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Evaluating a Hospital Quality Improvement Model for Selected Hospitals in Armenia and Russia

**Collaborative Project between
University of Pennsylvania,
American International Health Alliance &
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Prepared by:

**Anahit Demirchyan, MD, MPH
Project Manager, CHSR**

**Michael E. Thompson, MS, DrPH
Director, CHSR**

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Executive Summary

The Center for Health Services and Policy Research at the University of Pennsylvania School of Nursing, an American International Health Alliance partner organization, has provided funding to extend the University of Pennsylvania's studies on the effects of hospital nurse staffing and nurse work environments into countries like Armenia and Russia and to evaluate the applicability of a US hospital quality improvement model to these countries contexts. The implementation of this model, which is a formal, voluntary accreditation program for nursing care excellence established in early 1990s and known as the Magnet Hospital Nursing Services Recognition Program, has recently been initiated in selected units of two Armenian and two Russian hospitals: Medical-Research Center for Emergency Care and Teaching Hospital "Erebouni" in Yerevan, Armenia, and Central Teaching Hospital in Moscow, Russia, and Hospital #122 in St. Petersburg, Russia. The purpose of the research was to gather baseline data on nursing care and nurse work environment from the perspectives of both nurses and patients against which the impact of Magnet program will be measured. The research was also sought to pilot test the survey methodology and instruments used in previous similar studies in North American and European Hospitals.

The study consisted of cross-sectional surveys conducted among patients and staff nurses of the selected hospitals. Both surveys were designed as self-administered, but patients were given an option to chose between self- and interviewer administered surveys in three out of four research sites (except CCH, Moscow). Detailed measures of hospital organizational traits and outcome variables, including patients' satisfaction and nurse-assessed quality of care were collected. All the staff nurses working in inpatient departments of the selected program sites and all adult patients receiving treatment there for at least three days were considered eligible for the survey. The samples of nurses and patients were stratified to provide appropriate numbers of respondents from Magnet demonstration and comparison units for making possible further comparisons between them. Translated/pre-tested survey instruments used for nurses and patients in previous 5-country cross-national study served as instruments for this study. Ethical considerations were met by providing consent forms and ensuring confidentiality of answers through anonymity of both nurse and patients surveys. The study protocol was approved by the IRBs of both the American University and the University of Pennsylvania.

A total of 859 nurses and 1508 patients from the four hospitals participated in the study during the period from 22 October to 11 December 2002. Trained interviewers conducted the fieldwork in Yerevan and St. Petersburg sites. In Moscow, the patient survey was fully self-administered. Center for Health Services Research and Developments (CHSR) assumed responsibility for overall management and implementation of the surveys. Data was entered into SPSS 11.0 data files and analyzed using STATA 7 and SPSS 11.0 statistical packages.

The study provided acceptable quality data on nurse work environment, nursing care, and performance of nurses from both nurses' and patient' points of view, against which the progress of Magnet initiative could be measured through further longitudinal assessments. Also, the survey provided a unique opportunity to make comparisons of nursing care in three dimensions: between four research sites located in two countries of CIS, between two types of hospital units: demonstration and non-demonstration, and between perceptions of nurses and patients concerning nursing care. As a result, some previously observed correlations between different aspects of nursing care and work environment were confirmed and some differences found between hospital units designated as demonstration and non-demonstration, which could partially be the impact of undertaken measures so far to implement the principles of the Magnet initiative in the designated units.

The nurse survey findings for Yerevan hospitals, as well as findings of nurse and patient surveys were contradictory leading to a conclusion that nurses in these sites were reluctant to give critical answers to some items included in the questionnaire despite assuring of anonymity. The lessons learned from the survey pointed out the importance of considering perceptions/attitudes of nurses from different backgrounds/cultures when making an attempt to apply western survey instruments to measure indicators that could be sensitive in settings with a centralized style of governance.

1. Background Information

1.1. Project Rationale

The body of research on organizational determinants of hospital patient and nurse outcomes initiated at the University of Pennsylvania School of Nursing, with funding from the National Institute of Nursing Research, NIH, provided the evidence base for the establishment in the early 1990s of a formal accreditation program for nursing care excellence known as the Magnet Hospital Nursing Services Recognition Program and based at the American Nurses Credentialing Center (ANCC) [1]. To receive magnet recognition for excellence in nursing, hospitals must demonstrate that they meet a set of defined standards for clinical nursing excellence.

Penn's Center for Health Outcomes and Policy Research (PCHOPR) has conducted NIH-supported research on the outcomes of the formally accredited magnet hospitals and has documented that hospitals that achieve ANCC Magnet Recognition do indeed have superior patient outcomes including higher patient satisfaction and high nurse job satisfaction and retention (Aiken, Havens, Sloane, 2000) [2].

In response to increasing international interest in the concept of standard-based nursing services accreditation, PCHOPR launched a five-country study of hospital quality of care and nurse workforce management in North America and Europe [3; 4]. This research, conducted in Armenia and Russia in collaboration between the Center for Health Services Research and Development (CHSR) at the American University of Armenia (AUA) and PCHOPR was a direct continuation of these activities.

1.2. Selection of Research Sites

Selected units from the following four hospitals were chosen to participate in the research:

1. Medical-Research Center for Emergency Care, Yerevan, Armenia
2. Teaching Hospital "Erebouni", Yerevan, Armenia
3. Central Teaching Hospital, Moscow, Russia
4. Hospital #122 (Sokolov Hospital), Saint Petersburg, Russia.

The reason for selecting these intervention sites was that these hospitals were already involved in American International Health Alliance (AIHA) hospital partnerships and thus were familiar with the concepts of professional nursing practice and evidence-based clinical care through exchanges with their US partners. All four hospitals declared their intention to achieve ANCC Magnet Recognition, thus providing opportunity to evaluate nursing care before and after implementation of the Magnet Initiative. Also, these hospitals are influential institutions in their countries, so that they may serve as models for others to follow.

1.3. Project Goal and Research Objectives

The goal of the project was to extend the University of Pennsylvania studies on the effects of hospital nurse staffing and nurse work environments into countries of the former Soviet Union (Armenia and Russia) and to evaluate the applicability of a US hospital quality improvement model to these countries contexts. It was anticipated that, if applicable, the model would largely contribute to the improvement of the quality of services provided by the selected health institutions, creating a basis for extending the model into other health institutions in these countries. Also, the model would address the existing need for the application of low-cost, low technology approaches to quality improvement in these countries.

The main purpose of this phase of the research was to gather baseline data on nursing care and nurse work environment from the perspectives of both nurses and patients against which the impact of the Magnet Program would be measured. The study was also sought to systematically evaluate the clinical performance of selected hospitals and to determine the factors associated with good outcomes. Another purpose of the research was to pilot test the survey methodology and instruments used in the five-country study in North America and Europe in the selected hospitals, thus demonstrating the feasibility of extending NIH-funded research on hospital quality of care to countries like Armenia and Russia.

2. Methods

2.1. Study concept

The study consisted of cross-sectional surveys administered to patients and staff nurses of the selected hospitals. Both surveys were designed as self-administered, although some patients needed and were provided with some assistance from interviewers to complete the survey. Detailed measures of hospital organizational traits and outcome variables including patient satisfaction and nurse-assessed quality of care were collected to have baseline data.

Magnet intervention is a three stage process: (1) Pre-candidacy: formal intention of the institution to pursue magnet standards, (2) Candidacy: a subset of units within the institution demonstrate meeting magnet standards, (3) Magnet Hospital Recognition: the institution as a whole meets those standards [1]. All 4 participating hospitals have achieved Pre-candidacy status, and their demonstration units identified. Candidacy status (demonstration units meeting magnet standards) in these institutions is expected within two years and full institution magnet status within 4-5 years. This assessment will be repeated in two years to obtain early impact data of implementation (the demonstration units) and again in five years to obtain post-implementation assessments of the entire hospital.

2.2. Study population

All the staff nurses working in inpatient departments of the program sites and all adult patients receiving treatment there for at least three days at the time of survey were considered eligible for the survey. An exception was made for those sites, where outpatient units were designated as demonstration units. In these sites, the nurses of these units and those patients who made at least 3 visits to these units were also considered eligible for the study. To have a comparison for them, nurses and equivalent patients from some other outpatient unit of the same facility were surveyed. Another exception was made for the patients in intensive care units designated as demonstration units, where the mean duration of patient stay was only 1-2 days. Patients receiving treatment in these units for at least 2 days were considered eligible for the survey.

2.3. Sampling Strategy

To replicate the sample size used in previous studies and to ensure a sufficiently large sample size for detailed statistical analysis, a target of 300 nurses and 400 patients from each of the four hospitals was set, a total of 1200 nurses and 1600 patients. This sample was stratified to provide appropriate numbers of respondents from demonstration and comparison units based upon average staffing patterns and patient volume.

The nurse survey was designed to involve all the eligible nurses from each demonstration unit and nurses from other comparison units so that the total number of 300 in each research site would be achieved. In three out of four sites, the number of eligible nurses was less than 300.

For the patient survey, at least 30 patients from each demonstration unit and a sufficient number of patients from comparison units to total 400 patient interviews were surveyed at each site. Each consecutive patient meeting the eligibility criteria and consenting to participate was enrolled.

2.4. Survey instruments

The two survey instruments (one for nurses and one for patients used in the previous 5-country cross-national study [3, 4]) were translated into Armenian and Russian. Both translated versions were back-translated into English by independent and “uncontaminated” translators and the back-translations were compared with the originals to ensure the precision of translation. Accordingly, the translations were refined to better reflect the original texts.

The translation process was followed by pilot-testing of the questionnaires through focus group discussion and pre-testing in hospitals other than the selected sites to avoid contamination. The former was conducted with nurses of Children Neurology Hospital #6 in Yerevan. As a result, some changes were introduced into nurse survey instrument to better adapt it to local circumstances.

The next step (pre-testing of both nurse and patient questionnaires) was incorporated into interviewer training process. CHSR staff developed a training manual for interviewers (Appendix 1). Six interviewers and one Interviewer Coordinator, all with medical background and previous experience in interviewing, were trained to conduct the fieldwork in Armenian sites. The interviewer training was held at AUA and included 1.5 days of didactic training and 2 days of field pre-testing of the instruments and research protocols. This was followed by further adaptation of the instruments. Some items deemed irrelevant/insignificant for the survey sites were excluded from the questionnaires. Others items were re-designed to be more interpretable for the target population. In the patient questionnaire, new items were introduced measuring patient’s care needs in activities of daily living and asking for any ideas about desired changes in the surveyed hospitals. The final instruments are provided in Appendix 2.

2.5. Ethical considerations

The study protocol was reviewed and approved by the Committee on Human Research/IRB of both AUA and University of Pennsylvania. Oral consent was obtained from respondents. The consent forms for both categories (nurses and patients) were incorporated in the survey instruments: both questionnaires began with the consent statement, containing information about the rationale and goals of the survey, respondents’ right to refuse and confidentiality issues.

To ensure confidentiality of the answers, no identifying information was put on the nurse questionnaires. Nurses were instructed to put the completed questionnaires into boxes (in Armenian sites) or to seal the questionnaires in envelopes (in Russian sites). In Armenian sites, no hospital personnel other than the surveyed nurses were allowed to be present in survey settings. The participants were instructed to sit in front of separate tables while completing the surveys. Talking among participants was not allowed during the survey. Upon completion, all the surveys were immediately transported to CHSR by CHSR staff so that no hospital employee could have access to the completed surveys. In the Russian sites, the questionnaires were collected in sealed envelopes. CHSR project team members opened the envelopes.

Patients in all four sites were instructed to seal the completed questionnaires into envelopes. No other identification information but ID number was put on patient questionnaire after introducing the survey/consent form to the patient and receiving his/her oral consent to participate. Again, only the project team members were allowed to open the envelopes at the data entry site.

All respondents were provided with contact information should they have questions or concerns about the study or the safeguarding of their privacy.

2.6. Survey administration in Armenian Sites

The Nurse Survey began on October 22, 2002 in Emergency hospital and October 28, 2002 in Erebouni hospital and lasted 2-3 days in each site. All eligible nurses were invited to participate. To minimize disruptions to unit staffing and ensure no impact on patient care, the study team coordinated group survey sessions with the Chief Nurse of the hospital. Approximately 20-25 nurses participated in each session. CHSR staff supervised the sessions. Six interviewers and one coordinator employed by CHSR were involved in this process. Each hospital provided a separate room for administering the survey. The sessions were repeated 4-5 times per day to accommodate nurses serving on all shifts.

In both Armenian sites, patient surveys started immediately upon completion of nurse surveys and lasted approximately 5 weeks. Although the patient satisfaction questionnaire was intended to be self-administered, patients were provided the opportunity to ask for assistance from the CHSR interviewer if their condition interfered with completing the survey on their own. Special Journal Forms (Appendix 3) were developed to facilitate the process of identifying and selecting eligible respondents in each unit. The journal form information facilitated calculations of response rate and to catalog the reasons for non-response.

2.7. Survey administration in Russian Sites

CHSR staff traveled to the Russian sites to conduct interviewer training sessions and oversee the start of data collection activities. CHSR staff ensured compliance with the survey protocols and provided logistic and administrative support to the local personnel designated to implement the survey.

The nursing survey started on October 30, 2002 in Moscow Central Clinical Hospital (CCH) and on November 4, 2002 in St. Petersburg Hospital #122. The group survey sessions used for the Armenian sites were considered impractical by hospital administrations of the Russian sites. Instead, questionnaires were distributed to the nurses for them to complete while at their workstation. The nurses were provided with envelopes and were instructed to complete the questionnaires in private and to seal the completed surveys in envelopes to make sure that the confidentiality of their responses would be kept. This required four days at each site.

The same patient survey methodology used in Armenia was implemented in St. Petersburg Hospital #122. However, in CCH, Moscow, it was administratively impractical to give patients the interviewer-assisted option due to a lack of personnel. Instead, the patient surveys were distributed to eligible patients and they were instructed to complete the questionnaires in private and seal their responses in envelopes upon completion. Only the hospital and unit codes were put on each survey/envelope with no ID information. Hence, no journal forms were used and it is not possible to accurately estimate the response rate and catalog the reasons for non-response from CCH. Unit nurses did count the number of patient refusals, but the accuracy of this method is no known. In both Russian sites, data collection for the patient surveys lasted approximately 5 weeks.

2.8. Data entry and cleaning

Data of nurse and patient surveys were reviewed and entered into SPSS 11.0 data files by trained CHSR staff. Double entry was used to ensure the precision of the information. Upon completion of the entry phase the data were cleaned. The analysis was carried out using SPSS 11.0 and Stata 7.0 software.

3. Results

3.1. Administrative information

A total of 859 nurses and 1508 patients participated in the study. The numbers of nurses and patients involved in the research from each study site are provided in table 1.

Table 1. Number of nurse and patient participants from each research site

	Emergency Hospital, Yerevan	Erebouni Hospital, Yerevan	CCH, Moscow	Hospital #122, St. Petersburg
Nurses	142	257	248	212
Patients	405	400	357	346

In the study sites, all demonstration units were included in the nurse survey. All demonstration units having eligible patients were included in the patient survey. The distribution of nurses and patients according to demonstration or non-demonstration unit status by facility is provided in Table 2. The list of demonstration units in the research sites and the numbers of surveyed nurses/patients in each is provided in Appendix 4.

Table 2. Numbers of nurses and patients from each hospital according to the unit status (demonstration or non-demonstration)

	Emergency Hosp., Yerevan		Erebouni Hosp., Yerevan		CCH, Moscow		Hospital #122, St. Petersburg	
	Demonst.	Non- demonst.	Demonst.	Non- demonst.	Demonst.	Non- demonst.	Demonst.	Non- demonst.
Nurses	42	100	86	171	130	118	38	174
Patients	114	291	120	280	141	216	58	288

The response rates to both the nurse and patient questionnaires are presented in Table 3. The response rate during the nurse survey was effectively 100% in Armenian sites (in both sites, none of those invited to participate refused). Out of 285 surveys distributed among Moscow CCH nurses, 248 were completed/returned, an 87% response rate. In St. Petersburg Hospital #122, a total of 212 surveys were completed/returned out of 276, resulting in response rate of 77%. However, the response rates were much higher for nurses working in demonstration units: 98% in CCH and 90.5% in Hospital #122.

For the patient survey, journal forms were completed in three out of four research sites (Yerevan Emergency hospital, Yerevan “Erebouni” hospital, and St. Petersburg Hospital #122). According to the data generated through these forms, the response rate among patients was 73.5% in Emergency hospital, 78.9% in “Erebouni” hospital, and 99.4% in Hospital #122. (In the latter, the real response rate was 98.3%, because 4 blank surveys were returned in sealed envelopes.)

