



The Science of Maintaining Healthy Behavior

Health Maintenance Consortium
Texas A&M Health Science Center School of Rural Public Health

Health Maintenance Consortium Supplement Progress Reports March 2009

Supplements

Depression – Hooven
Environment – Migneault
I-5-A-Day – Elliot
Maintenance – Hughes
Modality – McKay
Outcomes – Toobert
Weight Loss – Phelan

HMC Supplement Progress Report - DEPRESSION

February 2009

Supplement Title: The Role of Depression and Context in Health Behavior An Administrative Supplement to: *Preventing Suicide Risk Behaviors: Long Term Change*

**Supplement Chair/
Affiliation:** Carole Hooven, PhD - University of Washington School of Nursing

Purpose: To apply an ecological framework of neighborhood effects on individual health by exploring the relationship between depression and health change for a broad set of health outcomes – suicide risk, sexual practices, diet adherence, and smoking cessation – and specifically exploring how the context in which an individual is embedded contributes to and moderates these effects.

Depression Group: Data Contact – Karen Snedker
(In addition to HMCRC Members)

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Progress to Date: The geocoding process is complete for Time 1 for Sites A, B, C and D with the corresponding census tracts and X, Y coordinates attached. There were a small number of cases for each site where we were unable to geocode but in most cases the centroid of the census tract has been used to create X, Y coordinates. The geocoded datasets are complete. The lead site has received the individual-level substantive data file (encrypted) from each site. This data set includes census tract identifiers, X, Y coordinates, a small subset of participant data including demographic characteristics (age, sex, race/ethnicity, SES), social support items and scales, depression items and scales, and outcome indicators (over time). We are in the process of conducting initial analyses on the impact of neighborhood context on the relationship between depression and health change across all sites. As a starting point, we have preliminary analyses of the Seattle data. Preliminary results, using time 1 data, suggest that neighborhood context (disadvantage) has a direct (positive) effect on suicidal ideation. Using the same data point, depression has a direct (positive) impact on suicidal ideation but does not have a direct association with neighborhood context. We also found no moderating effect of neighborhood disadvantage on the association between depression and suicide ideation. We continue to analyze these relationships for multiple suicide-related outcomes using longitudinal data.

Challenges to Date: Comparative analysis across different outcomes pose some challenges. We have identified various ways to capture the different outcomes across sites, including increase/decrease in negative health behavior, maintenance of current behavior, presence or absence of a given behavior or condition, and continuous scale measures. In the analyses we will compare the results (impact of neighborhood context in model) of different configurations of the outcome variables (health change) and if necessary assess different outcome measures.

Plans for sending HMCRC final data set/date data will be transmitted to HMCRC: We can have the neighborhood-level supplement data [which includes census tracts (which link to individual data sites) and census characteristics] ready in a very short amount of time. We can send the data to HMCRC in an excel file or upload the data to the website once the data sharing component is ready.

Next Steps: We plan to estimate models across all sites similar to preliminary analysis of the Seattle data. As we continue to work on the pooled cross-sectional analysis (at time 1), we will also estimate models based on the longitudinal data. Depending upon the results, we will work on a joint manuscript based on the pooled analyses across several sites.

HMC Supplement Progress Reports – ENVIRONMENT

February 2009

Supplement Title: The Impact of the Physical and Socioeconomic Environment on Changes in Diet, Physical Activity, and Obesity

**Supplement Chair/
Affiliation:** Jeff Migneault, PhD - Boston University School of Medicine

Purpose: To investigate the interaction of environmental factors and health behavior interventions and to assist participating sites in the use of social, economic, and built environmental factors in efforts to understand the promotion of long-term behavior change.

Environmental Group:

(In addition to HMCRC members)

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Summary of Progress to date: Since the last progress report we have geocoded the addresses of the 1049 subjects in the Trial of 2 TeleComuter Diet Change Maintenance Programs (Friedman) and linked these to the environmental data bases. The analytic plan that was developed and followed on two of the other studies (Martinson and Toobert) were repeated on this data, with the same pattern on null results.

