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**COMPLETENESS EVALUATION OF THE
REDESIGNED STRUCTURED ENCOUNTER FORMS IN
PEDIATRIC CARDIOLOGY CLINIC AT NORK-
MARASH MEDICAL CENTER**

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Yerevan, Armenia
March 2004

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Summary

Introduction

The redesigned primary visit structured encounter forms (SEFs) were in use in Pediatric Cardiology Clinic (PCC) for about a year, but never evaluated for completeness. The present study evaluated record completeness in PCC and the compliance of physician diagnosis with the recently implemented classification of the Society of Thoracic Surgeons (STS).

Methods

A cross-sectional record review of the completeness of patients primary visit SEFs was conducted in Pediatric Cardiology Clinic of NMMC. The records of 58 sequential patients diagnosed with heart disease and 38 healthy patients who recently (during 2003) visited PCC were retrieved from the clinic's database and reviewed. The record review was conducted using an instrument specifically designed to check the first visit SEFs.

Results

The overall completeness of primary visit SEFs was good (77.34%). Nurse recording was found to be the most complete (99.8%). The best-recorded domains for cardiologists were treatment plan (87.0%) and diagnosis (91.7%). Other domains recorded by physicians were completed well; the least complete domains were patient complaints (72.9%) and outcome/follow-up/impairment (70.7%). The recording for patients found to be healthy was significantly better than for sick patients for the domains of treatment plan and outcome/follow-up/impairment. The completeness of recording varied by physicians except for the treatment plan domain. The diagnoses were compliant to STS classification in 86%.

Conclusion

The best-recorded domains were perhaps those most valued by cardiologists. Several changes can be introduced in the SEF to improve the completeness of recording, such as elimination of redundant answers and providing skips where needed. Additional staff training on the newly introduced changes in SEFs and importance of complete recording is also recommended.

Introduction

Quality monitoring is a component of the AUA/NMMC collaborative project. As a part of quality monitoring, a study on completeness of medical forms was conducted in Adult Cardiology Clinic in 2003 by the team members of the American University of Armenia – Nork Marash Medical Center Project and NMMC staff (1). Numerous deficiencies in completeness were found (1).

Clinical data are a scarce and expensive resource. That is why it is essential to ensure the quality of records as the data they contain are used to monitor and improve the care of patients, to train health professionals, to conduct research, or to manage the health system (2). Redesigned first-visit structured encounter forms (SEFs) were in use at the Pediatric Cardiology Clinic for about a year. However, no attempts were made to assess the completeness of medical records.

The present study explored the completeness (percent of recorded items out of those items that should be recorded) of medical records (primary SEF) in Pediatric Cardiology Clinic (PCC).

Study objectives

The specific objectives of the study were:

- Evaluating the completeness of the primary visit SEFs in PCC;
- Comparing the completeness of the primary visit SEFs for healthy patients and patients diagnosed with heart disease;
- Evaluating the diagnosis compliance with the recently implemented classification system of Society of Thoracic Surgeons (STS).

Methods

A cross-sectional record review documenting the completeness of patients' primary SEFs was conducted at the NMMC Pediatric Cardiology Clinic. The proportion of patients found to be healthy at PCC was about 75 % and patients with diagnosed heart disease 25 % during 2003. However, reporting data for healthy patients is not as important as for those diagnosed with heart disease. That is why a disproportionate stratified sampling was applied and the sample size was calculated using two-sample proportion formula. Over-sampling of diseased patients was done (diseased 58 vs. healthy 35). Afterwards, when the means for overall completeness of records were computed for the entire sample, cases were weighted to restore the original proportions.

The proportion of each cardiologist's records were not equal. However, the survey studied the overall completeness of medical records in PCC rather than the recording by different cardiologists.

The last 58 records of patients with diagnosed heart disease and the last 35 records of healthy patients referred to PCC during September – December, 2003 were reviewed. Patient information was abstracted from the computerized database of the clinic by the date of their last visit. The inclusion criterion was being referred to the clinic during the last year after the new primary visit SEFs were introduced.

