

Kitsap County Health District Parent Child Health Clients: Client Visits and Outcomes

April 2011



Kitsap County Health District's Parent Child Health Program (PCH) nurses and behavioral health specialist began entering all client data into Nightingale Notes on August 10th, 2009. The following data are representative of all Maternity Support Services-(MSS) eligible clients who were opened on or after August 10th, 2009 and closed on or before December 31st, 2010. **A total of 406 clients** received MSS through the PCH Program during this time.

I. Who are Our Clients?

Table 1. MSS Client Demographics, Aug. 10, 2009 – Dec. 31, 2010

	Number	Percent	% of all clients*
Age	406		100%
Under age 18	21	5%	
18 to 20	98	24%	
21 to 24	117	29%	
25 to 29	99	24%	
30 to 34	50	12%	
35 or older	21	5%	
Race (any ethnicity)	399		98%
White	316	79%	
American Indian or Alaska Native	17	4%	
Asian	9	2%	
Black	22	6%	
Hawaiian or other Pacific Islander	21	5%	
Multiple races or other/unknown race	13	3%	
Ethnicity (any race)	391		96%
Non-Hispanic	320	82%	
Hispanic	71	18%	
Marital Status	389		96%
Single	206	53%	
Unmarried with domestic partner	41	11%	
Divorced or separated	22	6%	
Married	119	31%	
Primary Language	389		96%
English	336	87%	
Spanish	33	9%	
Guatemalan dialect	12	3%	
Tagalog	2	1%	
Other	5	1%	
Level of Education	304		75%
No education	7	2%	
Less than high school	84	28%	
High school graduate or GED	120	39%	
More than high school	93	31%	
Employment Status	371		91%
Unemployed**	239	64%	
Employed^	132	36%	
Housing	366		90%
Rent apartment	82	22%	
Rent house	199	54%	
Own house	66	18%	
Mobile home	9	2%	
Homeless or sheltered	3	1%	
Subsidized housing	2	1%	

*all categories, except for age, have clients with missing data; ** includes receiving disability, GAU-X, SSI, or SSDI; ^includes on family or medical leave

- ❖ Almost 1 in 3 clients is under the age of 21.
- ❖ Approximately 1 in 5 clients are of a minority race and almost 1 in 5 are Hispanic.
- ❖ Less than 1 in 3 clients are married, and of those that are not married, 85% are not living with a domestic partner. A total of 40% of Hispanic clients are married compared to 28% of non-Hispanic clients.
- ❖ A total of 3 in 10 clients have less than a high school education. A total of 52% of Hispanic clients have less than a high school education compared to 26% of non-Hispanic clients.
- ❖ After English, Spanish was the most common primary language with 8.5% of clients reporting it as their primary language. A total of 48% of Hispanic clients reported Spanish as their primary language.
- ❖ Almost 2 in 3 clients are unemployed.
- ❖ Less than 1 in 5 clients owns their residence.

II. How many visits do our clients receive?

In-person visits with clients include assessments, home visits, and office visits.

- **VISITS PER CLIENT:** There were 1,365 total in-person visits completed, for an **average of 3.4 visits per client**. The following visits by type were completed: 561 assessments (1.4 per client), 588 home visits (1.5 per client), and 216 office visits (.5 per client). Table 2 summarizes in-person visits by type. (Note: assessments are always completed in-person but may be done at either a home or office location).

Table 2. MSS In-Person Client Visits, Aug. 10, 2009 – Dec. 31, 2010

Type of in-person visit:	Total visits	Total clients	Average visits
	#	#	per client
Assessment	561	406	1.4
Home Visit	588	406	1.5
Office Visit	216	406	0.5
Total	1,365	406	3.4

- **VISITS BY CLIENT SERVICE LEVEL:** All clients are designated a service level which determines the number of overall hours the nurse and/or the behavioral health specialist can spend with the client. The three service levels are A-Basic, B-Expanded, and C-Maximum. These service levels are designated by the nurse or behavioral health specialist during an initial risk assessment, using criteria developed by the WA Department of Health and can change during the course of services rendered if new issues are revealed or develop. For clients seen during both pregnancy and postpartum, the designated service level may be different during these two time periods. Table 3 shows the number and proportion of clients receiving nursing services by pregnancy, postpartum, or both.