Table 3. Response rates (%)

	Emergency Hospital, Yerevan			Erebouni Hospital, Yerevan			CCH, Moscow			Hospital #122, St. Petersburg		
	Dem.*	Non- Dem.**	Over- all	Dem.	Non- Dem.	Over- all	Dem.	Non- Dem.	Over- all	Dem.	Non- Dem.	Over- all
Nurses	100.0	100.0	100.0	100.0	100.0	100.0	97.7	77.6	87.0	90.5	74.4	76.8
Patients	67.3	76.3	73.5	75.9	80.2	78.9	77.9	66.3	70.4	98.6	96.2	98.3

* Demonstration units

** Non-Demonstration units

In Armenian sites, the most common reasons for unsuccessful first attempt of interviewing patients were “the patient is out of the room” and “the patient is unable to participate because of severity of health condition”. In all three sites, the main reason for permanent non-response was refusal to participate: 8.5% in Emergency hospital, 10.5% in “Erebouni” hospital and 0.6% in St. Petersburg Hospital #122. The next common reason in Armenian sites was “the patient is incompetent” (6.5% in Emergency hospital and 2.6% in “Erebouni” hospital).

While in Armenian sites the majority of patients preferred interviewer-administered survey and were provided with this option, in Russian sites the surveys were mainly (Hospital #122) or completely (CCH) self-administered. This resulted in much higher rate of incomplete or blank surveys (sealed in envelopes) in Russian sites. Indeed, according to refusals registered by unit nurses at CCH, the refusal rate in this site was considerably higher than in the other three sites: 128 “explicit” and 22 “hidden” [blank surveys] refusals out of 507 attempts, or a 29.6% refusal rate (70.4% response rate).

The survey was considered incomplete if more than half of the questions were left unanswered. The number of incomplete and blank questionnaires per each research site is provided in Table 4.

Table 4. Number of incomplete and blank questionnaires per each research site

	Emergency Hospital, Yerevan (n=405)		Erebouni Hospital, Yerevan (n=400)		CCH, Moscow (n=379*)		Hospital #122, St. Petersburg (n=350*)	
	#	%	#	%	#	%	#	%
Blank	0	0	0	0	22	5.8	4	1.1
Incomplete	1	0.2	0	0	35	9.2	10	2.9

* Including surveys left blank

3.2. Nurse Survey findings

3.2.1. Demographic/position/work characteristics

In all four sites, the overwhelming majority of participant nurses were females (99.1%). The mean age of nurses was 35.2 (SD 10.7) with an age range of 18 to 72. There was no statistically significant difference between three research sites: Emergency Hospital, CCH, and hospital #122 in terms of the mean age of respondents. In “Erebouni” hospital, the mean age of respondents was significantly lower than in three other sites (32.0, $p < 0.01$).

Nurses from demonstration units were also significantly younger than those from non-demonstration units (34.1 and 35.8 respectively, $p = 0.03$). However, when looking at this variable on the level of each hospital, the difference remained statistically significant only in hospital #122, where the mean age of nurses from demonstration units was 30.3 and for those from non-demonstration units 36.6 ($p < 0.001$).

In all research sites, the overwhelming majority of nurses received their basic nursing education in their home countries (93.7% of nurses in Emergency hospital, 95.7% in “Erebouni”, 96.4% in CCH, and 92.9% in hospital #122). In terms of frequency, the next country where nurses from Armenia hospitals received their education in nursing was Russia (2.1% of Emergency hospital nurses and 1.9% of “Erebouni”). For nurses from St. Petersburg hospital #122, the next country was Ukraine (2.8%). Only one nurse from CCH mentioned receiving her basic nursing education in a country other than former Soviet Union countries (in USA).

More than half of the nurses working in Emergency and “Erebouni” hospitals and almost half of those working at CCH mentioned having dependent children living with them (54.7%, 52.0%, and 48.3% respectively). This percentage was significantly lower for nurses from the hospital #122 (36.8%).

Along with staff nurses/midwives, unit head nurses and procedural nurses were also involved in the survey. The percentages of those per each site are provided in table 5.

Table 5. Percentages of surveyed staff nurses, unit head nurses and procedural nurses across surveyed sites

	Emergency hosp.	“Erebouni” hosp.	CCH	Hospital #122
Nurses/midwives	91.6%	88.7%	88.3%	84.9%
Head nurses	7.7%	7.4%	3.6%	7.6%
Procedural nurses	0.7%	3.9%	8.1%	7.5%

Distribution of unit head nurses, procedural nurses and nurses/midwives across demonstration/non-demonstration units is presented in table 6. The proportions of head nurses involved in the survey from demonstration and non-demonstration units were neither statistically different on the level of each hospital, nor the cumulative level (p=.073).

Table 6. Percentages of surveyed staff nurses, unit head nurses and procedural nurses across demonstration and non -demonstration units

Job Title	Demonstration	Non-demonstration	Total
Head nurses	42 (7.6%)	13 (4.4%)	55 (6.5%)
Procedural nurses	37 (6.7%)	10 (3.4%)	47 (5.5%)
Nurses/midwives	474 (85.7%)	272 (62.2%)	746 (88.0%)
Total	553 (100.0%)	295 (100.0%)	848 (100.0%)

In the studied sample, the mean duration of working as a nurse was 14.0 years (SD 10.2, range: 0.0-47.0), and the mean duration of working in the studied (current) unit was 9.8 years (SD 8.1, range: 0.1-42.0). Three out of four hospitals were not statistically different in terms of the mean duration of participants’ working as a nurse. “Erebouni” hospital nurses’ working duration as a nurse was significantly shorter from that in the three other sites. Hospitals were not similar in terms of participants’ working years in the current unit either (Table 7).

Table 7. Mean duration of working as a nurse across hospitals

Working years	Emergency hosp.	“Erebouni” hosp.	CCH	Hospital #122	Sig. (ANOVA)
As a nurse	16.5 (SD 9.1)	10.8 (SD 7.7)	15.7 (SD 11.6)	14.5 (SD 11.1)	p <.000
In the current unit	13.3 (SD 8.5)	8.2 (SD 6.0)	11.8 (SD 9.7)	6.9 (SD 6.4)	p <.000

The mean durations of working as a nurse in general and in the current department were different between nurses working in demonstration units vs. those working in non-demonstration units: both working durations were significantly shorter for those working in demonstration units (Table 8).

Table 8. Mean duration of working as a nurse across hospitals

Working years	Demonstration units	Non-demonstration units	Sig. (2-tailed)
As a nurse	12.8 (SD 9.4)	14.7 (SD 10.5)	p <.01
In the current unit	8.8 (SD 7.3)	10.3 (SD 8.5)	p <.05

In Emergency hospital, “Erebouni” hospital and CCH, the most frequent length of regularly scheduled nursing shift mentioned by participants was 24 hours, followed by an 8-hour shift. Unlike this, nurses from hospital #122 mentioned 8-hour shift as the most frequent (Table 9).

Table 9. Length of regularly scheduled shifts across hospitals

Length of shift	Emergency hosp. (%)	“Erebouni” hosp. (%)	CCH (%)	Hospital #122 (%)
8 hours	18.5	34.6	26.6	45.2
12 hours	2.2	3.3	6.3	12.2
24 hours	78.5	53.7	57.8	39.9
other	0.7	8.5	9.3	2.7

Nurses from demonstration units mentioned having 24-hour shifts significantly more frequently and 8-hour shifts significantly less frequently than nurses from non-demonstration units (Table 10).

Table 10. Length of regularly scheduled shifts in demonstration and non-demonstration units

Length of shift	Demonstration units (%) [*]	Non-demonstration units (%) [*]
8 hours	19.4	38.8
12 hours	8.8	4.6
24 hours	67.5	49.5
other	4.2	7.1

^{*} Statistically significant difference ($p < 0.001$)

On the hospital level, this pattern was evident in CCH and Emergency hospital (table 11), which is easy to explain taking into consideration the type of units in these hospitals designated as demonstration units (ICU-s, Maternity units with typical 24-hour nursing shifts).

Table 11. Length of regularly scheduled shifts across hospitals (%)

Shift length	Emergency Hospital, Yerevan		Erebouni Hospital, Yerevan		CCH, Moscow		Hospital #122, St. Petersburg	
	Demonst.	Non-demonst.	Demonst.	Non-demonst.	Demonst. [*]	Non-demonst. [*]	Demonst.	Non-demonst.
8-hour	9.8	22.3	37.8	32.5	9.7 [*]	45.1 [*]	22.2	50.7
12-hour	-	3.2	2.4	3.7	3.2	9.7	52.8	2.6
24-hour	90.2	73.4	50.0	55.5	84.7 [*]	28.3 [*]	22.2	44.1
other	-	1.1	9.8	7.9	2.4	16.8	2.8	2.6

^{*} Statistically significant difference ($p < 0.001$)

3.2.2. Nursing work index

A 35-question scale was included in the questionnaire to measure Nursing Work Index and the following work-related indicators: autonomy of nurses, control over their own work, relationship with doctors, nurse staffing, administrative support to nurses, career support, nurse competence, and doctors’ value of nursing. The original scale was modified to better address the local specifics of nursing in research sites: 17 items were excluded from the initial 49-question scale used in five-country study, and three additional items measuring the extent of doctors’ appreciation of nursing work were included (appendix 2). This resulted in modification of constituents of some cumulative indicators, specifically: autonomy (2 out of 5 elements/items included in this indicator during previous studies were excluded) and career support (5 out of 9 elements/items included in this indicator were excluded). The Nurse Work Index, which is the summation of all items included in the scale, was also changed because of these modifications. However, the majority of cumulative

indicators used in previous studies (nurses control over their own work, relationship with doctors, nurse staffing, administrative support to nurses, and nurse competence) were not changed and thus, can be compared with the findings of previous studies. Due to three additional items included in the scale, it was possible to add one more cumulative indicator that was not used during previous studies, namely: doctors' value of nursing, which is the summation of these three items. (The constituents of each of the cumulative indicators are provided in Appendix 5).

The cumulative indicators for each of four research sites are provided in Table 12. As shown in the table, the hospitals were not statistically homogeneous in terms of these indicators. The highest scores were revealed in Emergency hospital and the lowest in hospital # 122.

Table 12: Cumulative indicators of nurse work for the four research sites

Nursing Work Indicators**	Emergency hospital	“Erebouni” hospital	CCH	Hospital #122	Sig. (ANOVA)
Nursing work index*	126.4 (SD 15.0)	114.9 (SD 16.0)	105.3 (SD 18.7)	103.6 (SD 19.7)	.000
Nurses autonomy*	10.9 (SD 1.5)	9.6 (SD 2.0)	8.7 (SD 2.1)	8.6 (SD 2.2)	.000
Control over own work	26.0 (SD 2.4)	24.2 (SD 3.4)	20.8 (SD 4.2)	20.0 (SD 4.2)	.000
Relationship with doctors	7.3 (SD 1.0)	6.8 (SD 1.2)	7.0 (SD 1.3)	6.5 (SD 1.5)	.000
Nurse staffing	7.5 (SD 1.0)	6.7 (SD 1.3)	5.6 (SD 1.7)	5.8 (SD 1.6)	.000
Administrative support	18.2 (SD 2.2)	16.3 (SD 2.9)	14.8 (SD 3.2)	14.4 (SD 3.7)	.000
Career support*	14.5 (SD 2.0)	13.47 (SD 2.2)	13.0 (SD 2.6)	12.2 (SD 2.8)	.000
Nurse competence	7.3 (SD 1.2)	7.0 (SD 1.2)	7.1 (SD 1.3)	6.7 (SD 1.5)	.001
Doctors' value of nursing*	10.7 (SD 1.5)	10.0 (SD 1.9)	9.3 (SD 2.5)	8.8 (SD 2.5)	.000

* These indicators are not comparable with findings from the previous (5-country) research

** All the cases containing at least one missing are excluded

The findings were also compared between nurses working in demonstration versus non-demonstration units. on the aggregate level, no statistically significant differences were found between these two categories of nurses (there was a marginal significance only in the category of Nurse autonomy, where the mean score was slightly higher for those working in non-demonstration units, $p=0.045$). On the hospital level, no significant differences in cumulative work indicators were found between nurses working in demonstration versus those working in non-demonstration units of the Yerevan Emergency hospital. In Yerevan “Erebouni” hospital, the only significant difference was found in the category of Administrative support, where nurses from non-demonstration units had higher scores than those from demonstration units. In St. Petersburg Hospital #122, the differences in three categories (Nurse autonomy, Relationship with doctors, and Administrative support) were again in favor of those nurses working in non-demonstration units. Unlike this, nurses working in demonstration units of CCH, Moscow, had significantly higher scores in four categories: Nursing work index, Control over own work, Nurse staffing, and Career support (Table 13).

Table 13. Cumulative indicators of nurse work in demonstration vs. non-demonstration units

Nursing Work Indicators**	Emergency Hospital, Yerevan		“Erebouni” Hospital, Yerevan		CCH, Moscow		Hospital #122 St. Petersburg		Aggregated scores	
	Dem.	Non-dem.	Dem.	Non-dem.	Dem.	Non-dem.	Dem.	Non-dem.	Dem.	Non-dem.
Nursing work index*	126.1	126.6	114.4	115.1	108.5 [¶]	101.7 [¶]	104.8	102.7	112.9	110.9
Nurses autonomy*	10.9	10.8	9.3	9.7	8.7	8.7	7.8 [¶]	8.7 [¶]	9.1 [¶]	9.4 [¶]
Control over own work	26.4	25.9	23.7	24.4	21.7 [†]	19.6 [†]	20.5	20.0	22.9	22.5
Relationship with doctors	7.3	7.3	7.0	6.8	7.0	7.0	5.6 [‡]	6.7 [‡]	6.8	6.9
Nurse staffing	7.7	7.4	6.6	6.7	6.0 [¶]	5.2 [¶]	5.6	5.8	6.4	6.3
Administrative support	18.2	18.2	15.8 [¶]	16.6 [¶]	15.0	14.6	13.0 [¶]	14.7 [¶]	15.4	15.9
Career support*	14.3	14.5	13.4	13.5	13.4 [‡]	12.5 [‡]	12.0	12.3	13.4	13.1
Nurse competence	7.4	7.2	7.1	7.0	7.2	7.1	6.8	6.7	7.1	7.0
Doctors’ value of nursing*	10.6	10.8	9.8	10.1	9.2	9.5	8.2	8.9	9.5	9.7

* These indicators are not comparable with findings from the previous (5-country) research

** All the cases containing at least one missing are excluded from the analysis

[†] Significant difference, $p < 0.001$ (independent samples t-test)

[‡] Significant difference, $p < 0.01$ (independent samples t-test)

[¶] Significant difference, $p < 0.05$ (independent samples t-test)

The findings of this study were compared with the relevant data from US ANCC Magnet hospitals in five comparable cumulative categories (Control over own work, Relationship with doctors, Nurse staffing, Administrative support, and Nurse competence). On the aggregate level, all these scores were significantly higher in the research sites than in US Magnet-designated hospitals. On the hospital level, the scores in both Yerevan hospitals were significantly higher from those from US Magnet hospitals in all 5 categories. The CCH, Moscow was different from US Magnet hospitals in the categories of Relationship with doctors and Nurse competence. In both categories CCH had higher scores. The St. Petersburg Hospital # 122 had somewhat modest cumulative scores, but again showed significantly higher scores in the categories of Relationship with doctors and Nurse staffing (table 14). These findings could be explained by some cultural differences between US hospital staffs’ perceptions/attitudes and those of CIS countries’ hospital staffs. Also, a desire of some nurses to exaggerate the positive sides of their hospitals had a place and possibly, affected the survey results, especially in Yerevan sites.

Table 14. Comparison of some cumulative indicators with those from US Magnet hospitals

Nursing Work Indicators*	Aggregated data	Emergency hospital, Yerevan	Erebouni hospital, Yerevan	CCH, Moscow	Hospital #122, St. Petersburg	ANCC Magnet hospitals, US
	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Control over own work	22.62±4.33 [†]	26.02±2.38 [†]	24.19±3.37 [†]	20.78±4.2	20.04±4.17	20.64±3.98
Relationship with doctors	6.87±1.32 [†]	7.31±1.01 [†]	6.84±1.20 [†]	6.98±1.35 [†]	6.49±1.51 [‡]	6.05±1.25
Nurse staffing	6.29±1.61 [†]	7.48±1.00 [†]	6.66±1.33 [†]	5.63±1.69	5.77±1.60 [†]	5.60±1.63
Administrative support	15.71±3.38 [‡]	18.17±2.22 [†]	16.29±2.94 [†]	14.77±3.21	14.38±3.66	14.54±3.30
Nurse competence	7.02±1.29 [‡]	7.27±1.19 [†]	7.02±1.16 [‡]	7.12±1.30 [‡]	6.72±1.46	6.71±1.06

* All the cases containing at least one missing are excluded from the analysis

[†] Significant difference when comparing with US Magnet hospitals data, $p<0.001$

[‡] Significant difference when comparing with US Magnet hospitals data, $p<0.01$

[‡] Significant difference when comparing with US Magnet hospitals data, $p<0.05$

3.2.3. Burnout Inventory

The next scale incorporated into the Nurse Questionnaire was a 22-item Burnout Inventory aimed to measure the extent of job-related emotional exhaustion (Appendix 2). Two cumulative scores were calculated on the basis of this inventory (higher scores indicate higher levels of emotional exhaustion):

- Overall burnout score: a sum of all 22 items, 8 of which (items c4, c7, c9, c12, c17, c18, c19, and c21) were reverse coded to take the same direction of response options as the remaining items,
- Emotional exhaustion score: a summation of the items c1, c2, c3, c6, c8, c13, c14, c16, and c20.