To systemize the review process, an instrument was developed based on the content of the first-visit SEF, which contained cover page for demographic data, additional page for recording prenatal care and embriogenetic risk factors for children under 1 year of age, and a page containing patient complaints, physician findings and plan of care. The instrument contained 114 items including both close-ended and open-ended items requiring a description in case of abnormal findings. The closed ended responses were coded as 1 for recorded and 0 for not recorded. For those open-ended items where an answer without specification was senseless (e.g., comorbidities, drug treatment, referral), a decision was made to judge the answer as not recorded if the specification was lacking. For those items, where recording of the abnormal finding already provided sufficient information even without specification (patient complaints and physician findings), recorded abnormal finding without specification was judged as recorded. The specifications for these items were entered as separate variables and coded as recorded, not recorded, or not applicable (when there was no need to specify the finding).

Cardiologists of PCC were involved in the process of designing the study instrument. The instrument was pre tested on 10 records. As a result, several changes were made in the design of questionnaire to facilitate data collection and data entry process.

Data analysis

The data was entered and analyzed using SPSS 10.0 statistical package.

Results

Evaluation of overall completeness of records

All items were grouped into several domains to compute the total score for SEF completion and subscores for domains (Appendix 1). The following scale was used to determine the level of completeness: $\leq 40\%$ completeness - very poor, 41-60%– poor, 61-80% good, and $\geq 81\%$ – excellent. This was the scale used to determine the percent agreement between observations of patient-provider encounters and documentation of patient data in medical records in the study of Evaluation of Medical Records Documentation at the Adult Cardiology Clinic, NMMC, 2001 (3).

Table 1. Mean score by domains (weighted averages)

Domains	N	% recorded	Completeness value	Min	Max	Mean	Std. D
demographic data	232	70.5%	good	4	9	6.3	1.2
diagnosis	232	91.6%	excellent	3	9	8.2	1.3
follow-up up to complaints	232	70.7%	good	0	6	4.2	1.7
patients' complaints and anamnesis	232	72.9%	good	0	13	9.4	4.4
objective exam by nurse	232	99.8%	excellent	4	5	5.0	0.1
physician examination	232	76.5%	good	0	20	14.8	6.6
treatment plan	232	87.0%	excellent	0	7	6.1	2.0
all physician recorded items	232	76.5%	good	11	55	42.8	12.8
total	232	77.3%	good	20	68	54.1	12.9

The overall recording in PCC was found to be good (77.3%). The total score for physician recording was good (76.5%), for the nurse recording of the part of objective exams performed by nurse excellent (99.8%), and for the clinic's manager recording of demographic data good (70.5%) (Table 1).

The nurse recording (99.8%) and treatment plan (87.0%), diagnosis (91.6%) domains recorded by physician were the ones best completed. The outcome, follow-up and impairment domain (70.7%) and demographic data (70.5%) were the worst recorded, although the recording scores were in the "good" range.

Comparison of record completeness by domains for healthy vs. sick patients

The cardiologists presumed that recording of healthy patients' information is different than for patients diagnosed with heart disease. Thus, a comparison of recording for healthy and sick patients was done. The overall recording of closed ended items was significantly better for the healthy patients than for the one's diagnosed with heart disease (Table 2). In all domains, the mean scores were higher for recording of healthy patients. However, the difference was significant only for physician recording of outcome/follow-up items and treatment plan. Prior to the study it was expected that the difference should be in favor of recording the data of patients diagnosed with heart disease not vs. versa. So, this was one of the unexpected findings of this study.