Table 3. MSS Clients by Peripartum Stage, Aug. 10, 2009 – Dec. 31, 2010

	n	% of total clients
Clients with pregnancy service level only	50	13%
Clients with postpartum service level only	150	39%
Clients with pregnancy & postpartum service levels	193	50%
Total	393	100%

*13 clients were missing a service level designation

Overall, 14% of clients were classified as an “A”, 23% as a “B”, and 63% as a “C”. (Note: 12 clients had service levels that changed from pregnancy to postpartum and they are counted twice). As clients move from an “A” to a “B” and from a “B” to a “C”, they are allowed more hours of in-person services. Table 4 demonstrates how those increased allowed hours translate into more average visits per client. The average visits per client are separated by pregnancy and postpartum as many clients are not seen during both stages (see Table 3).

Table 4. MSS In-Person Client Visits by Service Level, Aug. 10, 2009 –Dec. 31, 2010

Designated service level :	Average # of visits per client	
	During pregnancy	During postpartum
A- Basic	1.9	1.6
B- Expanded	2.8	2.4
C- Maximum	5.3	4.4

III. What problems are identified in our clients?

The nurse/behavioral health specialist identifies problems during in-person encounters. Problems with signs or symptoms are designated as actual problems, and problems with no signs or symptoms but a history of or other risk factor(s) present are designated as potential problems. Health promotion problems are those for which the client has no signs or symptoms and no history or risk factor present but requests information about the problem.

- **PROBLEMS PER CLIENT:** A total of 391 clients had 999 actual problems identified, for an average of 2.5 actual problems per client overall (n=406). Of those clients with an actual problem identified, there was a range of 1 to 8 problems. A total of 323 clients had 929 potential problems identified, for an average of 2.3 potential problems per client overall (n=406). Of those clients with a potential problem identified, there was a range of 1 to 8 problems.

The number of actual problems identified per client increases as the designated service level goes from “A” to “B” and “B” to “C”. Figure 1 shows the total number of problems identified by severity of problem and by service level, and Figure 2 shows the average number of problems identified per client by severity of problem and by service level.

Figure 1. MSS Client Total Problems by Problem Severity and by Service Level, Aug. 10, 2009 -Dec. 31, 2010