Name of data contact: Russ Lopez (for now)

Plans for sending HMCRC final data set: Data collection at a number of sites is ongoing. Data sharing plans will be discussed with co-investigators of the supplement.

Date data will be transmitted to HMCRC: To be determined

Next Steps: We are now moving on to look at some other questions of interest that this data set lends itself to, and might have applications for other sites. With further data collection we will look at whether objective or subjective environmental variables moderate behavior change resulting from study interventions. Also, having multiple waves of data from the perception instrument allows us to investigate the stability of the perception factors assessed, whether they change with behavior change, and if so, the temporal relationship between these variables.

HMC Supplement Progress Report – I-5-A-Day January 2009

Supplement Title:	I-5-A-Day Collaboration Project	
Supplement Chair/ Affiliation:	Diane Elliot, MD - Oregon Health & Science University	
Purpose:	The main goal of the I-5-a-Day Collaborative Project is to apply statistical techniques to define the common patterns, mediators and theoretical mechanisms of long-term maintenance of healthy dietary behaviors. These issues will be examined as part of a collaborative project of three studies that involve longitudinal (50 to 84 months) follow-up of participants from controlled intervention trials that successfully increased F&V intake.	
I-5-a-day Group: (In addition to HMCRC members)	Shirley Beresford Carol DeFrancesco Diane Elliot Chondra Lockwood Jessica Macintyre Shannon McCarthy Wendy McGinnis Dale McLerran Lisa Strycker Deborah Toobert	beresfrd@u.washington.edu defrance@ohsu.edu elliottd@ohsu.edu chondra@comcast.net jmacintyre@fhcrc.org shannon@ori.org mcginniw@ohsu.edu dmclerra@fhcrc.org lisas@ori.org deborah@ori.org

Progress to date: One year of data was received from all three sites for initial comparison (see February 2008 Progress Report). Because of limited variable overlap with one site, cross-sectional mediation analyses have proceeded with just the MedLife and PHLAME studies. The investigators have submitted a paper to the *Journal of the American Dietetic Association* and a poster as part of a symposium to the *Society for Prevention Research*. Three years of data from MedLife and PHLAME now have been received by the coordinating site.

Analyses: Previous cross-site comparisons were conducted of the characteristics of the three different populations. Due to lack of sufficient cross-site similarity, cross-sectional mediation analyses were compared between two of the three sites, PHLAME and MedLife. Mediation analyses examined the impact of the interventions on purported mediators and the targeted outcome, fruit and vegetable (FV) consumption.

Findings: Overall mediation differed between sites: PHLAME increased FV consumption through increased self-efficacy for eating healthy while dining out, while MedLife increased FV consumption through increased recent happiness. Because mediation analysis can provide useful information about the process of change, even when the overall mediated effect is not significant, the two pieces of the mediated path were examined for all overlapping mediating variables.

The first path in the mediation chain is the effect of the intervention on the mediator, sometimes called action theory. The PHLAME intervention improved diet norms and self-efficacy for eating out, while the MedLife intervention led to lower recent depression and higher recent happiness. The second path in the mediation chain is the relationship between the mediator and the outcome, sometimes called conceptual theory. In both PHLAME and MedLife, higher levels of self-efficacy for eating out and happiness were related to higher FV consumption; better diet norms were related to increased FV consumption only in MedLife, and recent depression, sleep disturbances, and the blues were related to lower FV consumption only in PHLAME. These findings are shown in a Table on the next page.

Because the mediators and the outcome were measured at the same time, we cannot make definitive statements about the causal direction; in other words, it is unclear whether changes in the mediators led to changes in the outcome or whether changes in the outcome led to changes in the mediators. Further analyses with the additional waves of data should clarify these issues.