Table 2. Mean scores of record completeness for healthy (35) and sick patients (58) by domains and t-test for equality of means

Domains		Mean	Std. Deviation	p
demographic data recorded by clinic's manager	diseased	6.1	1.3	0.173
	healthy	6.4	1.2	
all items included in diagnosis	diseased	8.0	1.2	0.283
	healthy	8.3	1.4	
all items from outcome up to complaints	diseased	3.6	1.6	0.016 [†]
	healthy	4.5	1.7	
sum of patients' complaints and anamnesis	diseased	8.2	5.0	0.079
	healthy	9.9	4.2	
sum of objective exam recorded by nurse	diseased	4.9	0.2	0.083
	healthy	5.0	0.0	
all items in physician examination	diseased	12.9	6.8	0.092
	healthy	15.4	6.5	
treatment plan	diseased	5.1	2.2	0.005 [†]
	healthy	6.2	1.9	
all items recorded by physician	diseased	37.9	12.9	0.018 [†]
	healthy	44.5	12.5	
all items	diseased	48.9	13.1	0.013 [†]
	healthy	55.9	12.5	

The hypothesized acceptable value of record completeness for diseased patients was 63 (90%), and for healthy patients 42 (60%). The diseased patient records were completed significantly worse (p=0.000) from the hypothesized value, and healthy patient records were completed significantly better (p=0.000) from the hypothesized value.

Evaluation of recording of demographic data

The manager of pediatric cardiology clinic registers demographic data that is included in the upper part of cover page of the SEF. Overall completeness of demographic data (Table 3) was evaluated as good (70.5%). The lowest completeness was documented for postal index (only in 2 cases) and for the history of congenital heart disease (CHD) in family (28 %).

Table 3. Completeness of recording for demographic data

		% recorded	Completeness value
cardiologist	diseased	100.0 %	excellent
	healthy	100.0 %	excellent
date of birth	diseased	100.0 %	excellent
	healthy	100.0 %	excellent
gender	diseased	37.9 %	very poor
	healthy	34.3 %	very poor
address	diseased	100.0 %	excellent
	healthy	100.0 %	excellent
postal index	diseased	0.0 %	very poor
	healthy	5.7 %	very poor
telephone number of patient/friend	diseased	98.3 %	excellent
	healthy	100.0 %	excellent
CHD in family	diseased	25.9 %	very poor
	healthy	31.4 %	very poor
way of referral	diseased	87.9 %	excellent
	healthy	91.4 %	excellent
order of payment	diseased	56.9 %	good
	healthy	80.0 %	good

According to t-test results, the completeness was similar for healthy and sick patients for all items of demographic data except for "order of payment", which was completed significantly better for healthy patients ($p=0.017$).

In 19.4% of the cases patients indicating no family member had CHD were inappropriately asked a follow-up question about family death from CHD.

Recording by physicians

Overall, physician recording was in the "good" range (76.5%). The overall recording between cardiologists was found to be different (Table 4).

Table 4. Record completeness by different physicians

Cardiologists	Mean	Minimum	Maximum	Std Deviation	p-value
1	42.6	12.0	54.0	10.5	0.000
2	48.7	15.0	55.0	10.6	
3	38.0	13.0	53.0	13.5	
4	27.2	11.0	46.0	13.7	

The post-hoc test showed that only recording of physicians 1 and 3 was similar, the recording of physician 2 was significantly better and the recording of physician 4 was significantly worse than the others. The differences between physician recording patterns were found to be significant for all domains ($p=0.000$) except for the treatment plan ($p=0.106$).

The record completeness was better for healthy patients compared to diseased ones for all physicians. However, statistically significant difference was found only for physician 3 (Table 5).

Table 5. Record completeness for healthy vs. diseased patients by different physicians

Cardiologists		N	Mean	Std. Deviation	p-value
1	diseased	27	41.6	10.1	0.689
	healthy	11	43.1	11.2	
2	diseased	16	43.6	11.7	0.132
	healthy	14	49.9	10.3	
3	diseased	14	26.2	9.8	0.004
	healthy	7	42.7	12.6	

Physician 4 was excluded from the analysis because s/he had only 4 patients (3 healthy and 1 diseased).

