July 30, 2008

To:

From: Elli Malki

C.C.:

Re: Report on "Socio-Market" audit in Hesed YYYY

This report summarizes the results of an audit that has taken place in Hesed YYYY during 25 June - 3 July. The purpose of the audit in the Hesed was to identify systematic problems in the delivery and quality of services provided by Hesed. The audit was based on a methodology that was developed in collaboration with Ernst & Young (E&Y). The analysis of the results is presented herein.

Summary of the results and recommendations:

We have not found evidence to systematic problems in the services provision. However, the names of the clients who reported non-receipt of the service as well as those clients, who did not answer the phone will be sent to the local auditor for additional check.

The report with the results of this check should be sent to Audit Coordinator until September 1, 2008.

The JDC office and Hesed YYYY should pay close attention to the systematic problem in the appropriateness of the Meals program (Canteen and Meals on Wheels) this problem has already been shown in the previous reports (Nov. 2003, October 2004).

We also recommend JDC YYYY office and Hesed YYYY to consider the sufficiency of the Food Card program.

We will be glad to provide you at your request with any additional information you may need for further examination.

1. The Methodology

Using data from the MIS, we have chosen a stratified random sample of Hesed's clients. The stratification was made by the districts of the city. These clients were personally interviewed, using a specifically designed questionnaire, and were asked about services they received from Hesed. The questionnaire's design was simple enough so that the respondents' answers could be easily interpreted and analyzed. The identity of the respondents in the sample was unknown to Hesed's personnel until the interviews were over. Then, the information for each respondent was compared to the Hesed's database in order to identify discrepancies.

2. The Results:

The random sample included 421 clients, and the respondents were asked about 4 services:

1. Canteen meals or (CM) received in May-08.
2. Meals on wheels (MOW) received in May-08.
3. Homecare treatment (HC) received in May-08.
4. Food card (FC) received in May-08.

The results of the two food programs (1, 2) were pooled together due to sample size. The table below presents the results of the interviews:

Problems in the provision of the services:

Program	Sample Size	Deviations	Deviations % (*)
HC	114	2	1.8%
MOW&CM	165	7	4.1%
FC	142	0	0.0%

The term "Deviation" refers to respondents who reported that they did not receive a certain service, while in Hesed database they appear to receive such service.
(*) The proportional deviation is a weighted average of the proportional deviation in each district.

Problems in the quality of the services:

Program	Sample Size	Deviations	Deviations % (*)
HC	114	0	0.0%
MOW&CM	165	6	3.6%

The term "Deviation" refers to respondents who reported that the quality of the service is bad.
(*) The proportional deviation is a weighted average of the proportional deviation in each district.

Problems in the appropriateness of the services:

Program	Sample Size	Deviations	Deviations % (*)
MOW&CM	165	28	**17.3%**

The term "Deviation" refers to respondents who reported that the service is not appropriate to their needs.
(*) The proportional deviation is a weighted average of the proportional deviation in each district.

Problems in the sufficiency of food:

Program	Sample Size	Deviations	Deviations % (*)
MOW&CM	165	4	2.6%
FC	142	18	**12.7%**

The term "Deviation" refers to respondents who reported that the food that they receive is not enough and they are hungry.
(*) The proportional deviation is a weighted average of the proportional deviation in each district.

3. Statistical Analysis:

A statistical analysis was performed to determine whether the results imply systematic problems in the delivery and the quality of the services. Description of the analysis and numerical results are presented in Appendix I.

Systematic problems:

Service	Provision	Quality	Appropriateness	Sufficiency
HC	No	No	-	-
MOW&CM	No	No	**YES**	No
FC	No	-	-	**YES**

Appendix I:

1) Methodology:

The statistical analysis is based on the statistical properties of the proportion P in the sample. We want to infer from the size of P whether there is a systematic problem in the population. The population is defined as the number of clients who received a specific service in a certain month.

The calculation of P is as follows:

(1-A) $Pi = xi/ni$

xi - the number of deviations in the district (i).
ni - the sample size in region (i).

$x = \sum xi$

x - the total number of deviations.

$n = \sum ni$

n – the total sample size.

(1-B) $P = \sum Ni^* Pi/N$

Ni – the population in the district (i).
N – the total population.