The findings on hospital level are provided in Table 15.

Table 15. Job-related emotional exhaustion scores for four research sites

Emotional exhaustion indicators*	Emergency hospital	“Erebouni” hospital	CCH	Hospital #122	Sig. (ANOVA)
Overall burnout score	22.5 (sd 15.5)	27.4 (sd 13.2)	25.9 (sd 15.2)	31.0 (sd 17.3)	.000
Emotional exhaustion score (burnout 2)	6.9 (sd 8.7)	12.2 (sd 9.8)	15.9 (sd 9.6)	19.5 (sd 10.5)	.000

* All the cases containing at least one missing are excluded

As it is evident from the table, the four research sites were not homogeneous in terms of nurses' emotional burnout indicators. The highest exhaustion rates were revealed in the Hospital #122 and the lowest in the Emergency Hospital. According to two by two comparisons (Bonferroni), all four hospitals were significantly different from each other in terms of Emotional exhaustion (burnout 2) score ($p<0.01$). As to the overall burnout score, hospital #122 had significantly higher scores than Emergency hospital ($p<0.01$) and CCH ($p<0.05$).

Differences were found also between nurses working in demonstration vs. non-demonstration units. On the aggregated level, those working in demonstration units showed a lower level of emotional

exhaustion than those working in non-demonstration units. However, this difference was not statistically significant. Significant differences between nurses working in demonstration vs. non-demonstration units were found only in two Russian sites. In CCH, the difference was significant for the Emotional Exhaustion score (burnout 2), and in Hospital # 122 for the Overall burnout score. In both cases, nurses working in demonstration units were less exhausted emotionally than those working in non-demonstration units.

Table 16. Job-related emotional exhaustion scores for nurses working in demonstration vs. non-demonstration units

Emotional exhaustion indicators*	Emergency Hospital, Yerevan		“Erebouni” Hospital, Yerevan		CCH, Moscow		Hospital #122 St. Petersburg		Aggregated scores	
	Dem.	Non-dem.	Dem.	Non-dem.	Dem.	Non-dem.	Dem.	Non-dem.	Dem.	Non-dem.
Overall burnout score	20.76 ±16.7	23.22 ±15.0	29.03 ±14.6	26.57 ±12.4	25.60 ±16.6	26.15 ±13.4	25.39 [†] ±13.3	32.50 [‡] ±17.9	26.02 ±15.7	27.63 ±15.1
Emotional Exhaust. score (burnout 2)	7.68 ±10.5	6.64 ±7.9	13.00 ±10.8	11.75 ±9.3	14.20 [‡] ±9.4	17.85 [‡] ±9.5	17.18 ±8.7	19.99 ±10.8	13.32 ±10.2	14.52 ±10.8

* All the cases containing at least one missing are excluded

[‡] Significant difference ($p < 0.01$)

[†] Significant difference ($p < 0.05$)

The Emotional Exhaustion score was compared with that from US ANCC Magnet designated hospitals both on aggregated and on hospital levels. The results are presented in Table 17. In three out of four surveyed hospitals (Emergency hospital, “Erebouni” hospital, and CCH), nurses were significantly less exhausted emotionally than in US Magnet hospitals. Hospital #122 was not significantly different from US Magnet hospitals on the aggregated level, but when comparing the data from its demonstration units with the US data, the nurse exhaustion score was significantly higher in US hospitals than in the demonstration units of the Hospital #122 ($p < 0.05$). As with the cumulative indicators of nurse work, the possible explanations for this could be the cultural differences between US and former Soviet Union hospital nurses’ perceptions and attitudes towards their work, as well as some possible reluctance of local nurses in expressing their negative feelings in the questionnaire.

Table 17. Comparison of Emotional Exhaustion scores with that from US Magnet hospitals

	Aggregated data	Emergency hospital, Yerevan	Erebouni hospital, Yerevan	CCH, Moscow	Hospital #122, St. Petersburg	ANCC Magnet hospitals, US
	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Emotional Exhaustion score* (burnout 2)	14.11±10.58 [†] (n=720)	6.94±8.69 [†] (n=117)	12.18±9.79 [†] (n=234)	15.93±9.6 [†] (n=194)	19.46±10.48 (n=175)	21.50±10.16

* All the cases containing at least one missing are excluded

[†] Significant difference when comparing with US Magnet hospitals data ($p < 0.000$)

3.2.4. Job satisfaction

Nurses were given several questions concerning satisfaction with their job and profession, as well as the quality of care provided at their hospital. The findings are presented in Table 18. The hospitals were not homogeneous in terms of these items also. While the majority of nurses in CCH and Hospital # 122 rated their level of satisfaction with their present job as “moderately satisfied”, the answers of nurses from Yerevan hospitals were more scattered resulting in high levels of both “very satisfied” and “dissatisfied” options, which was particularly evident in Emergency hospital. With respect to satisfaction with being a nurse, the highest levels of satisfaction reported Emergency hospital nurses.

Table 18. Satisfaction with current job and profession as a nurse

Item	Hospital	Unit status	Very satisfied (%)	Moderately satisfied (%)	A little dissatisfied (%)	Very dissatisfied (%)
On the whole, how satisfied are you with your present job?	Emergency hospital*	Demonst. (n=42)	42.9	33.3	23.8	-
		Non-dem. (n=98)	33.7	38.8	23.5	4.1
	“Erebouni” hospital*	Demonst. (n=86)	20.9	36.0	37.2	5.8
		Non-dem. (n=170)	20.6	40.6	31.2	7.6
	CCH*	Demonst. (n=130)	15.4	66.2	16.9	1.5
		Non-dem. (n=117)	12.0	72.6	12.0	3.4
	Hospital #122*	Demonst. (n=38)	15.8	68.4	13.2	2.6
		Non-dem. (n=173)	16.8	65.3	13.9	4.0
Total	Demonst. (n=296)	20.9	53.0	23.3	2.7	
	Non-dem. (n=558)	19.9	54.7	20.4	5.0	
	Aggregated total (n=854)		20.3	54.1	21.4	4.2
How satisfied are you with being a nurse?	Emergency hospital*	Demonst. (n=42)	69.0	23.8	7.1	-
		Non-dem. (n=100)	65.0	25.0	8.0	2.0
	“Erebouni” hospital*	Demonst. (n=86)	32.6	53.5	12.8	1.2
		Non-dem. (n=170)	40.0	37.6	16.5	5.9
	CCH*	Demonst. (n=129)	39.5	48.8	7.8	3.9
		Non-dem. (n=116)	44.0	47.4	4.3	4.3
	Hospital #122*	Demonst. (n=38)	36.8	47.4	13.2	2.6
		Non-dem. (n=173)	31.2	52.6	11.6	4.6
Total	Demonst. (n=295)	41.4	46.4	9.8	2.4	
	Non-dem. (n=559)	42.6	42.0	10.9	4.5	
	Aggregated total (n=854)		42.2	43.6	10.5	3.7

* Hospitals were significantly different from each other in terms of both questions, $p < 0.001$

To make the data from this study comparable with that from previous studies, a dichotomous variable called Job Dissatisfaction was created based on job satisfaction item (higher numbers showing higher dissatisfaction). The nurses from demonstration and non-demonstration units were compared with each other in terms of this new variable. In all research sites, no statistically significant differences were found between these groups in terms of job dissatisfaction (Table 19).

Table 19. Job dissatisfaction among nurses from demonstration and non-demonstration units

	Emergency hospital		“Erebouni” hospital		CCH		Hospital #122		Total	
	Dem. n=42	Non-dem. n=98	Dem. n=86	Non-dem. n=170	Dem. n=130	Non-dem. n=117	Dem. n=33	Non-dem. n=173	Dem. n=296	Non-dem. n=558
Job dissatisfaction (%)	23.8	27.6	43.0	38.8	18.5	15.4	15.8	17.9	26.0	25.4

When comparing this item between different research sites and with relevant data from US magnet hospitals, it was found that proportion of those nurses dissatisfied with their current job was significantly higher in Yerevan hospitals than in Russian hospitals and US Magnet hospitals (Table 20).

Table 20. Job dissatisfaction proportion in four research sites

	Aggregated data	Emergency hospital, Yerevan	Erebouni hospital, Yerevan	CCH, Moscow	Hospital #122, St. Petersburg	ANCC Magnet hospitals, US
	<i>(n=854)</i>	<i>(n=140)</i>	<i>(n=256)</i>	<i>(n=247)</i>	<i>(n=211)</i>	
Job dissatisfaction	25.6%	26.4%	40.2%	17.0%	17.5%	16.3%
p-value*	<0.05	<0.05	<0.001	n.s.	n.s.	

* z-test comparing proportions from research sites to that from US hospitals

This finding contradicts previous findings showing much better work indicators and job-related feelings for nurses from Yerevan hospitals, thus adding one more argument that nurses in these hospitals were less forthcoming in answering these questions.

3.2.5. Plans to leave

Three items included in the questionnaire were intended to measure the likelihood of nurses to leave their job. On the aggregate level, only 19.7% of surveyed nurses consider very or fairly likely that they will lose their jobs during the next 12 months. The proportion of nurses considering likely losing their jobs was considerably higher (41.1%, $p<0.001$) in “Erebouni” hospital than in others (Table 21).

Table 21. Plans of surveyed nurses to leave their current jobs per each research sites

Item	Hospital	Response options (%)			
		<i>Very likely</i>	<i>Fairly likely</i>	<i>Not too likely</i>	<i>Not at all likely</i>
Likelihood of losing job during the next 12 months	Emergency h. *	8.5	4.9	28.2	58.5
	“Erebouni” h. *	18.8	22.3	46.5	12.5
	CCH*	3.7	5.3	41.1	50.0
	Hospital #122 *	2.9	7.7	44.5	45.0
	Total	8.8	10.9	41.4	38.9
Plans to leave present nursing position	Emergency h. *	0.7	3.5	9.2	86.6
	“Erebouni” h. *	1.6	2.3	27.7	68.4
	CCH*	4.1	8.2	42.8	44.9
	Hospital #122 *	2.4	9.1	45.5	43.1
	Total	2.4	5.9	33.3	58.5
How easy or difficult would be finding an acceptable job in nursing	Emergency h. *	7.1	11.3	41.8	33.7
	“Erebouni” h. *	2.4	10.6	54.1	32.9
	CCH*	20.9	38.5	35.6	5.0
	Hospital #122 *	12.0	35.1	38.9	13.9
	Total	10.8	24.7	43.1	21.5

* Statistically significant difference between Russian and Armenian sites ($p<0.001$)

On the other side, the proportion of those nurses planning to leave their position within next 6 or 12 months was significantly less ($p < 0.001$) in “Erebouni” and Emergency hospitals than in Russian sites. Nurses from the Russian sites found it much easier finding a new nursing job than did those from Armenian sites ($p < 0.001$).

The data was compared between demonstration and non-demonstration units after grouping the answers into positive and negative replies. The results are provided in Table 22. Generally, nurses from demonstration units were less likely losing their job or planning to leave their present position, and they considered it easier to find a new acceptable job in nursing. However, the only statistically significant difference was found between nurses working in demonstration vs. non-demonstration units of the Moscow CCH in terms of the easiness of finding a new acceptable job. The other differences were insignificant, possibly because of the limited sample size.

Table 22. Comparison of nurses (%) from demonstration vs. non-demonstration units in terms of plans concerning their current jobs

Reply	Emergency		“Erebouni”		CCH		Hospital 122		Total	
	Dem. N=41	Non-d N=100	Dem. N=85	Non-d N=170	Dem. N=127	Non-d N=112	Dem. N=38	Non-d N=170	Dem. N=293	Non-d N=557
Consider very/fairly likely losing job ¹	7.2	16.0	43.1	40.0	6.9	11.2	8.9	11.1	17.6	20.8
Plan leaving position within 6 or 12 months ²	4.8	4.0	3.5	4.1	9.4	15.7	7.9	12.3	6.8	9.0
Consider very/fairly easy finding nursing job ³	14.6	20.0	9.5	14.8	67.0 [†]	50.9 [†]	36.8	49.4	38.8	33.7

¹ Sum of proportions (%) of those who replied very likely and fairly likely to the question D3 concerning the likelihood of losing job within next 12 months

² Sum of proportions (%) of those who replied “yes, within 6 months” and “yes, within 12 months” to the question D4 concerning the plans to leave the present nursing position

³ Sum of proportions (%) of those who replied “very easy” and “fairly easy” to the question D5 concerning the perception on how difficult would be finding an acceptable job in nursing

[†]The difference is significant: $p = 0.01$

The data on plans to leave the current position was compared across the research sites and between the latter and the relevant data from US ANCC Magnet hospitals. The results are presented in Table 23 showing that all the research sites are significantly different from US hospitals. The proportion of those nurses planning to leave their present position within 6 and/or 12 months is much higher in US Magnet hospitals than in the studied sites. This can be explained by many factors starting from differences in job market in countries where the studies are conducted and ending with differences in culture, attitudes, and perceptions of nurses in different countries.

Table 23. Nurses’ plans of leaving their present position across the research sites and the US Magnet hospitals

	Aggregated data	Emergency hospital, Yerevan	Erebouni hospital, Yerevan	CCH, Moscow	Hospital #122, St. Petersburg	ANCC Magnet hospitals, US
	(n=854)	(n=142)	(n=256)	(n=247)	(n=209)	
Plans to leave the present position	8.2%	4.2%	3.9%	12.3%	11.5%	45.0%
p-value*	<0.001	<0.001	<0.001	<0.001	<0.001	

* z-test comparing proportions from research sites to that from US hospitals

3.2.6. Perception of the quality of nursing care

Several items measured nurses' perception about the quality of care they provide. In all research sites, the vast majority of nurses (85.3% on aggregate level) considered the quality of nursing care provided in their units as excellent or good (Table 24). However, less than half of them (47.9% on aggregate level) were confident in the ability of their patients to manage their own care after being discharged from the hospital. They were less optimistic also that their hospital management will act to resolve the patient care problems reported by nurses. Again, on the aggregate level, less than half of the surveyed nurses (41.7%) expressed confidence in this.

Table 24. Quality of nursing care

Item	Hospital	Response options (%)			
		<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>
Quality of nursing care in own units	Emergency h.	54.2	33.8	10.6	1.4
	“Erebouni” h.	34.8	49.6	15.6	-
	CCH	39.7	47.0	13.0	0.4
	Hospital #122	34.0	49.3	16.3	0.5
	Total	39.2	46.1	14.2	0.5
		<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not at all confident</i>
Patients are able to manage their care after discharge	Emergency h.	12.1	47.5	34.8	5.7
	“Erebouni” h.	7.4	35.0	54.5	3.1
	CCH	6.8	43.6	42.4	7.2
	Hospital #122	8.0	35.7	49.7	6.5
	Total	8.2	39.7	46.6	5.5
		<i>Very confident</i>	<i>Confident</i>	<i>Somewhat confident</i>	<i>Not at all confident</i>
Management addresses nurse-reported patient care problems	Emergency h.	26.2	41.8	25.5	6.4
	“Erebouni” h.	10.1	33.9	45.1	10.9
	CCH	6.1	25.4	41.0	27.5
	Hospital #122	8.0	24.5	48.0	19.5
	Total	11.2	30.5	41.3	17.0

The nurses were asked to assess the change in quality of patient care in their hospital over the past year. The hospitals were not homogenous in this matter. Nurses from Russian sites, and particularly from CCH, Moscow, were less optimistic than those from Armenian sites (Table 25).

Table 25. Quality of care over the past year

Reply	Emergency* (n=141)	“Erebouni”* (n=257)	CCH* (n=245)	Hospital 122* (n=200)	Total (n=843)
“Improved”	72.3	80.9	18.8	53.5	54.9
“Remained the same”	25.5	17.5	63.3	44.5	38.6
“Deteriorated”	2.1	1.6	18.0	2.0	6.5

* Statistically significant difference between hospitals ($p < 0.001$)

However, the overwhelming majority of nurses from all research sites mentioned that, if needed, they would recommend their family members to be treated in their hospital. The proportions of those participants who answered this question positively ranged from 81.5% in CCH to 98.4% in “Erebouni (Table 26). Again, when comparing proportions two-by-two (Z-test), the hospitals were different from each other in this matter: CCH and Hospital #122 were significantly different from each other and from the Armenian hospitals ($p < 0.01$).