Evaluation of completeness of diagnosis

The overall completeness for the diagnosis domain was excellent: 91.6%. The first item in diagnosis domain requiring defining patient status as either normal study, or acquired heart disease, or congenital disease was recorded the worst for diseased patients but still in "good" range (Table 6). Almost all items of diagnosis domain were recorded similar for healthy and diseased patients, only diagnosis (p=0.004) and comorbidities (p=0.024) were recorded significantly better for healthy children.

Table 6. Completeness of recording for diagnosis

		% recorded	Completeness value
diagnosis	diseased	63.8%	good
	healthy	88.6%	excellent
code A	diseased	93.1%	excellent
	healthy	88.6%	excellent
code B	diseased	100.0%	excellent
	healthy	97.1%	excellent
heart failure (NYHA)	diseased	91.4%	excellent
	healthy	88.6%	excellent
heart position	diseased	94.8%	excellent
	healthy	94.3%	excellent
visceral situs	diseased	94.8%	excellent
	healthy	94.3%	excellent
atrial situs	diseased	94.8%	excellent
	healthy	94.3%	excellent
atrial isomerism	diseased	94.8%	excellent
	healthy	94.3%	excellent
comorbidities	diseased	74.1%	good
	healthy	91.4%	excellent

Evaluation of completeness of outcome/follow-up plan

The overall recording of the outcome and follow-up plan domain was good (70.7%).

The record completeness was significantly different for healthy vs. diseased patients. Outcome, follow-up, indications for impairment, and other hospitalization were recorded significantly better for healthy patients. The difference was insignificant only for intracardiac intervention and cardiac surgery (Table 7).

Table 7. Mean number for healthy (35) and sick patients (58) and t-test for equality of means

		Mean	Std. Deviation	p
outcome	diseased	0.9	0.4	0.000 [†]
	healthy	0.9	0.2	
follow-up plan	diseased	0.9	0.2	0.005 [†]
	healthy	1.0	0.0	
indications for impairment	diseased	0.7	0.4	0.006 [†]
	healthy	0.9	0.4	
intracardiac intervention	diseased	0.3	0.5	0.089
	healthy	0.5	0.5	
cardiac surgery	diseased	0.4	0.5	0.333
	healthy	0.5	0.5	
other hospitalization	diseased	0.3	0.5	0.012 [†]
	healthy	0.5	0.5	

The worst completed items particularly for diseased patients were intracardiac intervention, cardiac surgery, and other hospitalization. The "yes"/"no" answers to these items were judged as redundant by pediatricians, because these answers could change over time. This was the reason of skipping these items often and recording only the dates for performed procedures or hospitalizations.

The follow-up plan was completed excellently, however the next item specifying the plan was not recorded as well (Table 8). According to pediatricians' records there were indications for impairment in 5 patients but those were not specified for any of them. Payment order for these procedures was recorded poorly. Sometimes, pediatricians confused it with the payment order for visit to PCC.

Table 8. Recording of specification for follow-up, impairment, and payment items for diseased patients

	% recorded	Completeness value
if yes for follow-up plan, specify	63.5%	good
if indications for impairment, specify	0.0%	very poor
payment order for surgery/intervention	50.0%	poor

* The percentage of completeness was computed from the items that should be reported

Evaluation of completeness of patient complaints

Overall, the recording of patients complaints was evaluated as good (72.9%) (Table 9) The completeness of items was calculated only for patients diagnosed with heart disease, because majority of healthy patients did not have any complaints. The worst recorded items were the history of surgery and intervention outside NMMC. The recording rate for patient complaints varied from 69% to 74.1% (drug allergy - cyanosis).