HMC Supplement Progress Report – I-5-A-DAY (continued) January 2009

Supplement Title: I-5-A-Day Collaboration Project

**Supplement Chair/
Affiliation:** Diane Elliot, MD - Oregon Health & Science University

Comparison Cross-sectional Medication of PHLAME and Med Life		
	Action Theory: Intervention → Mediator	Conceptual Theory: Mediator → Outcome
PHLAME	Dietary norms Self-efficacy for eating out	Self efficacy for eating out Depression/Blues Happiness Sleep disturbances
MedLife	Depression Happiness	Self efficacy for eating out Happiness Dietary norms

Presentations or papers:

Lockwood, C. M., DeFrancesco, C. A., Elliot, D. L., Beresford, S. A. A., & Toobert, D. T. *Mediation Analyses: Applications in Nutrition Research and Reading the Literature.* (submitted J Am Dietetic Association 2009)

Lockwood, C. M., Beresford, S. A. A., Elliot, D. E., Toobert, D. J., & MacKinnon, D. P.. *A Comparison of Three Dietary Interventions.* (submitted as one of seven thematic PHLAME related posters to Society for Prevention Research 2009)

Name of data contact: Chondra Lockwood

Plans for sending HMCRC final data set: TBD

Date data will be transmitted to HMCRC: June 2009

Next Steps: Data from PHLAME and MedLife for the next two measurement points will be processed for comparison. Longitudinal mediation analysis will proceed to examine whether the differences between PHLAME and MedLife are consistent across time and to clarify the relationship between mediators and outcome.

HMC Supplement Progress Reports – MAINTENANCE

January 2009

Supplement Title: Maintenance Trajectories across Behaviors & Associated Impact on Quality of Life

**Supplement Chair/
Affiliation:** Susan Hughes, DSW - University of Illinois, Chicago

Purpose: To pool maintenance data across eight funded HMC studies in order to address three main research objectives: (1) to examine variability across behaviors in the way that maintenance is assessed, (2) to assess the degree of variability in maintenance across behaviors, and (3) to determine the level of maintenance necessary across behaviors to impact a common outcome.

Outcomes Group:

(In addition to HMCRC members)

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Summary of Progress to date: We used findings from the Maintenance survey completed by HMC investigators (N=16) to develop a manuscript that describes the conceptualization and operationalization of the construct of maintenance across HMC studies. Drs. Hughes, Seymour, and Ory took the lead on the paper with contributions from several of the collaborating site investigators, including behavior-specific contributions from Geoff Williams (smoking cessation), Diane Elliot (diet/nutrition), and Kim Kirby and John Roll (substance abuse). The paper is currently under review.

We have successfully received data from six of the 8 collaborating sites, for a total of four including our own lead site. We have developed preliminary baseline descriptive demographic, independent, and covariate tables using data from the five sites.

Analyses: The Maintenance Workgroup designed and implemented a study to examine “maintenance” of behavior change across and within behaviors. Representatives from a total of 16 HMC intervention studies completed the survey: 6 physical activity, 6 diet/nutrition, 6 tobacco cessation, 4 substance abuse.

Findings: We reached consensus on a definition of maintenance and maintenance related variables that applied equally well to all behaviors. The majority of studies (12 of 16, 75%) are using a criterion to assess maintenance of behavior change, consistent with the consensus that the group reached regarding an ideal definition. The majority (12 of 16, 75%) are also tracking maintenance using a continuously measured variable and the majority are conceptualizing maintenance to be both an intermediate and primary outcome. All of the studies are assessing maintenance at the level of the individual participant with only three assessing this outcome at the organizational level, three assessing it at the environmental level and one at the policy level. Importantly, those studies that are examining more levels of maintenance are addressing physical activity and diet.

Presentations or papers: Hughes, SL, Seymour, RB, Ory, MG, Elliot, D, Kirby, K, Migneault, J, Patrick, H, Roll, J, Williams, G. Commonalities and Differences in Measuring Maintenance of Behavior Change: Findings from the Health Maintenance Consortium. American Journal of Health Promotion (under review).

Name of data contact: Rachel Seymour

Plans for sending HMCRC final data set: We plan to use Sharepoint to provide the HMCRC with the final dataset.