Table 26. Would recommend their family member to be treated at their hospital (Q.D11)

Reply	Emergency (n=141)	“Erebouni” (n=257)	CCH (n=243)	Hospital 122 (n=204)	Total (n=845)
“Yes”	97.9	98.4	81.5*	90.7*	91.6

* Statistically significant difference between hospitals ($p < 0.01$)

The data on three items (Qs. D6, D8, D9) included in this part of the instrument were recoded to make the data comparable with those from the previous studies [8]. The item on quality on nursing care (Q. D6) was used for calculating the proportion of nurses considering the nursing care delivered in their units as excellent. The proportion of nurses confident that their patients were able to manage own care after discharge was calculated as a sum of those answering “very confident” and “confident” to item D9. The proportion of nurses considering the quality of patient care in their units has improved over the past year was calculated on the basis of Q.D8. The data on these items were compared between demonstration and non-demonstration units of each research site, as well as across the research sites and with the relevant data from NHS Trusts surveyed in 1999 [8] (since the relevant data on US Magnet hospitals was not available). The results are provided in Tables 27 and 28.

Table 27: Demonstration and non-demonstration unit nurses’ perception of nursing care quality

Reply	Emergency		“Erebouni”		CCH		Hospital 122		Total	
	Dem. N=42	Non-d N=100	Dem. N=86	Non-d N=170	Dem. N=130	Non-d N=117	Dem. N=38	Non-d N=171	Dem. N=296	Non-d N=558
Rating quality of care excellent	61.9	51.0	37.2	33.5	48.5*	29.9*	23.7	36.3	43.9‡	36.7‡
Care improvement over the past year	71.4	72.7	81.4	80.7	24.6†	12.2†	47.4	54.9	50.7	57.2
Patients’ ability to manage own care	61.9	58.6	45.3	40.9	51.2	49.6	29.7	46.9	48.3	47.7

* Statistically significant difference, $p=0.003$

† Statistically significant difference, $p=0.01$

‡ Statistically significant difference, $p=0.04$

Statistically significant differences between nurses working in demonstration versus non-demonstration units were found both on aggregate and hospital levels. Demonstration unit nurses rated the nursing care provided in their units as excellent more frequently than did non-demonstration unit nurses. The difference was statistically significant on aggregate level and on the level of CCH. Another statistically significant difference identified in CCH was that the demonstration unit nurses considered more frequently that the quality of care in the hospital was improved over the past year than did non-demonstration unit nurses.

During the comparison across hospitals, the surveyed hospitals were different from each other and from the US hospitals in terms of these three variables (Table 28). With its high score of rating the care excellent, the Emergency hospital was statistically different from three other hospitals and the US hospitals. In its turn, CCH was different from the US hospitals on this matter. The difference was statistically significant on the aggregate level, too, possibly reflecting lower self-requirements of nurses in the countries of former Soviet Union.

Three of the surveyed sites (Emergency hospital, “Erebouni” hospital, and Hospital #122) had statistically higher scores on “improvement of care over the past year” than CCH and the US hospitals. However, nurses from “Erebouni” hospital and Hospital # 122 were more pessimistic in

regard to their patients' ability to manage their own care after discharge than the nurses of the two other research sites and the US hospitals (Table 28).

Table 28: Perception of nursing care quality across research sites and in comparison* with the NHS Trusts surveyed in 1999, US

	Aggregated data	Emergency hospital, Yerevan	“Erebouni” hospital, Yerevan	CCH, Moscow	Hospital #122, St. Petersburg	US, NHS Trusts surveyed in 1999
	(n=854)	(n=142)	(n=256)	(n=247)	(n=209)	
Rating quality of care excellent	39.2 [¶]	54.2 [†]	34.8	39.7 [¶]	34.0	29.3
Care improv. over the past year	54.9 [†]	72.3 [†]	80.9 [†]	18.8	53.5 [†]	20.1
Patients' ability to manage own care	47.9 [¶]	59.6	42.4 [‡]	50.4	43.7 [‡]	59.7

* z-test comparing proportions from research sites to that from US hospitals

[†] p < 0.001

[‡] p < 0.01

[¶] p < 0.05

For the question concerning the frequency of negative incidents in the units over the past year, the answers were grouped so that the numbers given in Table 29 show the proportions of those nurses who answered “frequently” or “occasionally” to the given item. The most frequently reported incidents in all research sites were “incidents of verbal abuse toward nurses” followed by “work-related injuries of staff” and “complaints from patients/family”. The highest numbers of nosocomial/wound infections were reported by “Erebouni” hospital nurses. Work-related injuries and incidents of verbal abuse toward nurses were also more frequently mentioned by “Erebouni” nurses.

Table 29: Job-related incidents*

	Emergency hospital	“Erebouni” hospital	CCH	Hospital #122	Total
	(n=140)	(n=255)	(n=244)	(n=205)	(n=844)
Patients received wrong message	3.6	0.4	3.3	6.8	3.3
Nosocomial/wound infections	8.5	12.2 [‡]	4.7	4.0	7.5
Complaints from patients	11.3	11.8	9.7	14.8	11.8
Patient falls with injuries	6.3	2.4	5.1	4.9	4.4
Work-related injuries of staff	7.1	20.7 ^{**}	9.6	8.3	12.2
Verbal abuse toward nurses	19.3	32.7 [†]	24.7	25.2	26.4

* Proportions (%) of those nurses who answered “frequently” or “occasionally” to the given items

** Significantly different from three other sites (p < 0.05)

[†] Significantly different from the Emergency hospital and CCH (p < 0.05)

[‡] Significantly different from two Russian hospitals (p < 0.05)

The data was compared between nurses working in demonstration vs. non-demonstration units. On the aggregate level, no statistically significant differences between these two unit types in terms of the majority of work-related negative incidents were found (Table 30). The only significant difference was that demonstration unit nurses reported giving wrong message to patients more frequently than non-demonstration unit nurses did. On the hospital level, a significant difference between two types of units was found in CCH in terms of occurrence of nosocomial/wound infections (more frequent in non-demonstration units). In “Erebouni” hospital, demonstration units nosocomial/wound infections were reported more frequently, than in non-demonstration units. The latter, however, might be related to differences in specialization of demonstration and non-demonstration units.

Table 30: Job-related incidents* in Demonstration vs. Non-demonstration units

	Emergency hospital		“Erebouni” hospital		CCH		Hospital #122		Total	
	Dem.	Non-dem.	Dem.	Non-dem.	Dem.	Non-dem.	Dem.	Non-dem.	Dem.	Non-dem.
Patients received wrong message	4.9	3.0	1.2	-	3.9	2.6	18.4	4.2	5.1 [†]	2.4 [†]
Nosocomial/wound infections	9.5	8.0	21.2 [‡]	7.6 [‡]	1.7 [†]	8.0 [†]	2.6	4.3	8.7	6.8
Complaints from patients	9.5	12.0	16.5	9.4	11.8	7.2	23.7	12.7	14.4	10.4
Patient falls with injuries	2.8	8.0	1.2	3.0	4.0	6.3	10.5	3.6	3.8	4.8
Work-related injuries of staff	2.4	9.2	23.5	19.3	6.3	13.2	5.3	9.0	10.7	13.1
Verbal abuse toward nurses	21.4	18.4	37.2	30.4	20.6	29.2	31.6	23.8	27.1	26.0

* Proportions (%) of those nurses who answered “frequently” or “occasionally” to the given items

[†] Significant difference, $p < 0.05$

[‡] Significant difference, $p < 0.01$

Nearly half (43.1%) of surveyed nurses reported being stuck by a needle used for a patient. The distribution of answers per hospital is provided in Table 31. The reported frequency was similar for three research sites: “Erebouni” hospital, CCH, and Hospital # 122. Emergency hospital nurses reported this incident significantly less frequently ($p < 0.001$).

Table 31. Have been stuck with a needle that had been used for a patient

	Emergency hospital	“Erebouni” hospital	CCH	Hospital #122	Total
	(n=140)	(n=257)	(n=244)	(n=204)	(n=845)
Nurses have been stuck with a needle that had been used for a patient	26.4%*	47.1%	45.5%	46.6%	43.1%

* Statistically significant difference from the other research sites ($p < 0.001$)

The reported mean numbers of being stuck during nursing career, last year, and last month per each hospital are provided in Table 32. Half of the nurses who positively answered to this question reported being stuck one-two times, and the overwhelming majority (95%) of them reported being stuck up to 10 times. There were a few outliers who mentioned being stuck from one hundred to several hundred times. These outliers adversely affected the means and standard deviations reported in table 32.

Table 32. Mean numbers of being stuck during nursing career, last year, and last month per each hospital (mean ± standard deviation)

	Emergency hospital	“Erebouni” hospital	CCH	Hospital #122	Total
	(n=33)	(n=119)	(n=105)	(n=87)	(n=344)
During nursing career	29.7±139.3	8.3±22.7	2.8±3.0	3.5±4.4	7.7±46.7
During last year	7.4±16.2	3.1±7.7	1.2±1.7	1.5±1.7	2.3±6.9
During last month	0.9±2.7	0.8±1.7	0.2±0.6	0.2±0.6	0.5±1.4

3.2.7. Characteristics of the last full shift

In this section some questions were included to find out the characteristics of the last work shift of participants. More than half of the nurses mentioned that their last shift was a 24-hour shift. In terms of frequency, the next was a daytime shift. Evening and night shifts were mentioned much less frequently (Table 33). The research sites were not very different from each other in this sense.

Table 33. Type of the last shift worked per research sites (proportions)

	Emergency hospital (%)	“Erebouni” hospital (%)	CCH (%)	Hospital #122 (%)	Total (%)
	(n=140)	(n=255)	(n=245)	(n=202)	(n=842)
Day	21.4	38.0	35.9	49.5	37.4
Evening	0.7	1.6	0.8	4.5	1.9
Night	5.7	13.3	4.9	5.9	7.8
24 hours	72.1	47.1	58.4	40.1	52.9

The mean numbers of patients in a given unit during the last worked shift and the mean numbers of those patients assigned to nurses are provided in Table 34. The hospitals were not homogenous in terms of patient load. According to the post-hoc test (Bonferroni), Hospital #122 was significantly different from the three other research sites: both the mean number of patients on unit during a shift and the mean number of patients assigned to a nurse were significantly higher here. Partially, this may explain the previous findings of higher burnout scores of nurses in this hospital (see Table 15).

Table 34. Mean numbers of unit patients* and those assigned to nurses during their last shift

	Emergency hospital	“Erebouni” hospital	CCH	Hospital #122	Total	Oneway ANOVA
	(n=140)	(n=255)	(n=236)	(n=182)	(n=813)	
Number of patients on a unit	20.0±10.4	15.9±9.9	15.8±16.6	36.3±40.0**	21.1±23.5	p< 0.000
Number of patients assigned to a nurse	11.8±8.5	10.7±8.6	11.2±8.8	19.9±15.0**	13.1±11.0	p< 0.000

* mean ± standard deviation

** statistically significant difference from the other sites (p<0.001)

When comparing patient load between demonstration and non-demonstration units on aggregate level, both the number of patients on a unit and the number of patients assigned to a nurse during a shift were significantly lower in demonstration than in non-demonstration units (p<0.000, Table 35). The difference in numbers of patients assigned to a nurse between these two unit types is still significant on the hospital level. In all four hospitals, nurses working in demonstration units were significantly less overloaded in terms of the number of patients assigned to them, than those

working in non-demonstration units. As to the number of patients on a unit, demonstration units had fewer patients during a shift than non-demonstration units. The latter difference was statistically significant in two hospitals: Emergency hospital and CCH (Table 35).

Table 35. Mean numbers of unit patients and those assigned to participants* during their last shift in Demonstration vs. Non-demonstration units for each research site

	Emergency hospital		“Erebouni” hospital		CCH		Hospital #122		Total	
	Dem. n=41	Non-dem. n=97	Dem. n=86	Non-dem. n=170	Dem. n=117	Non-dem. n=114	Dem. n=35	Non-dem. n=148	Dem. n=279	Non-dem. n=529
Mean number of patients on a unit	17.1± 7.9 [¶]	21.2± 11.2 [¶]	15.1± 8.9	16.3± 10.3	9.6± 8.2 [†]	22.3± 20.3 [†]	35.1± 19.3	36.5± 43.8	15.4± 13.2 [†]	24.1± 27.1 [†]
Mean number of patients assigned to a nurse	8.6 ± 6.3 [‡]	13.2± 8.9 [‡]	8.5 ± 8.1 [‡]	11.8± 8.6 [‡]	7.5± 6.3 [†]	15.1± 9.4 [†]	14.4± 15.5 [‡]	21.2± 14.6 [‡]	8.8± 8.8 [‡]	15.7± 11.4 [‡]

* mean ± standard deviation

[†] statistically significant difference ($p < 0.001$)

[‡] statistically significant difference ($p < 0.01$)

[¶] statistically significant difference ($p < 0.05$)

Nurses were asked to assign a degree of severity to the patients assigned to them during their last shift. The results are provided in Table 36. The highest proportion of “least severely ill” patients was reported by nurses from Hospital # 122, where the highest workload of nurses (in terms of the number of patients assigned to them) was revealed. Thus, the highest proportion of least severely ill patients among those assigned to these nurses might, in some extent, reduce their high workload. However, the differences were not statistically significant.

Table 36. Proportions of patients with different degree of severity assigned to a nurse during a shift across the four research sites

Degree of severity	Emergency hospital	“Erebouni” hospital	CCH	Hospital #122	Total
Very severely ill	9.1%	7.3%	8.5%	6.0%	7.1%
Rather severely ill	15.2%	15.9%	13.5%	11.4%	14.2%
Least severely ill	75.7%	76.8%	78.0%	82.6%	78.7%

When comparing the severity of patients between demonstration and non-demonstration units, higher proportions of severely ill patients were reported by nurses working in demonstration units ($p < 0.001$). This means that the fewer numbers of patients assigned to nurses of these units get partially compensated by the higher proportions of severely ill patients among them (Table 37).

Table 37. Proportions of patients with different degree of severity in Demonstration vs. Non-demonstration units

Degree of severity	Demonstration units*	Non-demonstration units*
Very severely ill	10.0%	6.6%
Rather severely ill	20.4%	11.6%
Least severely ill	69.6%	81.8%

* statistically significant difference ($p < 0.001$)

The nurses were asked about the type of tasks they performed during their last shift. The answers are grouped and presented in Table 38. The most frequently conducted task was starting IVs, followed by ordering, coordinating, or performing ancillary services, transporting of patients and arranging discharge referrals. Of surveyed nurses, 39.6% mentioned performing housekeeping duties and 22.0% delivering and retrieving food trays. The latter number was lower in Armenian

hospitals vs. Russians because of an objective reason: Armenian hospitals rarely provide food to in-patients (patient family members usually take care of this).

Table 38. Tasks performed by nurses during their last shift across hospitals

Tasks	Emergency hospital (%)	“Erebouni” hospital (%)	CCH (%)	Hospital #122 (%)	Total (%)
Delivering/retrieving food trays	8.6	9.7	28.2	39.6	22.0
Ordering/performing ancillary services	48.2	34.2	53.4	65.8	49.6
Starting IVs	85.6	73.5	59.7	64.9	69.5
Arranging discharge referrals	59.0	45.5	43.3	32.2	43.9
Performing ECGs	36.0	37.7	23.9	22.3	29.8
Routine phlebotomy	2.9	3.9	5.9	15.8	7.2
Transporting of patients	53.2	35.8	46.2	47.5	44.5
Housekeeping duties	36.0	43.2	45.4	30.7	39.6
None of the above	0.7	8.2	11.8	11.4	8.7

Demonstration unit nurses mentioned conducting housekeeping duties even more frequently than non-demonstration unit nurses did ($p < 0.001$, Table 39). Other differences revealed between demonstration and non-demonstration unit nurses (IVs, ECGs, ancillary services) might be explained by differences in specializations of units designated as demonstration and non-demonstration.

Table 39. Tasks conducted by nurses during their last shift in demonstration vs. non-demonstration units

Tasks	Demonstration units (%)	Non-demonstration units (%)
Delivering/retrieving food trays	25.1	20.4
Ordering/performing ancillary services	55.0*	46.8*
Starting IVs	76.6*	65.7*
Arranging discharge referrals	49.5*	40.9*
Performing ECGs	46.0*	21.1*
Routine phlebotomy	8.6	6.4
Transporting of patients	46.0	43.7
Housekeeping duties	52.9*	32.5*
None of the above	5.8	10.3

* The difference is statistically significant ($p < 0.001$)

Nurses were asked also to mention the tasks that were necessary but left undone because of lack of time to complete them. The answers are provided in Table 40. “Routine teaching explanations for patients and family” and “Comforting/talking to patient” were the most frequently mentioned tasks left incomplete because of time constrains. Emergency hospital nurses reported these and the other uncompleted tasks more often than nurses from other research sites did.

In terms of comparisons between demonstration vs. non-demonstration units, nurses from non-demonstration units mentioned two items significantly more often than demonstration unit nurses did ($p = 0.01$): having no time for comforting/talking to patients and developing and updating nursing care plans (Table 41). The latter is difficult to interpret, because in many of non-demonstration units of the research sites nursing care plans are not being used.