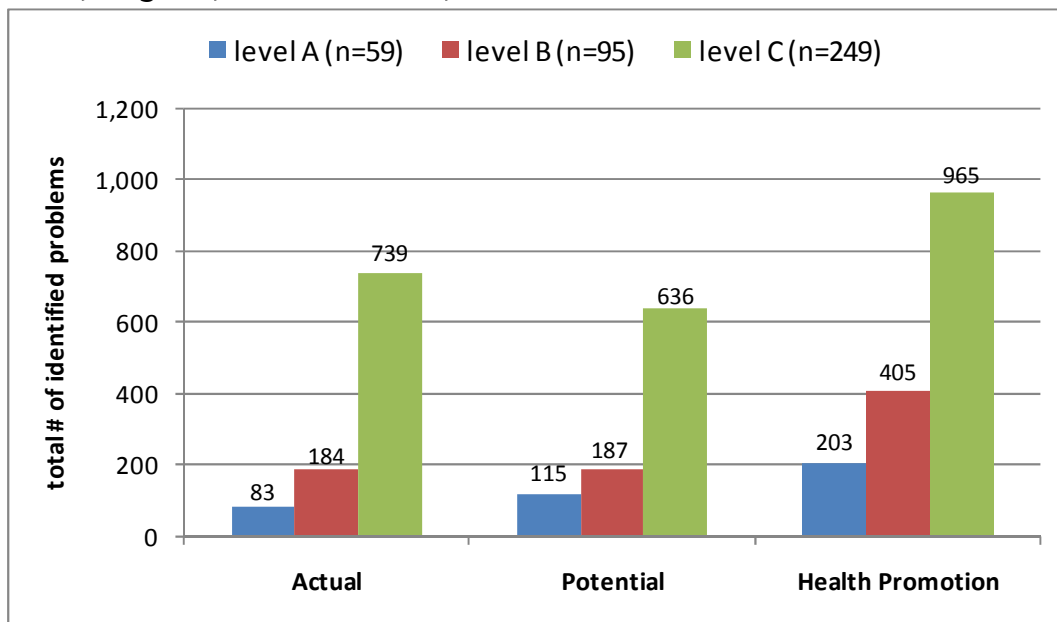
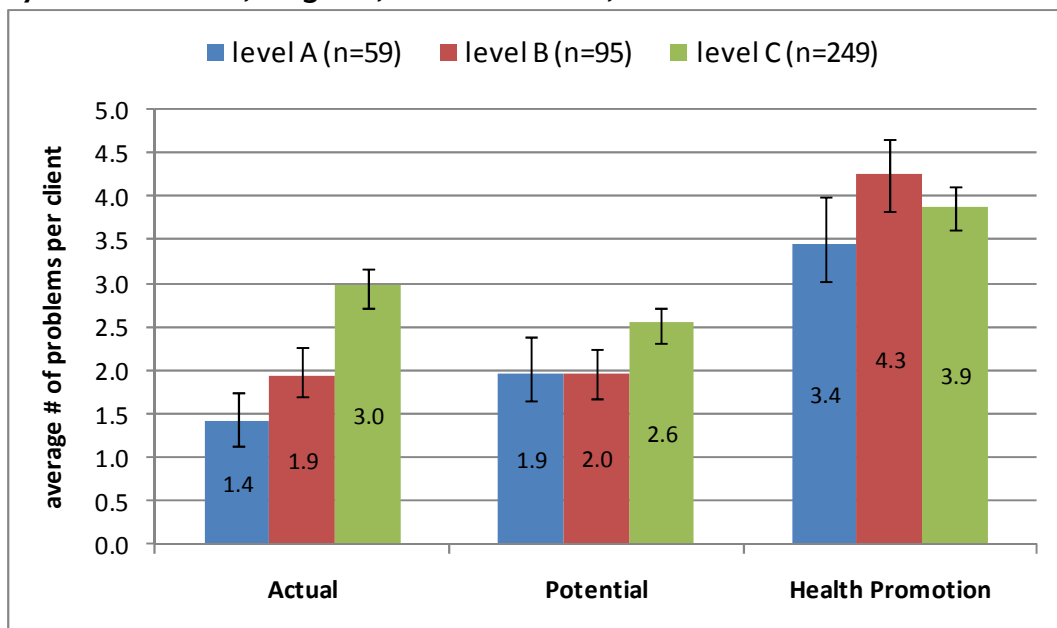


Figure 2. MSS Client Average Problems per Client by Problem Severity and by Service Level, Aug. 10, 2009 -Dec. 31, 2010



- **TOP PROBLEMS:** The top three actual problems identified for clients were income, mental health, and substance use. Income was identified for 92% of all clients, mental health for 37% of clients, substance use for 33% of clients, pregnancy and postpartum for 17% of clients, and health care supervision for 15% of clients. The top three potential problems identified were mental health, caretaking/parenting, and pregnancy. Table 5 shows the total number of clients for which each actual and potential problem was identified:

Table 5. Problems Identified for MSS Clients by Problem Severity, Aug. 10, 2009 – Dec. 31, 2010

Actual (391 clients)	Potential (323 clients)
Income (n=373)	Mental health (n=164)
Mental health (n=151)	Caretaking/parenting (n=133)
Substance use (n=133)	Pregnancy (n=108)
Pregnancy (n=69)	Abuse (n=83)
Postpartum (n=68)	Postpartum (n=82)
Healthcare supervision (n=61)	Residence (n=77)
Caretaking/parenting (n=35)	Substance use (n=72)
Communication with community resources	Family planning (n=71)
Residence (n=23)	Healthcare supervision (n=63)
Medication regimen (n=21)	Communication with community resources
Abuse (n=18)	Medication regimen (n=27)
Family planning (n=11)	Growth and development (n=5)
Grief (n=5)	Income (n=2)
Growth and development (n=3)	Interpersonal relationship (n=2)
Interpersonal relationship (n=2)	Grief (n=1)
Neighborhood/workplace safety (n=1)	

Table 6 shows the proportion that each actual problem comprises of the total actual problems identified for all clients and the proportion of all clients for which each problem was identified:

**Table 6. Actual Problems Identified for MSS Clients,
Aug. 10, 2009 – Dec. 31, 2010**

	# of times entered as problem	% of total problems entered	% of all clients for which problem was identified
Income	373	37.3%	91.9%
Mental health	151	15.1%	37.2%
Substance use	133	13.3%	32.8%
Pregnancy	69	6.9%	17.0%
Postpartum	68	6.8%	16.7%
Health care supervision	61	6.1%	15.0%
Caretaking/parenting	35	3.5%	8.6%
Communication with community resources	25	2.5%	6.2%
Residence	23	2.3%	5.7%
Medication regimen	21	2.1%	5.2%
Abuse	18	1.8%	4.4%
Family planning	11	1.1%	2.7%
Grief	5	0.5%	1.2%
Growth and development	3	0.3%	0.7%
Interpersonal relationship	2	0.2%	0.5%
Neighborhood/workplace safety	1	0.1%	0.2%

- ❖ More than 9 in 10 of all clients had an actual problem of income.
- ❖ More than 1 in 3 of all clients had an actual problem of mental health.
- ❖ 1 in 3 of all clients had an actual problem of substance use.

IV. What are the Knowledge, Behavior, and Status (KBS) outcomes of our clients?

Clients may be given a score within three categories for each identified problem; these three categories are Knowledge (K), Behavior (B), and Status (S). The KBS scores are given on a scale of 1 to 5, with “1” denoting the highest severity in that area and problem, and “5” denoting the lowest severity in that area and problem. For this analysis, only KBS scores from actual problems were included. Also, only KBS scores from clients who were seen two or more times and who had the same actual problem entered into their client record two or more times were included. KBS scores are only entered again after the initial assessment of a problem if a score in any one of the three KBS areas changes. For example, a client may have an initial KBS score for a particular problem and then may be seen and have that problem addressed at various visits, but if the KBS score remains unchanged, then nothing will be entered again in the KBS portion of the client record. This analysis includes those clients for which this “no change” is the case. There were a total of 248 clients who were included in the analysis based on these criteria.

- **CHANGE IN KBS SCORES FROM INITIAL TO FINAL RATING FOR ALL ACTUAL PROBLEMS COMBINED:** Table 7 shows the average initial and final scores for all actual problems in each of the KBS areas and whether the average score showed a statistically significant increase from the initial to the final rating.

Table 7. MSS Client Average KBS Initial and Final Scores for All Actual Problems Combined, Aug. 10, 2009 – Dec. 31, 2010

Rating category	Average of initial scores	95% confidence interval of average of initial scores	Average of final scores	95% confidence interval of average of latest scores	p-value
Knowledge	3.08	3.03 - 3.14	3.32	3.27 - 3.37	<0.001*
Behavior	3.29	3.33 - 3.45	3.53	3.47 - 3.58	<0.001*
Status	3.28	3.23 - 3.34	3.41	3.35 - 3.47	<0.001*

*denotes statistically significant change (p<0.05)

In all three KBS area, the scores from the initial rating to the final rating showed a statistically significant increase. Figure 8 shows this increase from the average initial rating to the average final rating for all actual problems combined.

Figure 8. MSS Client Average KBS Initial and Final Scores for All Actual Problems Combined, Aug. 10, 2009 – Dec. 31, 2010