Table 9. Recording of patient complaints and anamnesis vitae data for diseased patients

	% recorded	Completeness value
shortness of breath	72.4%	good
cyanosis	74.1%	good
short breath and cyanotic seizure	69.0%	good
arrhythmia	74.1%	good
edema	74.1%	good
feeding problems	72.4%	good
loss of consciousness	72.4%	good
pneumonia, frequent ARI	72.4%	good
drug allergy	69.0%	good
other allergy	67.2%	good
intervention outside NMMC	34.5%	very poor
surgery outside NMMC	34.5%	very poor
other surgery outside NMMC	32.8%	very poor

For all complaint items there were open-ended questions requiring specification in the case of presence of the complaint (Table 10). The most frequently occurring complaints were shortness of breath and cyanosis. However, these were specified very poorly. The best specified complaint was "pneumonia and frequent acute respiratory infections (ARI)". For pneumonia and ARI, physicians often mention how many times the child was ill during the last year and where he was treated. For seizure, allergy and loss of consciousness there were no positive answers, thus no need for specification.

Table 10. Recording of open ended items for patient complaints

	Count	% recorded	
if shortness of breath, specify	4	37.3%	very poor
if cyanosis, specify	3	25.0%	very poor
if seizure, specify	NA	-	-
if arrhythmia, specify	2	50.0%	poor
if edema, specify	1	100.0%	excellent
if nutrition problems, specify	2	40.0%	very poor
if loss of consciousness, specify	NA	-	-
if pneumonia, and frequent ARI, specify	7	100.0%	excellent
if drug allergy, specify	NA	-	-
if other allergy, specify	NA	-	-

Evaluation of completeness of physician examination

The overall recording of physician findings for patient examination domain was good (76.5%). The examination findings record completeness was analyzed only for patients diagnosed with heart disease, because this data is important for patients. The best recorded item for physician examination was "ECHO results" (94.8 %). The other items were completed in "good" range, while the completion of oral cavity/ teeth, peripheral edema and palpation of arteries items were poor. The frequency of breath was completed very poorly, only for 3 patients out of 58 (Table 11).

Table 11. Recording of examination findings for diseased patients completed by cardiologist

	Recorded	Completeness value		Recorded	Completeness value
frequency of breath	5.2%	very poor	right radial	43.1%	poor
physical development	70.7%	good	right femoral	43.1%	poor
development	70.7%	good	left radial	43.1%	poor
dysembryogenetic stigma	69.0%	good	left femoral	43.1%	poor
oral cavity/teeth	58.6%	poor	heart tones	75.9%	good
cianosis	70.7%	good	systolic murmur	79.3%	good
thorax	67.2%	good	diastolic murmur	67.2%	good
lung auscultation	62.1%	good	systolic-diastolic murmur	69.0%	good
abdominal palpation	63.8%	good	ECG	74.1%	good
liver palpation	67.2%	good	ECHO	94.8%	excellent
peripheral oedema	58.6%	poor			

The best specified item for open ended questions was systolic murmur. The worst specified item was abnormal development (Table 12).

Table 12. Recording of open ended items for patient objective exam completed by cardiologist

	Count	Recorded
if physical development abnormal, specify	6	75.0%
if development abnormal, specify	1	25.0%
if dysembryogenetic stigma, specify	NA	50.0%
if abnormal cavity/tooth, specify	NA	-
if cianosis, specify	3	50.0%
if thorax abnormal, specify	1	100.0%
if auscultation abnormal, specify	2	100.0%
if abnormal abdominal palpation, specify	NA	-
if abnormal liver palpation, specify	14	100.0%
if peripheric oedema, specify	NA	-
if systolic murmur, specify	31	86.1%
if diastolic murmur, specify	2	100.0%
if systolic-diastolic murmur, specify	2	50.0%

Evaluation of completeness of treatment plan

Recording of treatment plan was one of the best-recorded domains (87%). The t-tests showed that almost all items were recorded significantly better for healthy patients, except for drug treatment and consultation with surgeon (Table 13).