Table 40. Undone tasks because of lack of time to complete them

Undone tasks	Emergency hospital (%)	“Erebouni” hospital (%)	CCH (%)	Hospital #122 (%)	Total (%)
Routine teaching explanations for patients	29.0	19.8	21.6	27.8	23.7
Prepare patients and families for discharge	29.0	15.9	11.6	14.8	16.8
Comforting/talking with patients	30.5	21.0	18.4	18.9	21.6
Adequately documenting nursing care	19.8	12.7	7.9	13.0	12.8
Back rubs and skin care	23.7	12.7	7.4	21.3	15.2
Oral hygiene	19.1	11.1	6.8	16.0	12.5
Develop or update nursing care plans	21.4	15.1	8.4	12.4	13.9
Non of the above	38.5	57.1	62.1	42.4	51.8

Table 41. Undone tasks because of lack of time to complete them: demonstration units vs. non-demonstration units

Undone tasks	Demonstration units (%)	Non-demonstration units (%)
Routine teaching explanations for patients	24.9	23.1
Prepare patients and families for discharge	16.3	17.1
Comforting/talking with patients	16.3*	24.3*
Adequately documenting nursing care	11.7	13.4
Back rubs and skin care	12.1	16.9
Oral hygiene	12.1	12.8
Develop or update nursing care plans	9.7*	16.1*
Non of the above	54.1	50.6

*Significant difference: $p=0.01$

The nurses were asked to rate the nursing care delivered on their last shift. Approximately one-third of the nurses described the care as excellent, while more than half rated it as good. Emergency hospital nurses assigned the highest ratings to the quality of provided care (Table 42). The remaining sites were not significantly different from each other in this matter.

Table 42. Quality of nursing care during last shift

Ratings*	Emergency hospital (%)	“Erebouni” hospital (%)	CCH (%)	Hospital #122 (%)	Total (%)
Excellent	46.4	28.9	34.5	31.7	34.1
Good	41.4	55.9	53.8	59.1	53.5
Faire	12.1	14.8	11.8	9.1	12.2

* There was no “poor” response option selected

When comparing demonstration and non-demonstration units, the rating of nurses from demonstration units was skewed to the positive side: higher frequency of “excellent” ratings and fewer “fair” ratings (the difference was significant: $p=0.05$). The data is provided in table 43.

Table 43. Quality of nursing care during last shift: Demonstration units vs. Non-demonstration units

Ratings*	Demonstration units	Non-demonstration units
	(%)	(%)
Excellent	38.0 [†]	32.0 [†]
Good	52.1	54.4
Faire	9.9 [†]	13.4 [†]

* There was no “poor” response option selected

[†] Statistically significant difference ($p=0.05$)

When asked if they would recommend a career in nursing to a family member, the majority of nurses from Emergency hospital answered “yes, without reservation”, while the reply of the majority of nurses from other research sites was “no” or “yes, with some reservation”. This finding is difficult to explain. Generally, the hospitals were rather different from each other in this matter (Table 44). The distribution of answers to this question in demonstration vs. non-demonstration units was almost similar (no significant difference, Table 45).

Table 44. Recommending a career in nursing to a family member

	Emergency hospital*	“Erebouni” hospital*	CCH*	Hospital #122*	Total (%)
	(%)	(%)	(%)	(%)	
No	2.8	13.2	38.7	3.9	26.4
Yes, with some reservation	37.3	53.3	46.8	50.9	48.2
Yes, without reservation	59.2	33.1	13.3	4.2	24.6

* Statistically significant difference ($p<0.001$)

Table 45. Recommending a career in nursing to a family member: Demonstration units vs. Non-demonstration units

	Demonstration units	Non-demonstration units
	(%)	(%)
No	28.0	25.6
Yes, with some reservation	44.9	49.9
Yes, without reservation	26.4	23.6

3.3. Patient survey findings

Patients’ satisfaction with nursing care was measured in two ways: using a 36-item scale: an adapted version of the 42-item La Monica-Oberst Patient Satisfaction scale (LOPSS) [6] and a single-item overall satisfaction rating. The instrument is provided in Appendix 2. The negatively worded items (23 items) of the multi-item scale were reverse-coded to calculate an overall score of patient satisfaction (where higher scores indicate higher levels of satisfaction). The overall satisfaction rating was calculated by asking patients to rate the overall nursing care in their unit and the overall medical care provided by physicians using the following ratings: excellent, good, fair, poor.

The findings on the mean satisfaction score produced from the multi-item scale for the four research sites are provided in Table 46 (4 is the highest possible score). As it is evident from table 46, hospitals varied in terms of mean patient satisfaction scores. Hospital #122 patients’ mean satisfaction score was significantly higher than that in Emergency hospital and “Erebouni” hospital. This finding contradicts those on cumulative indicators of nurse work that were significantly higher in Yerevan hospitals than in Russian sites and particularly, in Hospital #122. Taking into

consideration the fact, that normally the correlation between patient satisfaction and nursing work index is positive (according to the previous 5-country study findings), one can conclude that the negative correlation in this study adds one more argument to the assumption that nurses in Yerevan hospitals tended to exaggerate the positive aspects of their work environment while completing the questionnaires.

Table 46: Mean patient satisfaction scores in four research sites

	Emergency hospital (%)	“Erebouni” hospital (%)	CCH (%)	Hospital #122 (%)	Total (%)
Mean satisfaction score	3.42 [†]	3.44 [‡]	3.48	3.51 ^{†‡}	3.46
Standard deviation	0.40	0.42	0.46	0.38	0.41
Number of observations	367	350	195	244	1156

[†] statistically significant difference between Emergency hospital and Hospital #122 ($p < 0.01$)

[‡] statistically significant difference between “Erebouni” hospital and Hospital #122 ($p < 0.05$)

There were no statistically significant differences in mean patient satisfaction scores between demonstration and non-demonstration units either on the aggregate or hospital level (Table 47). The mean scores for each item included in the patient satisfaction scale are provided in Appendix 7.

Table 47. Mean patient satisfaction scores in demonstration versus non-demonstration units

	Emergency hospital		“Erebouni” hospital		CCH		Hospital #122		Total	
	<i>Dem.</i> <i>n=102</i>	<i>Non-dem.</i> <i>n=256</i>	<i>Dem.</i> <i>n=99</i>	<i>Non-dem.</i> <i>n=251</i>	<i>Dem.</i> <i>n=90</i>	<i>Non-dem.</i> <i>n=105</i>	<i>Dem.</i> <i>n=39</i>	<i>Non-dem.</i> <i>n=205</i>	<i>Dem.</i> <i>n=330</i>	<i>Non-dem.</i> <i>n=826</i>
Mean patient satisfaction score	3.43± 0.42	3.41± 0.39	3.40± 0.50	3.46± 0.38	3.43± 0.55	3.52± 0.37	3.58± 0.34	3.50± 0.39	3.44± 0.48	3.46± 0.38

* All the cases containing at least one missing are excluded (23.3% of all cases, resulting in a response rate of 76.7%)

With respect to the single-item satisfaction question, overall, patients rated nursing care as excellent in 45.2% of cases and good in 45.8% of cases. Again, hospitals varied in terms of overall patient satisfaction with nursing care (Table 48). The sum of proportions of those who rated the nursing care as fair or poor was higher in Armenian sites than in Russian sites ($p < 0.001$). In its turn, the proportion of fair and poor answers was significantly higher ($p < 0.05$) in Emergency hospital than in “Erebouni” hospital. These findings were consistent with those revealed through the multi-item scale.

Table 48. Rating of nursing care (percentages)

Rating	Emergency hospital (n=404)	“Erebouni” hospital (n=398)	CCH (n=331)	Hospital #122 (n=335)	Total (n=1468)
Excellent	41.1	49.5	52.3	38.2	45.2
Good	42.8	39.7	43.8	58.5	45.8
Fair	15.3	9.8	3.6	3.3	8.4
Poor	0.7	1.0	0.3	-	0.5

* Statistically significant difference between four hospitals ($p < 0.001$)

As to the differences between demonstration vs. non-demonstration units, the sum of fair and poor ratings in Armenian sites was higher in demonstration units, in Russian sites in non-demonstration units. However, the difference was significant only in Emergency hospital. There was difference between these two unit types in terms of “excellent” responses either. In both Russian sites, the proportion of “excellent” ratings of nursing care was significantly higher than that in non-demonstration units (Table 49).

Table 49. The sum of fair and poor ratings (percentages) of nursing care in demonstration vs. non-demonstration units

Rating	Emergency hospital		“Erebouni” hospital		CCH		Hospital #122		Total	
	Dem. n=114	Non-dem. n=290	Dem. n=120	Non-dem. n=278	Dem. n=139	Non-dem. n=925	Dem. n=58	Non-dem. n=277	Dem. n=431	Non-dem. n=1037
Excellent	41.2	41.0	48.3	50.0	59.0*	47.4*	70.7 [‡]	31.4 [‡]	52.9 [‡]	42.0 [‡]
Fair + Poor (%)	22.0*	13.8*	15.0	9.0	2.9	4.7	-	4.0	10.9	7.9

* Statistically significant difference, $p < 0.05$

[‡] Statistically significant difference, $p < 0.001$

In all research sites, the satisfaction with medical care provided by physicians was higher than with nursing care in terms of higher proportion of “excellent” responses (Tables 48 and 50). The difference in satisfaction with physician vs. nursing care was statistically significant in all research sites besides Hospital #122. Hospitals were not different from each other in terms of satisfaction with medical care: the sum of “excellent” and “good” responses was almost equal in all sites.

Table 50. Rating of medical care provided by physicians (percentages)

Rating	Emergency hospital (n=402)	“Erebouni” hospital (n=400)	CCH (n=314)	Hospital #122 (n=340)	Total (n=1456)
Excellent	67.4	68.5	63.1	44.7	61.5
Good	27.9	27.0	33.1	50.3	34.0
Fair	4.0	4.0	3.8	5.0	4.2
Poor	0.7	0.5	-	-	0.3

When comparing demonstration vs. non-demonstration units, statistically significant differences were found in CCH and Hospital #122. In CCH, the proportion of “excellent” ratings of medical care was significantly higher in demonstration units, while in Hospital #122 the sum of “poor” and “fair” ratings was significantly higher in demonstration units (Table 51).

Table 51. The sum of fair and poor ratings (percentages) of medical care in demonstration vs. non-demonstration units

Rating	Emergency hospital		“Erebouni” hospital		CCH		Hospital #122		Total	
	Dem. n=113	Non-dem. n=289	Dem. n=120	Non-dem. n=280	Dem. n=134	Non-dem. n=180	Dem. n=57	Non-dem. n=283	Dem. n=424	Non-dem. n=1032
Excellent	62.8	69.2	69.2	68.2	73.1 [‡]	55.6 [‡]	56.1	42.4	67.0 [‡]	59.2 [‡]
Fair + Poor (%)	6.2	4.2	4.2	4.6	2.2	5.0	22.8 [†]	1.4 [†]	5.9*	3.5*

* statistically significant difference, $p < 0.05$

[†] statistically significant difference ($p < 0.001$)

[‡] statistically significant difference ($p < 0.01$)

Patients were also asked to estimate the degree of assistance they need in their daily living activities to assess the severity of their condition. The results are presented in Table 52. As it is evident from the table, the proportion of severely ill patients was the highest in Emergency hospital, followed by “Erebouni” hospital. The least proportion of severely ill patients was at CCH.

Table 52. Need of assistance in daily living activities: the four research sites

Activity	Degree of help needed	Emergency hospital	“Erebouni” hospital	CCH	Hospital #122	Total
Bathing	Some help (%)	30.3	25.6	12.5	25.3	24.2
	Much help (%)	35.7	14.8	5.9	5.1	17.0
Dressing	Some help (%)	33.6	25.9	9.0	17.2	22.8
	Much help (%)	23.9	8.3	5.9	1.7	10.9
Grooming	Some help (%)	20.2	12.8	6.6	13.9	13.9
	Much help (%)	17.2	4.0	3.8	0.7	7.1
Toileting	Some help (%)	21.8	19.1	12.7	17.8	18.3
	Much help (%)	23.8	7.8	5.5	1.7	10.7
Eating	Some help (%)	26.1	20.9	10.4	17.7	19.5
	Much help (%)	15.9	3.8	4.5	0.7	6.8
Walking	Some help (%)	25.1	19.8	14.7	28.7	22.2
	Much help (%)	23.6	10.1	5.1	3.7	11.6

* hospitals were not homogeneous in terms of all mentioned activities ($p < 0.001$)

The proportion of patients in need of much help in daily living activities was higher in demonstration units (Table 53), meaning that there were more severe patients in demonstration than non-demonstration units during the time when the survey was conducted.

Table 53. Need of assistance in daily living activities: demonstration vs. non-demonstration units

Activity	Degree of help needed	Demonstration units	Non-demonstration units
Bathing	Some help (%)	20.9	25.5
	Much help (%)	21.4	15.1
Dressing	Some help (%)	21.2	23.4
	Much help (%)	14.6	9.4
Grooming*	Some help (%)	13.5	14.1
	Much help (%)	10.3	5.7
Toileting*	Some help (%)	19.3	17.9
	Much help (%)	13.9	9.3
Eating	Some help (%)	19.1	19.7
	Much help (%)	9.8	5.5
Walking	Some help (%)	19.5	23.3
	Much help (%)	14.8	10.3

* Statistically significant difference between demonstration vs. non-demonstration units in terms of grooming and toileting ($p < 0.05$)

An open-ended question at the end of the patient questionnaire asked patients to make suggestions for improving their unit. The suggestions made most frequently were:

- environment-related: repairing wards, improving hygiene, furnishing, and bathrooms, making wards more comfortable and less crowded, installing TV-s, providing hot water;
- service-related: improving quality of care, improving knowledge and skills of nurses, treating patients better, providing more information on disease and treatment;
- organization-related: enlarging nurse staff and increasing salary of nurses, giving more responsibilities to nurses;
- supply-related: providing better supplies (drugs, disposables), providing/improving food at hospital, providing convenient wheelchairs;
- payment-related: decreasing the cost of services, introducing discounts, making some services free of charge, improving payment mechanisms, eradicating informal payments.

4. Discussion

As mentioned previously, the data generated during this survey was intended to serve as a baseline for further longitudinal comparisons at different points of implementation of the Magnet Initiative. At this point, however, the survey provided a unique opportunity to make comparisons of nursing care in three dimensions: between four research sites located in two countries of CIS, between two types of hospital units: demonstration and non-demonstration, and between perception of nurses about their own work and patients' perception about the nursing care they received. These multi-dimensional comparisons revealed a number of interesting findings, some of which were unique for particular research sites. The hospitals were rather different from each other in terms of units' specialization; work organization; hospital culture; proportion of severely ill patients; and the way nurses and patients approached the survey itself.

Between hospital comparisons

One of the interesting findings was the contradiction between nurses' responses to items intended to measure the same or mutually inter-related variables. For instance, the Nursing Work Index and the relevant cumulative indicators were significantly higher in Yerevan hospitals than in Russian hospitals and the US Magnet-designated hospitals. The same was true for job-related emotional exhaustion scores. Meanwhile, the proportion of those nurses dissatisfied with their current job was significantly higher in Yerevan hospitals than in Russian hospitals and the US Magnet-designated hospitals. These contradictory findings, possibly, could be explained by some perceptual/attitudinal/cultural differences between nurses representing different countries, which affected the way they approached the task of completing a work-related questionnaire. At least in Yerevan sites, the reluctance of nurses to express any negative job-related thoughts/feelings in the questionnaire was evident during the fieldwork

The proportion of nurses considering likely losing their jobs was higher in Yerevan hospitals (especially in "Erebouni") than in Russian sites. Meanwhile, the proportion of those nurses planning to leave their position was much lower in Yerevan hospitals than in Russian sites and in US Magnet-designated hospitals. On the other hand, nurses from Russian sites found it much easier finding a new nursing job than did those from Armenian sites. This might provide one more reason to explain the fear of nurses from Yerevan sites of losing their job and making them exaggerate the positive aspects and ignore the negative aspects of their work.

The replies to the questions concerning the quality of care/its recent changes were skewed in the same way as those on the Nursing Work Index and the Burnout Inventory: more positively answered by Yerevan hospitals' nurses (especially by those from Emergency hospital) and less positively by nurses from Russian and US hospitals.

With regard to the frequency of some negative incidents happened in the units over the past year, the most frequently reported incidents were verbal abuse toward nurses, work-related injuries of staff (more frequently mentioned by "Erebouni" hospital nurses), and complaints from patients/family.

Despite the reluctance of some nurses to answer some items critically, it was possible to reveal some associations through inter-hospital comparisons. For instance, a positive association was revealed between nurse burnout score and nurse overload: nurses from Hospital #122 reported the highest number of patients assigned to a nurse during a shift (19.9). Meanwhile, the Emotional exhaustion score of nurses was the highest among nurses from this hospital.

