համար: Այն չի ազդելու այս հիվանդանոցում Ձեր հետագա և այցի վրա: Ես կարող եմ տրամադրել Ձեզ այն անձի հեռախոսահամարը, ում կարող եք դիմել, եթե հետաքրքրվեք հետազոտությամբ կամ ունենաք որևէ հարց (Մայքլ Թոմփսոն, Հայաստանի Ամերիկյան Համալսարան, Հեռ. (374 1) 51 25 12):