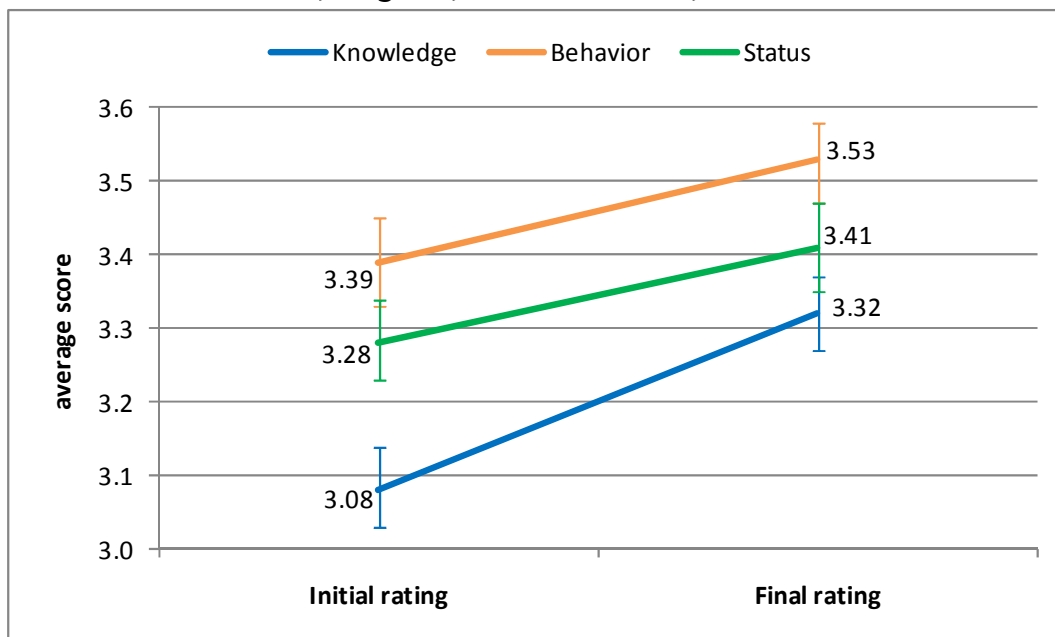


Table 8 shows the change in KBS scores from the initial rating to the final rating by problem (n=the number of clients identified with that problem who were seen two or more times and who had that problem entered in their client record two or more times). It also shows which KBS area(s) showed a statistically significant increase by problem (p<0.05 and has an asterisk).

Table 8. MSS Client Average KBS Initial and Final Scores by Actual Problem, Aug. 10, 2009 – Dec. 31, 2010

	n	Rating category	Average initial rating	Average final rating	p-value
Abuse	12	K	2.50	3.00	0.053
		B	3.08	3.50	0.137
		S	3.00	3.33	0.104
Caretaking/parenting	21	K	2.62	3.19	0.004*
		B	3.19	3.38	0.162
		S	3.14	3.57	0.009*
Communication with community resources	17	K	2.94	2.94	1.000
		B	3.29	3.35	0.579
		S	3.29	3.41	0.332
Family planning	6	K	2.17	2.50	0.175
		B	2.67	2.83	0.363
		S	3.50	3.50	1.000
Grief**	3	K	2.33	3.00	n/a
		B	3.33	4.00	n/a
		S	2.67	3.00	n/a
Health care supervision	31	K	3.13	3.23	0.184
		B	3.29	3.26	0.745
		S	3.48	3.58	0.325
Income	216	K	3.30	3.50	<0.001*
		B	3.80	3.88	0.003*
		S	3.60	3.67	0.005*
Interpersonal relationships	7	K	2.57	3.00	0.078*
		B	3.29	3.14	0.356
		S	3.00	3.00	1.000
Medication supervision	11	K	2.82	2.91	0.341
		B	3.00	3.00	1.000
		S	3.45	3.45	1.000
Mental health	96	K	2.78	3.14	<0.001*
		B	2.97	3.31	0.001*
		S	2.91	3.17	0.015*
Postpartum	31	K	3.03	3.32	0.005*
		B	3.55	3.65	0.264
		S	3.16	3.39	0.017*
Pregnancy	42	K	3.00	3.14	0.083
		B	3.38	3.52	0.057
		S	3.26	3.36	0.210
Residence	9	K	3.33	3.44	0.347
		B	3.11	3.33	0.169
		S	2.67	2.67	1.000
Substance use	92	K	3.25	3.45	<0.001*
		B	3.11	3.18	0.239
		S	3.03	3.08	0.540

*denotes statistically significant change (p<0.05)

note: problem categories with n<5 were not evaluated for change

- ❖ Both the Income and Mental health problems had statistically significant increases in the areas of Knowledge, Behavior, and Status.
- ❖ Both the Caretaking/parenting and Postpartum problems had statistically significant increases in the areas of Knowledge and Status.
- ❖ The Substance use problem had a statistically significant increase in the area of Knowledge only.

Table 9 shows the change in KBS scores from the initial rating to the final rating by service level for the top five actual problems. It also shows which KBS area(s) showed a statistically significant increase by problem and by service level ($p < 0.05$ and has an asterisk). Service levels for a problem in which there were less than five clients were not included in the analysis.