Striking among the performed by nurses during their last shift is the high frequencies of duties outside of the scope of usual nurse responsibilities, such as delivering food trays and conducting housekeeping duties (on aggregate level, 22% and 40% respectively). Meanwhile, the most frequently mentioned tasks left incomplete because of time constraints were providing routine teaching explanations for patients and comforting/talking to patients (on aggregate level, 23.7% and 21.6% respectively). These findings suggest that core nursing functions are suffering.

Between unit comparisons: demonstration vs. non-demonstration

Although the designation of some hospital units as demonstration units took place just recently (less than a year ago) in all four research sites, the survey results showed some significant differences between demonstration and non-demonstration units, and more frequently these differences were in favor of demonstration units. However, it was difficult to find an ideal comparison for demonstration units inside the same hospital. Demonstration and non-demonstration units were different not only with their designation status, but also with their specialization and other specifics. Thus, as with comparison between different hospitals, one should be cautious in interpreting the results of comparisons between these two unit types.

The response rate of nurses in Russian sites was significantly higher in demonstration, than in non-demonstration units, showing higher interest among demonstration-unit nurses to participate in Magnet Initiative-related activities.

Statistically significant differences between demonstration vs. non-demonstration unit nurses were found in terms of work-related emotional exhaustion indicators. On the cumulative level, those nurses working in demonstration units showed lower levels of emotional exhaustion than those working in non-demonstration units. However, this difference was statistically significant only in two Russian sites.

In all four hospitals, there was no statistically significant difference between the two groups of nurses in terms of job satisfaction. The value of quality of nursing care provided was higher among demonstration unit nurses.

The findings were not consistent across the research sites in terms of occurrence of adverse events in units. In CCH, nosocomial/wound infections were reported significantly more frequently by non-demonstration unit nurses, while in “Erebouni” hospital an opposite situation was revealed. Another statistically significant difference was that, on cumulative level, demonstration unit nurses reported more frequently giving wrong message to patients than non-demonstration unit nurses did.

In all four hospitals, nurses working in demonstration units were significantly less overloaded in terms of the number of patients assigned to them than those working in non-demonstration units. This difference, however, might be caused by specifics of those units designated as demonstration (for instance, in three out of four research sites there are ICUs among demonstration units, where fewer patients are assigned to a nurse). Indeed, when comparing the severity of patients in demonstration vs. non-demonstration units, the proportion of severely ill patients was higher in demonstration units. Also, demonstration unit nurses mentioned conducting different nursing (IVs, ECGs, ancillary services, discharge referrals) and non-nursing (housekeeping) tasks more frequently than non-demonstration unit nurses did. These provide more arguments to the assumption that one should be very cautious when comparing different types of hospital units with each other.

Comparisons between nurse and patient surveys

In several instances, the expressed opinions of patients and nurses on the same issues were contradictory. For instance, while the highest scores for cumulative indicators of nurse work were found in Emergency hospital and the lowest in Hospital # 122, the patient survey revealed the opposite picture: the mean score for patient satisfaction with nursing care was the highest in hospital # 122 and the lowest in Emergency hospital.

In contrary, the correlation was positive in terms of the extent of severity of patients across the hospitals. Both surveys indicated that the proportion of severely ill patients was higher in demonstration units, than in non-demonstration units.

Nurses, particularly in Yerevan sites were likely reluctant to give critical answers to some questions directly related to their own attitude towards their work, while the questions concerning this issue indirectly/impersonally (the number of severely ill patients, the workload, etc.) were answered more honestly.

However, the survey provided a baseline data of acceptable quality (particularly in Russian sites) against which the future progress of implementation of the Magnet initiative could be measured.

5. Conclusions

- ❑ The survey provided acceptable quality data against which the progress of Magnet Initiative implementation could be measured through further longitudinal assessments.
- ❑ The survey gave an opportunity to make comparisons between nursing care in hospitals located in different countries and cities, thus revealing the local specifics of each site.
- ❑ Some previously confirmed correlations between different aspects of nursing, e.g. higher workload associated with higher emotional exhaustion scores of nurses, were replicated.
- ❑ Some differences were found between hospital units designated as demonstration and non-demonstration, generally in favor of the former, which could partially be a result of specifics of the units designated as demonstration, but also of the impact of initial efforts to implement the principles of Magnet Initiative.
- ❑ The nurse survey findings for Yerevan hospitals were contradictory leading to a conclusion that nurses in these sites were reluctant to give critical answers to some items included in the questionnaire. This tendency was particularly evident in Emergency hospital.
- ❑ Some findings were conflicting between nurse survey and patient survey, adding more arguments in favor of the above-mentioned assumption.
- ❑ The lessons learned from the survey pointed out the importance of considering perceptions/ attitudes of nurses from different backgrounds/cultures when making an attempt to apply western survey techniques to measure work-related indicators that could be sensitive in settings with centralized organization and limited work opportunities.

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Appendixes

Appendix 1. Interviewer Training Manual

Project Overview

The Center for Health Services and Policy Research at the University of Pennsylvania School of Nursing, an American International Health Alliance partner organization, has provided funding to extend the University of Pennsylvania's studies on the effects of hospital nurse staffing and nurse work environments into countries like Armenia and Russia and to evaluate the applicability of a US hospital quality improvement model to these countries contexts. The implementation of this model, which is a formal, voluntary accreditation program for nursing care excellence established in early 1990s and known as the Magnet Hospital Nursing Services Recognition Program, has just been initiated in selected units of two Armenian and two Russian hospitals. If applicable, the model will largely contribute to the improvement of the quality of services provided by these health institutions, creating a basis for extending the model into other health institutions in these countries. All of these considerations motivated the Center for Health Services Research and Development at the American University of Armenia to collaborate with the University of Pennsylvania Nursing School in undertaking this research.

Penn's Center for Health Outcomes and Policy Research has conducted NIH-supported research on the outcomes of the formally accredited magnet hospitals and has documented that hospitals that achieve ANCC Magnet Recognition do indeed have superior patient outcomes including higher patient satisfaction and high nurse job satisfaction and retention (Aiken, Havens, Sloane, 2000). In response to the growing international interest in the concept of standard-based nursing services accreditation, Penn Nursing Center for Health Outcomes and Policy Research launched a five country study of hospital quality of care and nurse workforce management. This research is a direct continuation of these activities to be conducted in Armenia and Russia with usage of the same, but translated and adapted survey instruments: one for nurses and one for patients.

The main purpose of this phase of research is to gather baseline data on nursing care and nurse work environment from the perspectives of both nurses and patients against which to measure the impact of the Magnet program. Magnet intervention is a three stage process: (1) Pre-candidacy: formal intention of the institution to pursue magnet standards, (2) Candidacy: a subset of unites within the institution demonstrate meeting magnet standards, (3) Magnet Hospital Recognition: the institution as a whole meets those standards. All 4 participating hospitals have achieved Pre-candidacy status, and in all of those the demonstration unites have been identified. It is anticipated that the Candidacy status (demonstration units meeting magnet standards) in these institutions will be achieved in two years and obtaining full institution magnet status will take 4-5 years. It is planned that this study will be repeated in two years to obtain a baseline early data in year one of the demonstration units and again in five years to obtain post-implementation measures in the third year of the demonstration units.

Concept of the Survey

The study is a cross sectional survey among nurses and patients of the selected hospitals. Both surveys are designed as self-administered, although it is anticipated that patients may need some assistance from interviewers to complete the survey. An estimated 400 patients and 300 nurses from each hospital will participate in the survey. Thus, a total of 1,200 nurses and 1,600 patients will be surveyed in 4 research sites. In both surveys, completed questionnaires will be sealed in envelopes/boxes for transport to and data entry by CHSR staff. CHSR staff will enter and descriptively analyze the data and collaborate with the University of Pennsylvania partners in preparing reports for presentation and publication following the baseline survey.

Project Time Period

Starting from mid-October 2002 the Nursing Survey and the Patient Satisfaction survey will be implemented in the selected hospitals, involving both the intervention (demonstration) and comparison units of those hospitals. To eliminate history bias, the survey duration in each hospital will be limited to 4-6 days for the nursing survey and to 4-5 weeks for the patient survey. It is anticipated that each patient interview will last for about 20 minutes and each nurse interview for approximately 40 minutes.

Simultaneously, approximately 20 nurses will fill-in the questionnaire in a special room provided by a hospital administration for this purpose. These sessions will be repeated 4 times a day during different nursing shifts so that ~80 nursing surveys are completed per day. The scheduling of participants has been coordinated with the Chief Nurse of the hospital and communicated to the Head Nurse of each unit to ensure minimal disruption to normal nursing services.

It is anticipated also that each full-time interviewer will be able to complete ~12 patient interviews per day.

Supplies

Each interviewer will be provided with stationery supplies necessary for conducting the interviews. These may include: papers for notes, pencils and erasers. CHSR is responsible for providing interviewers with all the instruments necessary for work: questionnaire/consent forms, journal forms, coding and administration guides, etc.

Training

Interviewers and Research Analysts involved in the project must complete this training or will be ineligible to work on this project.

Pre-test and Observations

Pre-testing of the instruments and interviewers is planned before the actual fielding of the survey. A member of the CHSR staff will observe these pre-tests. The intent of this activity is to provide confidence to interviewers and to highlight any deficiencies of the training program, as well as to acquire information about the flow and appropriateness of questions and the interview length.

After pre-tests are conducted and the appropriate revisions are made to the questionnaire, actual interviews will start. Should substantial changes be made in either the instrument or the protocol, additional training sessions/pre-tests will be held.

Languages Used

All surveys in Armenia are expected to be conducted in Armenian. However, there can be exceptions for Russian-speaking patients/nurses. Whenever Russian-speaking respondents are encountered, the interviewers should stress the importance of conducting the interview in Armenian and to use Russian version of the survey only when the respondent experiences real difficulties with Armenian, which can lead to the misunderstanding of the questions and answer options. The surveys in the Russian hospitals will be exclusively conducted in Russian.

Transportation

The interviewers are expected to travel from CHSR to hospitals and back. CHSR will pay their transportation expenses through reimbursing those taxi services (Francpark, Nork) that have signed agreement with CHSR.

Project staff work expectations

Interviewers will be expected to work mainly individually, but will be organized as a team. For the Nurse Survey, they are not expected to organize the flow of nurses from hospital departments to the survey location. The hospital head nurses are responsible for that. However, interviewers are responsible for coordinating this process with head nurses, keeping track of those nurses who have completed the survey and those who have not, explaining to nurses the aims of the survey, the importance of answering honestly, and presenting them the consent form and the rules of the survey before the nurses will start the actual completion process. Interviewers are expected to supervise the process of survey completion and to prevent discussions/talks between nurses while completing the questionnaires. They are responsible for assuring confidentiality of completed surveys and for delivering them to CHSR.

For the patient survey, interviewers are responsible for keeping track of all eligible patients in each selected hospital unit through continuously up-dated journal forms. Interviewers are expected to determine the eligibility of a given patient (according to the survey rules). They are responsible for presenting the survey aims and the consent statement to eligible patients emphasizing the importance of giving honest answers.

Interviewers are expected to strictly adhere to the survey protocol (ID coding, journal form completing/updating, etc.). Although the survey is designed as self-administered, it can be administered by interviewer to some patients unable to complete it on their own. Interviewers are responsible for ensuring patient's privacy while completing the survey, for keeping the completed surveys confidential, and for delivering those to CHSR in time.

Process guide: Nurse Survey

All the staff nurses of the selected hospitals (Emergency Hospital and "Erebouni" Hospital in Yerevan) are eligible for the survey including the head nurses of hospital units. The nurses are expected to attend the survey completion sessions in groups of ~20 nurses. The chief nurses of hospitals (Ruzanna Ginosyan in the Emergency Hospital and Arletta Azizbekyan in the Erebouni Hospital) are responsible for ensuring flow of staff nurses from hospital departments to the room(s) where the surveys will be conducted. Each survey completion session is expected to take approximately an hour. These sessions will be repeated 4 times a day with participation of ~80 nurses. The schedule of sessions for two Yerevan hospitals is attached to this manual (Attachment 1).

The interviewers will be provided with a list of nurses eligible for the survey in each hospital. Interviewers are expected to keep track of those nurses who have completed the survey and those who have not. They should work closely with the hospital head nurses to assure participation of as many eligible nurses as possible. However, participation in the survey is voluntary, and only one attempt of convincing those nurses who refuse to participate is allowed.

Running the Session

The participation status of all nurses who attend the given session should be noted in the list of nurses before the actual session starts. At the beginning of each session interviewers are expected to welcome nurses and to explain to them the nature and aims of the survey. They should present the consent information paying special attention to explaining confidentiality issues and the importance of answering honestly. They should instruct nurses to answer all the questions. The voluntary character of participation should be stressed. It is important to instruct nurses that once the interview starts, no talking is allowed and that they are expected to refer all their questions only to the interviewers. At the end of this introductory part, nurses should be provided with opportunity to ask questions. All their questions should be addressed. Then questionnaires and pencils/erasers should be distributed them.

Once the questionnaire completion process starts, no talking is allowed between nurses. If some of them express a desire to ask question (by raising hand), interviewer should approach her and listen/answer the question privately so that other participant will not be distracted. The nurses should leave the room upon completion, leaving the completed questionnaires in a box arranged for this purpose.

All the nurses included in the nurse list of the selected hospitals should participate in the survey. If the planned 4 days for each hospital is not enough to recruit all those nurses, one more day could be added to attempt surveying all of them.

Script of Interviewers' Introduction to Nurses

1. Present the introductory statement.

Good morning/day. Thank you very much for being here. We are from the AUA. Your hospital is cooperating with its US partner from the University of Pennsylvania to implement a Nursing Care Improvement Project. As a first step of this project, we are invited by this partnership to conduct a survey regarding the current state of nursing care in your hospital and would like you to help us. This study is part of an international study of nurses in 8 countries. It will yield baseline data against which the outcomes of the Nursing Care Improvement Project will be measured.

We would be very thankful if you would participate in this survey by completing a questionnaire containing questions on nursing care practices in your hospital and on your feelings/impressions of your current job. Please, note, that your participation in this study is very important and will help to further improve the nursing care in your hospital. All your answers will be anonymous and will have no impact on your employment status. Note, we do not ask you to put your name on the questionnaire. We guarantee the

anonymity and confidentiality of your responses. There is no way for responses to be linked to individuals. Only AUA CHSR staff will have access to the individual questionnaires. Please provide honest answers.

The completion of the survey will not take more than 40 minutes. Your participation in this survey is voluntary. If for some reason you refuse to participate, it will have no any adverse effect on your employment status. But, please, note that we will really appreciate your decision to participate.

Do you have questions?

2. If there are questions, give the nurses opportunity to ask and provide thorough answers.

3. Ask: Do you all agree to participate?

Possible answers:

Yes

No – Approach each nurse who refuses to participate. Try to find out the reasons for the refusal. Try to persuade the nurse to participate, based on what you know about the survey – talk about the confidentiality issues, say that it will be interesting experience for her and that her answers will be really valuable for her hospital, etc. NOTE: Don't be too persistent. If the nurse refuses- thank her for her time and let her go. Record the reason of refusal in the nursing list, against the name of the nurse refusing to participate

4. Ask: Can we start?

Provide nurses with questionnaires and pencils.

5. Instruct: Before starting, we would like to ask you to carefully read the introductory statement on the first page of the questionnaire and the instructions how to complete the questionnaire. Please, note that it is very important to answer all the questions. Don't skip questions. If you do not know the exact answer, choose the best answer you can.

You are requested to answer questions on your own. Please, do not talk with your colleagues while you are in this room. You are welcome to ask questions during the completion of the questionnaire when something is not clear either in instructions or in questions. Whenever you would like to ask a question, please, raise your hand and some of us will approach you and address your question privately to not distract others.

Upon completion, put your questionnaire in this box (show the box) and leave the room. Thank you very much for your time and efforts.

6. Make sure that each nurse occupies a separate table and that no other people besides the interviewers and the participants are in the room. If someone else from hospital staff is present/wants to be present, explain gracefully that the specifics of the interview require the absence of other persons in a room to avoid interruptions and to allow the respondents to feel free and relaxed.

7. Record the names of nurses attending the session in the Nursing List.

Process Guide: Patient Survey

A total of 400 patients from each hospital should be surveyed. It is important to survey at least 30 patients from each of those hospital units designated as being demonstration units for Magnet initiative. Those units are:

For Emergency Hospital

Intensive Care and Emergency
General Surgery and Proctology (Surgery #1)
General Medicine

For "Erebouni" Hospital

Intensive Care Unit
General/Endocrine Surgery (+laparoscopy)
Cardiac Care Unit for Ischemic Patients
Newborn/NICU
Women's Center

No patients will be surveyed in Newborn/NICU unit of the "Erebouni" Hospital. This is the only exception. From each of all other demonstration units, at least 30 patients should be surveyed.

