North Dakota Department of Human Services

Child Care Payment Accuracy Study

Sampling Methodology

1. UNIVERSE:
   a. All payments made between 10/1/2003 and 03/31/2004
   b Before sample selection, sort the universe of payments by:
      i. Payment (Date processed) Month
      ii. Social Security Number

2. SAMPLE DESIGN:
   a. Simple Random Sampling
   b. Each Client cannot be selected more than once in the sample.

3. SAMPLING UNIT: A payment made for Child Care services in the above-mentioned time frame.

4. SAMPLING PLAN: Draw an appropriate sample size to obtain:
   a. An accuracy rate of +/- 5% (b=0.05)
   b. 95% Confidence (t=1.96)
   c. It is assumed that accuracy rate is elevated and there is no need to maximize the sample size for a worst case scenario. Therefore, the formula for calculating the sample size percent will use 75% as the "p" value[1] in the sample size calculation below (p=.75, q=1-p).

5. SAMPLE SIZE CALCULATION:

$$n = \frac{p \times q}{(b/t)^2} = \frac{0.75 \times 0.25}{(0.05/1.96)^2} = 288.12 = 289$$

6. SUMMARY OF METHODOLOGY: Two hundred and eighty-nine (289) payments will be randomly selected for review, from all payment[2] made from October 1, 2003 through March 31, 2004. No client will be selected more than once.[3]

[1] As requested by the department's Fiscal Administration division.

[2] Originally, payments less than $10 were to be excluded from the data file (universe) from which the sample was to be taken. Mistakenly, this was not done and the inclusion of 80 such payment entries in the more than 22,000 lines of data was not discovered until after the sampling had been completed. No case in the sample had an payment amount under $10. The sampling was done through use of an Excel feature which randomly selects entries from a list it is presented with.

[3] In the initial sampling, there were ten (10) households that appeared more than once. The duplicate entry (second sample) for that household was discarded from the sample list. Replacements for the discarded payment entries were selected from the universe (list). The first payment entry in the universe to follow a discarded sample payment (where it appeared in the universe) and which was not a duplication of any entry in the initial sampling was selected as a replacement.