Table 9. MSS Client Average KBS Initial and Final Scores by Service Level for the Top Five Actual Problems, Aug. 10, 2009 – Dec. 31, 2010

	n	Rating category	Average initial rating	Average final rating	p-value
Income	Level A	K	3.45	3.73	0.192
		B	3.82	4.00	0.167
		S	3.73	3.73	1.000
	Level B	K	3.32	3.59	0.001*
		B	3.71	3.80	0.210
		S	3.59	3.71	0.096
	Level C	K	3.28	3.45	<.001*
		B	3.80	3.89	0.010*
		S	3.58	3.64	0.029*
Mental Health	Level C	K	2.75	3.17	<0.001*
		B	2.97	3.36	<0.001*
		S	2.91	3.21	0.007*
Substance use	Level B	K	3.19	3.38	0.104
		B	3.10	3.29	0.104
		S	3.00	3.15	0.330
	Level C	K	3.25	3.43	0.004*
		B	3.06	3.10	0.698
		S	3.03	3.06	0.698
Pregnancy	Level C	K	3.03	3.17	0.134
		B	3.39	3.50	0.103
		S	3.19	3.31	0.210
Postpartum	Level C	K	3.00	3.30	0.009*
		B	3.52	3.63	0.265
		S	3.15	3.41	0.017*

*denotes statistically significant change ($p < 0.05$)

notes: service levels with $n < 5$ were not evaluated for change; clients whose level changed during service were not included in the analysis as they cannot be categorized into one service level; however, this number of women is small

- ❖ The Income problem had a statistically significant increase in the area of Knowledge for Level B clients and in the areas of Knowledge, Behavior, and Status for Level C clients.
- ❖ The Mental health problem had statistically significant increases in the areas of Knowledge, Behavior, and Status for Level C clients.
- ❖ The Postpartum problem had statistically significant increases in the areas of Knowledge and Status for Level C clients.

- ❖ The Substance use problem had a statistically significant increase in the area of Knowledge for Level C clients.
- ❖ The Pregnancy problem did not have any statistically significant increases in any of the areas for any of the service levels.

V. Conclusions

- Hispanic clients are likely to have different needs than non-Hispanic clients. Compared to non-Hispanic clients, Hispanic clients are more likely to be married and to have different social support structures, but they are much more likely to have less education and to speak Spanish as their primary language.
- Clients of minority races may also have different needs than White clients, but due to missing data and small numbers, these differences are not reported here. Further analysis should be completed when possible to determine these needs.
- Only one-half of clients are seen during both pregnancy and postpartum, and over one-third are seen during postpartum only. There is a need to outreach to clients early in their pregnancy for enrollment into MSS.
- The average number of in-person visits for all clients is just over three visits. For a client who is designated an “A” level, she receives less than two in-person visits on average during either pregnancy or postpartum. A substantial proportion of these clients are not receiving another visit after the initial assessment to address areas of concern or recognized problems.
- Almost two-thirds of clients are designated a level “C”. Most clients have a high level of needs to address to support positive maternal and infant outcomes.
- The top three actual problems are Income, Mental health, and Substance use. While KBS scores show an increase from the initial to the final rating in all three areas for the Income and Mental health problems, there was only an increase in the area of Knowledge for the Substance use problem. There is a need to understand the lack of increase in the areas of Behavior and Status and to find other interventions to affect improvement in these areas.
- PCH nurses and the behavioral health specialist should use evaluation and outcome results to discuss whether these data reflect their current practices and caseload and to then determine areas of quality improvement for client recruitment, interventions, data entry standards and protocols, case review/auditing, and selected indicators for tracking outcomes.

Data Notes:

Clients who were opened from August 10th, 2009 and closed on or before December 31st, 2010, were included because their services were either completed or clients would have no longer been eligible for services, thus more accurately describing the total number of visits per client.

Clients whose service level designation changed were included in the highest service level category that was entered; no client service levels decreased.

Some client problems changed from actual (have signs/symptoms) to a different severity, such as potential or adequate, during their services. In these cases, the full improvement in the KBS scores was not reflected because only actual problems were included in the KBS analysis.

Paired t-tests at a 95% confidence interval were used to analyze the change in KBS scores from the initial rating to the final rating.