The whole list of hospital units involved in the Patient Survey is provided in Attachment 2 (Coding for Patients' ID Numbers). A total of 310 patients from all non-demonstration units of each hospital should be surveyed. It is anticipated that the patient survey will start in late October and will last ~4 weeks.

Eligibility Criteria for Patients

A patient is considered eligible for the survey when the following requirements are satisfied:

The patient is 16 years old or older

The patient was admitted to a given unit at least three days prior to the survey.

Recruitment of Patients: Journal Form

To recruit patients effectively, interviewers will be provided with so called Journal Forms, which are designed to contain information on all eligible patients of a given unit with respect to their eligibility information (age, date of admission), location (room #), and survey status (results of some consecutive attempts to interview them). Such forms will exist for each in-patient hospital unit and will be kept by the Interviewer Coordinator. At the beginning of each workday, the Interviewer Coordinator will assign hospital unit(s) to each of interviewers and will distribute the journal forms for those units. At the end of each workday the interviewers will submit the journal forms to the Interviewer Coordinator.

As soon as the hospital unit is assigned and the journal form for that unit provided, the interviewers should contact the head nurse of the given unit. The latter should provide a list of in-patients of that unit. The interviewers should select all the eligible patients (≥ 16 years old and admitted to that unit at least three days ago) and put their name, age, room #, and date of admission in the journal form. When this task is completed, they should contact all the patients listed in the Journal form, introduce them the survey and ask their consent to participate in the survey.

The result of each attempt of interviewing a patient should be documented in the journal form, using the following Result Codes:

1. Completed survey
2. Patient is out of the room**
3. Patient is unable to participate because of severity of health condition**
4. Patient is unable to participate because of undergoing a medical procedure**
5. Patient was sleeping**
6. Refusal to participate
7. Patient is incompetent (poor vision, illiteracy, etc.)
8. Patient has been discharged
9. Incomplete interview
10. Other

The codes numbered 2-5 and marked by two stars (**) are those needing further follow-up. If any of these result codes were recorded in the journal form, then the patient should be contacted later in an appropriate time with a new attempt to complete the survey.

In the case of the remaining result codes, the attempt could be considered final, so that no other attempts are expected. The name of the interviewer who conducted the final attempt with the given patient (no matter if the attempt yielded a completed survey or not) should be recorded in the given cell of the Journal Form.

Each second and further attempt of surveying patients in a given unit should start from renewing the list of eligible patients in the Unit Journal Form, i.e. from adding all those in-patients of that unit who became

eligible for the survey. Unit head nurses are expected to help interviewers to complete this task. Than the patients eligible for first/next attempts should be contacted.

At least 30 completed surveys from each demonstration unit and at least 310 completed surveys from all other units of the given hospital should be generated.

Running the Patient Satisfaction Survey

Once an eligible patient is contacted, the interviewer should introduce him/herself and ask for few minutes to shortly introduce the survey. If, for some reason, the patient cannot be contacted/surveyed at that time, the reason for this should be recorded in the journal form and if the reason is not permanent (excluding the possibility of patient's participation at all), an appropriate time should be negotiated for the next attempt.

If the patient is able/agrees to listen further, the aims, duration, anonymity and voluntary character of the survey should be explained and patient's consent to participate in the survey should be obtained.

The patient satisfaction questionnaire is designed to be self-administered, but patients should be provided with an opportunity to choose between self-administered and interviewer-administered options. In both cases, the questionnaire must be completed privately (no family members or medical staff should be in the room). Please explain the importance that only the patient respond to the survey.

If the patient chooses the self-administered option, his/her ID number should be put on a blank questionnaire and the questionnaire should be given to the patient along with an envelope and a pencil. The same ID number should be put on the envelope. The interviewer is expected to make sure that all the terms of the consent form (on the first page of the survey), as well as the questionnaire completion instructions are well understood by the patient. The interviewer should be available to address questions the respondent may have during the survey completion process. Upon completion, the questionnaire should be put in the envelope and sealed to make sure that no hospital staff member will see the completed survey.

If the patient chooses the interviewer-administered option, again, his/her ID number should be put on the questionnaire, and the consent form, completion instructions and questionnaire items/response options should be read for the patients. For each item, the interviewer should check the response option chosen by the patient. Upon the completion, the questionnaire should be sealed in an envelope and the same ID number as on the questionnaire should be put on the envelope. In both cases (self-administered or interviewer-administered), the privacy of the patient while completing the survey should be ensured.

At the end of each workday, all Journal Forms should be submitted to the Interviewer Coordinator and all the completed surveys should be delivered to CHSR after being checked by the Interviewer Coordinator (in terms of presence/accuracy of ID numbers on the envelopes).

The Interviewer Coordinator is expected to coordinate communication with the partners at the hospital sites, coordinate activities of interviewers, and keep track of the number of patient surveys completed in each demonstration/non-demonstration unit to make sure that at least 30 surveys are generated in each demonstration unit and at least 310 surveys are generated in all non-demonstration units in each hospital. The Coordinator will also supervise the survey administration process and handle all organizational/other issues that may rise during the fieldwork, including spot checks and other quality control activities.

Coding of Patient ID numbers

The interviewers will be provided with instruction on Coding of Patient Identification Numbers (Attachment 2). The ID number has 9 characters. The first two characters are letters indicating the country where the survey takes place (Am for Armenia and Ru for Russia). The remaining 7 characters are digits, where the first digit indicates the hospital code: 1 for Emergency Hospital and 2 for "Erebouni" Hospital. Digits 2-3-4 indicate the hospital unit code (provided in the instruction on Coding of Patient ID Numbers) and digits 5-6-7 indicate the patient number in the Journal form.

Example: ID number of the first surveyed patient in the Urology Unit of "Erebouni" hospital will be: Am2013001 (where Am=Armenia, 2=Erebouni, 013=Urology unit, 001=Patient's # in Journal form).

Script of an interviewer's introduction to the patient

Good morning/day, I am from the AUA. This hospital is cooperating with its US partner from the University of Pennsylvania to implement a Nursing Care Improvement Project. As a first step of this project, we are invited by this partnership to conduct a survey regarding the current situation of nursing care in this hospital and would like to talk with you for a little.

✓ If a patient agrees, continue. If the patient refuses, try to answer specific objections. If the objections have temporal character (result codes 2, 3, 4 in the Journal form), tell the patient that he/she may possibly be contacted later. If the objections have permanent character, apologize and leave the room. Record the result code in the journal form.

1. Sorry for troubling you. Our study focuses on patients receiving care in this unit for at least 3 days. Did you spend at least three days in this unit?

Possible answers:

Yes

No – Check with his/her date of admission in the Journal Form. If the date is inaccurate, write down the accurate date, apologize and thank the patient you are talking with. Tell the patient that he/she may possibly be contacted in a few days. Leave the room. Record “not eligible” in the Journal Form under the result code 9 (Other).

Don't know – Inform the patient of the admission date recorded in the Journal Form and ask him to confirm.

2. If yes (or don't know), continue. Present the introductory statement.

I would be very thankful if you participate in our survey by answering some questions included in this short questionnaire. You can choose to complete the questionnaire on your own or, if you prefer, I can read the questions for you and check the response options you select. All your answers will be anonymous and will not affect in any way the care you receive in this hospital. Only CHSR staff will have access to your completed survey, which does not contain your name. Only aggregate data will be provided to the hospital. Your participation is very important and valuable for us and hopefully it will help to improve the nursing care in this hospital. The completion of the survey will not take more than 15 minutes. Thank you in advance. Your responses will be anonymous.

3. Can we start?

Possible answers:

Yes

No – Try to find out the reasons for the refusal. Try to persuade the patient to participate, based on what you know about the survey – talk about the confidentiality issues, say that it will be interesting experience to a patient and that his/her answers will be really valuable for the study, etc. NOTE: Don't be too persistent. If the patient refuses- apologize and leave the room.

4. Make sure that you and respondent are alone in the room. If someone else (relatives, friends, or hospital staff) is present/wants to be present, explain gracefully that the specifics of the interview require the absence of the third person in a room to avoid interruptions and to allow the respondent to feel free and relaxed.

5. Now it is necessary to put the ID # on the questionnaire and on the envelope, to read the consent statement and provide the contact card. Give the patient time to read (or listen) and understand the consent statement. If he/she has questions, answer them. Once the patient is ready, begin the survey (either self-administered or interview, in accordance with the preference of the patient).

Interview tips

Interviewers should pay attention to their style of communication with the potential and actual respondents and to the style of the survey administration.

The interviewer should

Use the introductory statement as an opportunity to gain the rapport with a respondent. It is better to not read the statement, but say it in the conversational manner, to avoid tension and formal tone.

Not be intrusive/ too persistent in his/her attempt to recruit respondent.

Provide respect to person being interviewed and his/her relatives/care givers.

Convey that respondent's perceptions, experience and attitude are important

Listen and record without passing verbal/nonverbal judgment

Show no favor, discontent, shock, anger

Not be afraid to interrupt gracefully when the respondent starts talking too much and deviate from the topic/question.

How to deal with some interview "flows"

Question Refusal

It is possible that during the interview a respondent will refuse to answer certain questions or even refuse to continue the interview. In the first case, it is necessary to ask about the reason for refusal, record it, and continue with the next question. In the second case, it is necessary to ask about the reasons for discontinuing and then try to convince the respondent to continue. NOTE: Make just one attempt; don't be too persistent. If a respondent still refuses, apologize and end the survey.

Ineligible Respondent

If you discover during the interview that a respondent is ineligible though he/she reported/you considered him/her to be eligible, stop the interview. Go back and try to clarify this question once again. If you notice that the respondent misunderstands, go back to the question, which defines a patient's eligibility for the survey, and ask the question again. If you notice that the respondent hides something, ask probing questions in conversational manner, till you make the question clear for yourself. If it becomes apparent that patient is ineligible, end the interview, explaining gracefully that the respondent doesn't fit our eligibility criteria. If the issue is age (younger than 16), thank the respondent and leave the room. If the issue is length of stay in the unit (less than three days), thank the respondent, indicating that he/she may possibly be contacted later and leave the room.

Explanations on consent forms/uses of data

Asking people questions in the survey regarding their personal impressions/experience should involve a consideration of ethical issues. It is necessary for the respondents to be fully informed about the study and voluntarily agree to participate. They have a right to remain anonymous and to be sure that the information they provide will be kept confidential. For these reasons before the start of the interview, an interviewer should provide a respondent with informed consent, which includes the general information about the logistics and the goals of the survey, the information concerning respondents' rights and confidentiality issues and contact information. A respondent should fully understand their rights to refuse and other information contained in the consent statement

Summary/Conclusion

It is imperative for the success of any survey that the sampling strategies/respondent selection is performed in unbiased and systematic manner. It is necessary that the questions in the survey are asked precisely and uniformly and the answers of respondents are registered accurately and correctly. It is important also to explain to the respondents clearly and thoroughly how to complete the self-administered survey; why it should be put in the envelope and sealed; why is it important to answer all the questions honestly.

Thus, the interviewer's adherence to the survey rules and instructions and their ability to feel responsible for their performance is important, since they are the performers of the most essential part of the study: information gathering.

Interviewer Checklist:

Nurse Survey

Before leaving for Interviews with nurses, check to see if you have the following and that they are functioning appropriately:

- Training manual for interviewers
- List of Nurses
- Boxes for completed surveys
- 100 Blank Nurse Surveys (for the whole group)
- 100 Pencils (for the whole group)
- Note-taking paper, pen, pencil sharpener
- 10 Russian copies of Nurse Survey (for the whole group)
- 100 visit cards with Contact Information (CHSR phone number, etc.)

Patient Survey

Before leaving for Interviews with patients, check to see if you have the following and that they are functioning appropriately:

- Training manual for interviewers
- Coding of Patient ID number page
- Journal Form
- 12 Blank Patient Surveys
- Note-taking paper, pen, sharpeners
- 12 visi cards with Contact Information (CHSR phone number, etc.)
- 3 Russian copies of the Patient Survey
- Envelopes and pencils (12 of each)

Appendix 2. Survey Instruments

Nursing Survey

Dear Nurse:

Your hospital is participating in an exciting program to improve quality of hospital care by strengthening nursing. We need your help in describing nursing practice in your hospital.

Your participation in this study is very important! Please provide honest answers. Your responses are confidential. They will never be linked to individuals. Thus, your responses will have no impact on your employment status.

Please, answer **all the questions**. If you do not know the exact answer, please, give the best answer you can.

This is part of an international study of nurses in 8 countries directed by the University of Pennsylvania in USA and implemented in Armenia by the American University of Armenia, Michael Thompson, study director.

A. This section asks questions about your job as a nurse. Please circle the number of the appropriate response to each question or, where indicated, fill in the blanks.

1. Check the type of hospital unit you are permanently assigned to (i.e., medical)

a. Emergency Hospital

1. ICU + Emergency
2. General Surgery #1 (+Proctology)
3. General Medicine
4. ICU neurovascular
5. General & vascular Neurology
6. Neurosurgery
7. Cardiology
8. Nephrology
9. Uro-gynecology
10. ENT
11. Thoracic Surgery
12. Abdominal/end. Surgery #2
13. Traumatology
14. Admission

b. Erebury Hospital

1. ICU
2. Gen/Endocr. Surg (+laparoscopy)
3. Cardiac Care Unit (Ischemia)
4. Women's Center (outpatient)
5. Nephrology
6. Gastroenterology (+Allergology)
7. Cardiology
8. Endocrinology
9. Rheumatology
10. Epilepsy Center
11. Obstetrics (post-delivery)
12. ENT
13. Urology
14. Gynecology
15. Orthopedics
16. General/Thoracic Surgery
17. Neurology & Neurosurgery
18. Polyclinic (outpatient)
19. Hemodialysis
20. Admission
21. Gynecology ICU
22. Neonatal/NICU

2. What is your job title?

3. How many years have you worked:
- a. as a nurse? _____ years
 - b. as a nurse on your current unit? _____ years
4. What is the length of your regularly scheduled shift?
- 1. 8 hours
 - 2. 12 hours
 - 3. 24 hours
 - 4. Other (specify) _____

B. For each item in this section, please indicate the extent to which you agree that the following items ARE PRESENT IN YOUR CURRENT JOB. Indicate your degree of agreement by placing an “x” in the column that best describes your agreement with each statement.

Present in current job:	Strongly Agree 1	Somewhat Agree 2	Somewhat Disagree 3	Strongly Disagree 4
1. Adequate support services allow me to spend time with my patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Physicians and nurses have good working relationships.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Opportunity to work on a highly specialized patient care unit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. A supervisory staff that is supportive of nurses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. A satisfactory salary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Active continuing education programs for nurses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Opportunity for nurses to participate in policy decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Support for new and innovative ideas about patient care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Enough time and opportunity to discuss patient care problems with other nurses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Enough nurses on staff to provide quality patient care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Present in current job:	Strongly Agree 1	Somewhat Agree 2	Somewhat Disagree 3	Strongly Disagree 4
11. A nurse manager who is a good manager and leader.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. A chief nursing officer who is highly visible and accessible to staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Physicians recognize nurses' contributions to patient care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Enough staff to get the work done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Freedom to make important patient care and work decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Praise and recognition for a job well done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. High standards of nursing care are expected by the administration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. A chief nursing officer is equal in power and authority to other top level hospital executives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. A lot of team work between nurses and physicians.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Physicians give high quality medical care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Opportunities for advancement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Physicians respect nurses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Working with nurses who are clinically competent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. A nurse manager who backs up the nursing staff in decision making, even if the conflict is with a physician.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Administration that listens and responds to employee concerns.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. An active quality assurance program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Staff nurses are involved in the internal governance of the hospital (e.g., practice and policy committees).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Collaboration between nurses and physicians.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Staff nurses have the opportunity to serve on hospital and nursing committees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Present in current job:	Strongly	Somewhat	Somewhat	Strongly
	Agree	Agree	Disagree	Disagree
	1	2	3	4
30. The contributions that nurses make to patient care are publicly acknowledged.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Nurse managers consult with staff on daily problems and procedures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Physicians value nursing observations and judgments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Written, up-to-date nursing care plans for all patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. Patient care assignments that foster continuity of care, i.e., the same nurse cares for the patient from one day to the next.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. Working with experienced nurses who “know” the hospital system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C. This section contains statements of JOB-RELATED FEELINGS. If you have never had this feeling, place an “x” in the box “Never”. Otherwise, indicate *how often* you feel like this by placing an “x” in the column that best describes how frequently you feel that way.