The methodology for such inference is based on the normal approximation for the distribution of P:

(2) $P \sim N(p, S)$

(3) $Z_p = (P - p)/S \sim N(0,1)$

(4) $S^2 = (1/N^2) * \sum Ni^2*(Ni - ni) *Ni*Pi* (1-Pi)/(Ni*ni* (Ni-1))$

p – the true proportion of deviations in the population.
S - the standard deviation (SD) of the sample proportion P

In order to make statistical inference the sample proportion should meet the normality criteria:

(5) $P*n \geq 5$
$(1-P)*n \geq 5$

The most crucial issue is to define what a systematic problem is. Naturally, the number of deviations in the population should be very close to zero. The question is how large should P be in order to conclude that there is a systematic problem in the population. The statistical complexity in such inference is that the normal approximation for the distribution of P holds only when conditions (5) are met.
We have determined the threshold – $\mathbb{P}$ – to be:

(6) $$\mathbb{P} = 10/n$$

and checked the hypothesis:

(7) $$H0: p < \mathbb{P}$$

$$H1: p >= \mathbb{P}$$

Under the null hypothesis, as long as condition 5 holds, the normality approximation also holds and thus we can use equations (2), (3) and (4) to check it.
If the hypothesis (7) is rejected we conclude that there is no systematic problem in the population.

2) Results of the statistical analysis:

Name of City:	**YYYY**					
Homecare - Provision						
p_0 (Threshold)	8.8%	H0: p <	8.8%	Confidence Interval	**-0.2%**	**3.7%**
n	114	H1: p >=	8.8%		OK	
e	2					
P	1.8%					
P - p_0	-7.0%					
s	1.0%					
Z	-6.93	**1.65**	OK			
Meals - Provision						
p_0 (Threshold)	6.1%	H0: p <	6.1%	Confidence Interval	**1.6%**	**6.6%**
n	165	H1: p >=	6.1%		OK	
e	7					
P	4.1%					
P - p_0	-2.0%					
s	1.3%					
Z	-1.56	**1.65**	OK			
Food Card - Provision						
p_0 (Threshold)	7.0%	H0: p <	7.0%	Confidence Interval	**0.0%**	**0.0%**
n	142	H1: p >=	7.0%		OK	
e	0					
P	0.0%					
P - p_0	-7.0%					
s	0.0%					
Z	0.00	**1.65**	OK			

Name of City: **YYYY**

Homecare - Bad Quality

p_0 (Threshold)	8.8%	H0: p <	8.8%	Confidence Interval	**0.0%**	**0.0%**
n	114	H1: p >=	8.8%		OK	
e	0					
P	0.0%					
P - p_0	-8.8%					
s	0.0%					
Z	0.00	**1.65**	OK			

Meals - Bad Quality

p_0 (Threshold)	6.1%	H0: p <	6.1%	Confidence Interval	**1.2%**	**6.0%**
n	165	H1: p >=	6.1%		OK	
e	6					
P	3.6%					
P - p_0	-2.5%					
s	1.2%					
Z	-2.05	**1.65**	OK			

Name of City: **YYYY**

Homecare - Not Appropriate

p_0 (Threshold)	8.8%	H0: p <	8.8%	Confidence Interval	**0.0%**	**0.0%**
n	114	H1: p >=	8.8%		OK	
e	0					
P	0.0%					
P - p_0	-8.8%					
s	0.0%					
Z	0.00	**1.65**	OK			

Meals - Not Appropriate

p_0 (Threshold)	6.1%	H0: p <	6.1%	Confidence Interval	**12.7%**	**22.0%**
n	165	H1: p >=	6.1%		Problem	
e	28					
P	17.3%					
P - p_0	11.3%					
s	2.4%					
Z	4.76	**1.65**	Problem			

Name of City:	**YYYY**					
Meals - Hungry						
p_0 (Threshold)	6.1%	H0: p <	6.1%	Confidence Interval	**0.5%**	**4.6%**
n	165	H1: p >=	6.1%		OK	
e	4					
P	2.6%					
P - p_0	-3.5%					
s	1.0%					
Z	-3.38	**1.65**	OK			
Food Card - Hungry						
p_0 (Threshold)	7.0%	H0: p <	7.0%	Confidence Interval	**7.4%**	**17.9%**
n	142	H1: p >=	7.0%		Problem	
e	18					
P	12.7%					
P - p_0	5.6%					
s	2.7%					
Z	2.11	**1.65**	Problem			