Table 13. Mean number for healthy (35) and sick (58) patients and t-test for equality of means

		Mean	Std. Deviation	p
consultations of specialists	diseased	0.66	0.48	0.000 [†]
	healthy	0.91	0.28	
intervention prescribed	diseased	0.69	0.47	0.000 [†]
	healthy	0.91	0.28	
drug treatment	diseased	0.83	0.38	0.124
	healthy	0.89	0.32	
physical activity	diseased	0.66	0.48	0.000 [†]
	healthy	0.91	0.28	
bacterial endocarditis prevention	diseased	0.64	0.48	0.000 [†]
	healthy	0.91	0.28	
consult with surgeon	diseased	0.84	0.37	0.269
	healthy	0.89	0.32	
follow-up visit	diseased	0.81	0.40	0.000 [†]
	healthy	0.94	0.24	

Evaluation of completeness of the separate form for children under 1 year

The separate sheet for children under 1 year, where the prenatal care and embryogenetic risk factors are assessed, was completed very poorly. Among 58 patients with diagnosed heart disease there were 28 patients under 1 year of age. The sheet was completed only for 2 of them (7.14 %). The sheet itself was present in a very few SEFs. When present, it was completed very poorly: only a few items were recorded (Table 14).

Table 14. Recording of open ended items for patients under 1 year age completed by cardiologist

	% recorded	% not recorded	NA
risk factors among parents	2.2%	29.0%	68.8%
if yes, risk fact, then specify	-	-	100.0%
fetus risk factors	1.1%	30.1%	68.8%
if yes for fetus risk factors, then specify	-	-	100.0%
prenatal monitoring	2.2%	29.0%	68.8%
delivery in maternity house	2.2%	29.0%	68.8%
consultation of cardiologist	2.2%	29.0%	68.8%
if yes, CHD found	-	1.1%	98.9%

Recording by nurse

The record completeness for the items noted by nurse was evaluated as excellent. The completeness was almost 100% (Table 15). The recording was similar for all items for healthy patients and patients with heart disease.

Table 15. Recording of patient objective exam completed by nurse

		% recorded	Completeness value
weight	diseased	100.0%	excellent
	healthy	100.0%	excellent
height	diseased	98.3%	excellent
	healthy	100.0%	excellent
arterial blood pressure	diseased	96.6%	excellent
	healthy	100.0%	excellent
SaO	diseased	100.0%	excellent
	healthy	100.0%	excellent
pulse	diseased	100.0%	excellent
	healthy	100.0%	excellent

Diagnosis compliance with the STS classification

The diagnoses for all 58 patients with heart disease were checked with Society of Thoracic Surgeons (STS) classification recently implemented in PCC. The diagnosis was judged as complete when the physician record in code B corresponded to the identical record in classification. Missing of any component present in STS classification in the diagnosis recorded by physician was judged as incomplete.

Out of 58 patients with heart disease, the diagnoses were complete in 86.2% of cases and incomplete in 13.8% cases. The compliance to classification was similar across cardiologists ($p=0.611$).

Comparison of record completeness in PCC and ACC

The total completeness of primary SEF in PCC was better compared to ACC: 77.34% vs. 60.1%. The difference was statistically significant ($p=0.0097$).

Discussion

The overall completeness of records in PCC was found to be good. The best-completed domains were nurse recording of objective exam, and physician recording of treatment plan and diagnosis. Physicians record better particular domains probably because they value these domains over the others as more important or informative.

The worst recorded items in the form were postal index, CHD in family, impairment specification, frequency of breath, and the items in prenatal care sheet. The problem with postal index recording was explained by the staff as a result of patients' unawareness of their postal index.

An interesting finding was that the forms for healthy patients were completed better than those for sick ones, especially taking into account that only the forms of patients with heart disease are stored in the database while the forms for healthy children are stored separately. This difference is probably due to the fact that a form for a healthy child is easier to complete by simply marking negative answers.