How Often?	Never	Few times a year or less	Once a month	Few times a month	Once a week	Few times a week	Every day
	1	2	3	4	5	6	7
	1. I feel emotionally drained from my work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I feel used up at the end of the workday.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I feel fatigued when I get up in the morning and have to face another day on the job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How Often?	Never	Few times a year or less	Once a month	Few times a month	Once a week	Few times a week	Every day
	1	2	3	4	5	6	
4. I can easily understand how my patients feel about things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. I feel I treat some patients as if they were impersonal objects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Working with people all day is really a strain for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. I deal very effectively with the problems of my patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. I feel burned-out from my work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. I feel I'm positively influencing other people's lives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. I've become more callous toward people since I took this job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. I worry that this job is hardening me emotionally.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. I feel very energetic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. I feel frustrated by my job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. I feel I'm working too hard on my job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. I don't really care what happens to some patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Working directly with people puts too much stress on me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. I can easily create a relaxed atmosphere with my patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18. I accomplish many worthwhile things in this job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19. I feel exhilarated after working closely with my patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20. I feel like I'm at the end of my rope.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21. In my work, I deal with emotional problems very calmly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22. I feel patients blame me for some of their problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

D. This section asks about your job as an nurse and asks for your views about the care on your nursing unit and in your hospital. Circle the number next to the appropriate response to each question, or where indicated, fill in the blanks.

1. On the whole, how satisfied are you with your present job?

1. Very dissatisfied
2. A little dissatisfied
3. Moderately satisfied
4. Very satisfied

2. Independent of your present job, how satisfied are you with being a nurse?

1. Very dissatisfied
2. A little dissatisfied
3. Moderately satisfied
4. Very satisfied

3. Thinking about the next 12 months, how likely do you think it is that you will lose your job?

1. Very likely
2. Fairly likely
3. Not too likely
4. Not at all likely

4. Do you plan to leave your present nursing position?

1. Yes, within the next 6 months
2. Yes, within the next 12 months
3. No plans within the next year
4. No plans at all

5. If you were looking for another job, how easy or difficult do you think it would be for you to find an acceptable job in nursing?

1. Very easy
2. Fairly easy
3. Fairly difficult
4. Very difficult

6. In general, how would you describe the quality of nursing care delivered to patients on your unit?

1. Excellent
2. Good
3. Fair
4. Poor

7. Over the past year, how often would you say each of the following incidents has occurred involving you or your patients:

	Never 1	Rarely 2	Occasionally 3	Frequently 4
1. Patient received wrong medication or dose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Nosocomial / wound infections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Complaints from patients or their families	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Patient falls with injuries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Work-related injuries to employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Incidents of verbal abuse directed toward nurses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Overall, over the past year would you say the quality of patient care in your hospital has:

1. Improved
2. Remained the same
3. Deteriorated

9. How confident are you that your patients are able to manage their care when discharged from the hospital?

1. Very confident
2. Confident

3. Somewhat confident
4. Not at all confident

10. How confident are you that management will act to resolve the patient care problems that you report?

1. Very confident
2. Confident
3. Somewhat confident
4. Not at all confident

11. If a member of your family needed health care, would you recommend that it be provided in your hospital?

1. Yes
2. No

12. Have you ever been stuck with a needle or sharp that had been used on a patient?

1. Yes
2. No

IF you have been stuck:

- a. How many times has this occurred *in your nursing career?* (enter "0" if none) _____ times
- b. How many of these incidents occurred *in the past year?* (enter "0" if none) _____ incidents
- c. How many of these incidents occurred *in the past month?* (enter "0" if none) _____ incidents

E. This section asks you questions about your nursing activities during the LAST FULL SHIFT that you worked. Please circle the number of the appropriate response to each question or, where indicated, fill in the blanks.

1. What was the last shift you worked?

- | | |
|------------|----------|
| 1. Day | 3. Night |
| 2. Evening | 24 hours |

2. How many patients were on your unit during your last shift? _____ # of patients on unit.

3. How many of these patients were assigned to you? _____ # of patients

4. How many of these patients were:

a. Very severely ill _____

b. Rather severely ill _____

c. Least severely ill _____

The numbers in lines a-c should equal the number in question 3 above.

6. Which, if any, of the following tasks did you perform during your last shift? (circle all that apply)

1. Delivering and retrieving food trays
2. Ordering, coordinating, or performing ancillary services (e.g., physical therapy, ordering labs)
3. Starting IVs
4. Arranging discharge referrals and transportation (including to nursing homes)
5. Performing EKGs
6. Routine phlebotomy
7. Transporting of patients
8. Housekeeping duties (e.g., cleaning patient rooms)
9. None of the above

7. Which of the following tasks were necessary but left undone because you lacked the time to complete them? (circle all that apply)

1. Routine teaching explanations for patients and family
2. Prepare patients and families for discharge
3. Comforting/talking with patients
4. Adequately document nursing care
5. Back rubs and skin care
6. Oral hygiene

7. Develop or update nursing care plans
8. None of the above

8. How would you describe the quality of nursing care delivered on your last shift?
1. Excellent
 2. Good
 3. Fair
 4. Poor

F. This section asks you general questions about you and your background. Please circle the number of the appropriate response to each question or, where indicated, fill in the blanks.

1. What is your sex? 1. Female 2. Male
2. What is your age? _____ years
3. In what country did you receive your basic nursing education? _____
4. Do you have any dependent children who live with you?
 1. Yes
 2. No
5. Would you recommend a career in nursing to a friend or family member?
 1. No
 2. Yes, with some reservation
 3. Yes, without reservation

THANK YOU FOR TAKING THE TIME TO COMPLETE AND RETURN THE SURVEY.

PATIENT SATISFACTION SURVEY

Your hospital is interested in improving patients' satisfaction with their hospital care. We need your help to understand how to make hospital care better for patients and their families.

The doctors and nurses at this hospital know that we are asking for your help, and they support this study. However, the information you give us will be strictly confidential. We are not asking to put your name on the questionnaire and your responses will not be identified with you. It is very important that you respond honestly.

Your participation in the study is voluntary. Your care will not be affected by whether or not you choose to participate in the study.

Directions: For each statement, circle a number in the right column to indicate how much you agree or disagree with the statement.

Your response should be your personal opinion. Base your opinion on your impression of the nurses on your unit that have cared for you since your admission to this unit.

Please, answer **all the questions**. If you do not know the exact response, choose the best response option you can.

	STRONGLY AGREE		STRONGLY DISAGREE	
	1	2	3	4
1. The nurses are not as attentive as they should be.	1	2	3	4
2. The nurses seem more interested in getting the tasks finished than in listening to my concerns.	1	2	3	4
3. The nurses do not follow through quickly enough on their care for me.	1	2	3	4
4. When I need physical assistance, the nurses see to it that I receive it.	1	2	3	4
5. The nurses are not as friendly as they should be.	1	2	3	4
6. The nurses appear to enjoy caring for me.	1	2	3	4
7. The nurses give the impression that my care is their top priority while they are with me.	1	2	3	4
8. The nurses are impatient.	1	2	3	4
9. The nurses give complete explanations.	1	2	3	4
10. The nurses talk down to me.	1	2	3	4
11. If I had the same or another problem that required hospital care, I would gladly come back to this hospital.	1	2	3	4
12. The nurses do not answer my call for help promptly enough.	1	2	3	4
13. The nurses tell me they will return to do something for me and then do not keep their promise.	1	2	3	4
14. When I need to talk with someone, I can share my feelings with the nurses.	1	2	3	4
15. The nurses do things that make me more comfortable.	1	2	3	4
16. I would like the nurses to be more thorough.	1	2	3	4
17. Just talking to the nurses make me feel better.	1	2	3	4
18. The nurses help me to understand my illness.	1	2	3	4

	STRONGLY AGREE		STRONGLY DISAGREE	
19. The nurses are available when I need support.	1	2	3	4
20. The nurses fail to consider my opinions and preferences regarding my care.	1	2	3	4
21. The nurses are gentle in caring for me.	1	2	3	4
22. The nurses give directions at just the right speed.	1	2	3	4
23. The nurses understand me when I share my problems.	1	2	3	4
24. I feel secure when the nurse is giving direct care to me.	1	2	3	4
25. The nurses tell me things, which conflict with what my doctor tells me.	1	2	3	4
26. The nurses seem disorganized and flustered.	1	2	3	4
27. The nurses seem reluctant to give assistance when I need it.	1	2	3	4
28. The nurses tell me what treatment effects to expect.	1	2	3	4
29. The nurses would know what to do in an emergency.	1	2	3	4
30. The nurses show me how to follow my treatment program.	1	2	3	4
31. The nurses appear to be skillful at their work.	1	2	3	4
32. The nurses make helpful suggestions.	1	2	3	4
33. The nurses treat me with respect.	1	2	3	4
34. The nurses explain things in an understandable manner.	1	2	3	4
35. I feel free to ask questions of the nurses.	1	2	3	4
36. The nurses are pleasant to have around.	1	2	3	4
37. Overall, the nursing care on this unit is:				
1. excellent				
2. good				
3. fair				
4. poor				

38. Overall, the medical care provided by physicians is:

1. excellent
2. good
3. fair
4. poor

39. Please, indicate, what type of assistance do you need in the following daily living activities?

	Accomplishes alone	Needs some help	Needs much help
Bathing	1	2	3
Dressing	1	2	3
Grooming	1	2	3
Toileting	1	2	3
Eating	1	2	3
Walking	1	2	3

40. If you could change anything about the care here what would it be?

THANK YOU!

Appendix 3. Journal Form for the Patient Survey

Journal Form

Hospital _____

Unit _____

#	Eligible patients' name*	Age	Room #	Date of admission	Result				Date of the final attempt	Interviewer of the final attempt
					Attempt 1	Attempt 2	Attempt 3	Attempt 4		
001										
002										
003										
004										
005										
006										
007										
008										
009										
010										
011										
012										
013										
014										
015										
016										
017										
018										
019										
020										
021										
022										
023										

*Adult patients who were in a given hospital unit for **at least three days**

#	Eligible patients' name*	Age	Room #	Date of admission	Result				Date of the final attempt	Interviewer of the final attempt
					Attempt 1	Attempt 2	Attempt 3	Attempt 4		
024										
025										
026										
027										
028										
029										
030										
031										
032										
033										
034										
035										
036										
037										
038										
039										
040										
041										
042										
043										
044										

Result Codes

- | | |
|---|---|
| 1. Completed survey | 6. Refusal to participate |
| 2. Patient is out of the room** | 7. Patient is incompetent (poor vision, illiteracy, etc.) _____ |
| 3. Patient is unable to participate because of severity of health condition** | 8. Patient has been discharged |
| 4. Patient is unable to participate because of undergoing a medical procedure** | 9. Incomplete interview _____ |
| 5. Patient was sleeping** | 10. Other _____ |

 ** These codes indicate a need for further follow-up

Appendix 4. Demonstration units and numbers of surveyed nurses/patients in each

Demonstration Units	Nurses	Patients
<i>Emergency Hospital, Yerevan</i>		
Emergency and Intensive Care Unit	22	31
General Surgery and Proctology	12	49
Therapy	8	34
<i>“Erebouni” Hospital, Yerevan</i>		
Intensive Care Unit	30	30
General/Endocrine Surgery and Laparoscopy	6	30
Cardiac Care Unit for Ischemia	23	30
Women’s Health Center	8	30
Newborn Intensive Care	19	-
<i>Central Clinical Hospital, Moscow</i>		
Cardiac Intensive Care Unit	35	30
III Therapy	18	29
Obstetrics (Maternity)	20	28
II Gynecology (Maternity)	6	25
Pregnancy Pathology (Maternity)	8	29
Delivery Unit (Maternity)	15	-
Newborn Unit (Maternity)	11	-
Anesthesiology (Maternity)	8	-
Operating Room (Maternity)	7	-
Admission Unit (Maternity)	2	-
<i>Hospital # 122, St. Petersburg</i>		
Mini-hospital	26	28
Women Health Center	3	30
Admission Unit	9	-
Total	433	296

Appendix 5. Constituents of Cumulative Indicators for Nursing Work

1. **Nursing Work Index (NWI)*** – sum of all 35 (b1-b35) items (reversed) of the current questionnaire
2. **Autonomy*** – sum of the items b4, b15, and b24 (reversed) of the current questionnaire (or the reversed items b4, b17, and b32 of the initial 49-item questionnaire)
3. **Control over own work**– sum of the following 7 reversed items: b1, b9, b10, b11, b14, b3, and b34 of the current questionnaire (or the reversed items b1, b11, b12, b13, b16, b43, and b45 of the initial 49-item questionnaire)
4. **Relationship with doctors** – sum of the items b2 and b19 (reversed) of the current questionnaire (or the reversed items b2 and b24 of the initial 49-item questionnaire)
5. **Staffing** - sum of the items b9 and b14 (reversed) of the current questionnaire (or the reversed items b11 and b16 of the initial 49-item questionnaire)
6. **Administrative support** - sum of the following 5 reversed items: b4, b8, b11, b24, and b25 of the current questionnaire (or the reversed items b4, b10, b13, b32, and b33 of the initial 49-item questionnaire)
7. **Career Support*** - sum of the following 4 reversed items: b6, b16, b21, and b30 of the current questionnaire (or the items b7, b18, b26, and b40 of the initial 49-item questionnaire)
8. **Nurse Competence** - sum of the items b23 and b35 (reversed) of the current questionnaire (or the reversed items b30 and b49 of the initial 49-item questionnaire)
9. **Doctors' Value of Nursing** - sum of the items b13, b22 and b32 (reversed) of the current questionnaire

* *These indicators are incomparable with those from the previous studies because of containing fewer constituents.*

Appendix 6. Per-item mean scores on patient satisfaction with nursing care

Item	Emerg. hosp.	“Ereb.” hosp.	CCH	Hosp. #122	Total
1. The nurses are not as attentive as they should be.	3.41	3.53	3.49	3.58	3.50
2. The nurses seem more interested in getting the tasks finished than in listening to my concerns.	3.28	3.39	3.43	3.58	3.41
3. The nurses do not follow through quickly enough on their care for me.	3.52	3.53	3.56	3.59	3.55
4. When I need physical assistance, the nurses see to it that I receive it.*	3.58	3.56	3.28	3.19	3.42
5. The nurses are not as friendly as they should be.	3.37	3.42	3.45	3.52	3.44
6. The nurses appear to enjoy caring for me.*	3.51	3.49	3.14	3.17	3.35
7. The nurses give the impression that my care is their top priority while they are with me.*	3.47	3.38	3.17	3.32	3.35
8. The nurses are impatient.	3.48	3.53	3.54	3.68	3.55
9. The nurses give complete explanations.*	3.04	3.15	3.39	3.26	3.20
10. The nurses talk down to me.	3.67	3.71	3.69	3.75	3.70
11. If I had a problem that required hospital care, I would gladly come back to this hospital.*	3.19	3.48	3.54	3.43	3.40
12. The nurses do not answer my call for help promptly enough.	3.34	3.27	3.47	3.60	3.41
13. The nurses tell me they will return to do something for me and then do not keep their promise.	3.61	3.64	3.64	3.69	3.64
14. When I need to talk with someone, I can share my feelings with the nurses.*	3.11	3.21	3.29	3.22	3.20
15. The nurses do things that make me more comfortable.*	3.52	3.53	3.51	3.42	3.50
16. I would like the nurses to be more thorough.	1.94	2.21	2.69	3.00	2.41
17. Just talking to the nurses make me feel better.*	3.36	3.45	3.50	3.37	3.42
18. The nurses help me to understand my illness.*	2.83	2.95	3.30	3.28	3.07
19. The nurses are available when I need support.*	3.70	3.64	3.54	3.42	3.58
20. The nurses fail to consider my opinions and preferences regarding my care.	2.82	2.97	3.43	3.66	3.19
21. The nurses are gentle in caring for me.*	3.67	3.66	3.58	3.49	3.61
22. The nurses give directions at just the right speed.*	3.74	3.66	3.48	3.41	3.59
23. The nurses understand me when I share my problems.*	3.27	3.27	3.47	3.40	3.34
24. I feel secure when the nurse is giving direct care to me.*	3.73	3.65	3.63	3.56	3.65
25. The nurses tell me things, which conflict with what my doctor tells me.	3.83	3.80	3.84	3.76	3.81

Item	Emerg. hosp.	“Ereb.” hosp.	CCH	Hosp. #122	Total
26. The nurses seem disorganized and flustered.	3.64	3.59	3.56	3.63	3.60
27. The nurses seem reluctant to give assistance when I need it.	3.58	3.56	3.28	3.19	3.42
28. The nurses tell me what treatment effects to expect.*	2.64	2.87	3.24	3.22	2.96
29. The nurses would know what to do in an emergency.*	3.45	3.55	3.57	3.55	3.53
30. The nurses show me how to follow my treatment program.*	3.10	3.21	3.45	3.36	3.27
31. The nurses appear to be skillful at their work.*	3.65	3.62	3.54	3.53	3.59
32. The nurses make helpful suggestions.*	3.23	3.27	3.50	3.34	3.32
33. The nurses treat me with respect.*	3.84	3.80	3.65	3.56	3.72
34. The nurses explain things in an understandable manner.*	3.68	3.65	3.61	3.52	3.62
35. I feel free to ask questions of the nurses.*	3.60	3.56	3.65	3.57	3.59
36. The nurses are pleasant to have around.*	3.79	3.80	3.73	3.55	3.73

* Items are reverse-coded so that higher scores show higher satisfaction levels (the highest score for all items is 4)