Descriptions of patients' complaints and abnormal findings recorded by physicians were provided poorly. The reason for this may be the fact that merely the presence of some of complaints and findings (e.g. cyanosis) are considered as sufficient information by

physicians. For other (more frequently described) items (like liver palpation where the size of enlargement were often specified) there is no such assumption among providers.

Recommendations

The following changes are suggested in the first visit SEF to increase its completeness:

- After the item CHD in family, to add "if yes, then death", so it would be clear that the question about death should be asked only if a positive answer for CHD was given;
- To delete the "yes, no" responses for performed surgery, intra-cardiac interventions, and other hospitalization at NMMC, because these items are completed not only in a primary visit but during follow-up visits also. The status of patient could be changed during consecutive visits, and a patient whom the pediatrician does not advise surgery could be operated years after;
- To add to the item "order of payment" the following clarification "if operated patient, patient whom cardiac intervention was done, or hospitalized patient, then, please, specify the order of payment", so that the pediatricians do not confuse this order of payment with the order of payment for PCC visit;
- To count the frequency of respirations, special devices could be introduced;
- To increase the completeness of the separate form for infants, the content could be reduced (leaving only the most important questions).
- Training of staff on the changes in the content of primary visit SEF and importance of complete recording of patient data will be required.
- To evaluate the record completeness on periodical basis.

References

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Appendix 1. Pediatric primary visit SEF evaluation form

Division in to domains (see below)

	Record		Record		Record
Number of form	1	Consultation of cardiologist	5	If abnormal, specify	7
Cardiologist		If yes, CHD found		Cyanosis	
Cardiologist surname		Shortness of breath		If abnormal, specify	
Date of birth		If yes, specify		Thorax	
Gender		Cyanosis		If abnormal, specify	
Address		If yes, specify		Lung auscultation	
Postal index		Shortness of breath and cyanotic seizure		If abnormal, specify	
Telephone number of pat/friend		If yes, specify		Abdominal palpation	
CHD in family		Arrhythmia		If abnormal, specify	
If yes, death		If yes, specify		Liver palpation	
Way of referral		Edema		If abnormal, specify	
Order of payment		If yes, specify		Peripheral edema	
Diagnosis		Feeding problems		If yes, specify	
Code A		If yes, specify		Right radial	
Code B		Loss of consciousness		Right femoral	
Heart failure (NYHA)	If yes, specify	Left radial			
Heart position	2	Pneumonia, frequent ARI	Left femoral		
Visceral situs		If yes, specify	Heart tones		
Atrial situs		Drug allergy	Systolic murmur		
Atrial isomerism		If yes, specify	If yes, specify		
Comorbidities		Other allergy	Diastolic murmur		
If yes, specify		If yes, specify	If yes, specify		
Outcome		Intervention outside NMMC	Systolic-diastolic murmur		
Diagnosis compliance		Surgery outside NMMC	If yes, specify		
Follow-up plan		Other surgery	ECG		
If follow-up, specify		Weight	ECHO		
Indications for impairment	3	Height	6	Consultations of specialists	8
If impairment, specify		Frequency of breath		If yes, specify	
Intracardiac intervention		Arterial blood pressure		Intervention prescribed	
Cardiac surgery		SaO		If yes, specify	
Other hospitalization		Pulse		Drug treatment	
Payment order for surgery/intervention		Physical development	If yes, specify		
Risk factors among parents	4	If abnormal, specify		Physical activity	
If yes, specify		Development		Bac. endocarditis prevention	
Fetus risk factors		If abnormal, specify		Consult with surgeon	
If yes, specify		Dysembryogenetic stigmas		Follow-up visit	
Prenatal monitoring		If yes, specify		If yes, specify date	
Delivery in maternity house		Oral cavity/teeth			

1- demographic data recorded by PCC manager, 2 - diagnosis domain, 3 – outcome/follow-up plan domain, 4 - separate sheet for children under 1 year, 5 - patient complaint, 6 – examinations recorded by nurse, 7 - examinations and findings, 8 –treatment plan.