HMC Supplement Progress Reports – MAINTENANCE (continued)

January 2009

Supplement Title: Maintenance Trajectories across Behaviors & Associated Impact on Quality of Life

Supplement Chair/Affiliation: Susan Hughes, DSW - University of Illinois, Chicago

Date data will be transmitted to HMCRC:

Next Steps: We will receive baseline data from the remaining two sites this spring as well as follow-up data from all sites in order to conduct the planned analysis of trajectories of maintenance within and across behaviors. We will use data from all participating sites to examine variability in maintenance over time, time to relapse and reactivation, total instances of same, controlling for the environment within which the intervention takes place and use Random Effects Models to analyze time-related maintenance trajectories. We will also examine the level of maintenance that is necessary across behaviors to impact a common outcome such as healthy days and other related quality of life constructs.

HMC Supplement Progress Reports – Modality January 2009

Supplement Title: Identifying Components of HMC Interventions that Predict Outcomes

**Supplement Chair/
Affiliation:** Jim McKay, PhD - University of Pennsylvania

Purpose: To extend a new methodology for characterizing diverse multi-dimensional psychosocial and behavioral interventions across a set of common components and examining the relationships of individual intervention components to study outcomes.

Outcomes Group:

(In addition to HMCRC members)

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Summary of Progress to date: The final version of the modalities survey has now been completed by the BCC projects, all the HMC projects in the supplement group, and most of the remainder of the HMC grantees. The completed surveys have been entered into a data base, and the data have been cleaned and prepared for analysis. Initial examinations of the data indicate a reasonable degree of variation in responses. We have also received the outcome data and baseline covariates from the BCC projects, and selected the primary outcomes for our initial analyses.

Three papers have been planned, which will make use of data from the survey. The first is a conceptual paper, which will address the use of questionnaires like our survey to obtain data on treatment components, and the ways in which such data can advance the study of the active ingredients of treatment. Rich Schulz is taking the lead on that paper, and has finished a first draft. The second will report on the components of behavior maintenance interventions, and will compare the different HMC/BCC groupings (e.g., nutrition, exercise, substance abuse, etc.) on these components. Work on this second paper has already begun. Work on the third paper, which will link treatment components to outcomes in the BCC and HMC projects, will begin when HMC outcome data become available. Nelda Mier will also be using data from the modalities survey for papers on issues pertaining to the cultural sensitivity of the interventions. IRB approval has been obtained for the work.

Analyses: Descriptive analyses have been done on the Modalities survey data. None of the analyses linking data on intervention components to outcomes has been completed at this point.

Findings: None available at this point

Presentations or papers (list in MLA style): No presentations yet. Papers in development described above.

Name of data contact: Sara Czaja

Plans for sending HMCRC final data set: We will make the data set from the Modalities survey available to HMCRC as soon as it is complete and clean.

Date data will be transmitted to HMCRC: Likely by the summer of 2009

HMC Supplement Progress Reports – Modality January 2009

Supplement Title: Identifying Components of HMC Interventions that Predict Outcomes

**Supplement Chair/
Affiliation:** Jim McKay, PhD - University of Pennsylvania

Next Steps: We plan to finish the first two papers by the summer of 2009. The third paper will progress as HMC outcome data are available. We will likely work with outcome data out to 12 months, to speed up the process. We will also continue to discuss other possible papers with members of the modalities group, and invite their participation on the first group of papers. One important task is to put together plans to continue working together on papers after the HMC funding period has ended. We will consider pursuing a second supplement to facilitate this work.

HMC Supplement Progress Report – OUTCOMES

January 2009

Supplement Title: Transbehavioral and Quality of Life Outcomes: Cross-Site Analyses and Resources

Supplement Chairs: Deborah J. Toobert, Ph.D., Oregon Research Institute and
Russell E. Glasgow, Kaiser Permanente, Denver, CO

Purpose: To advance the science of **multiple-risk-factor** behavior change and its evaluation by analyzing results using common metrics and relating interventions to outcomes and maintenance based on epidemiologic risk and patient functioning, and to advance the measurement and evaluation of behavioral intervention outcomes, investigate important linkages among these outcomes, and identify intervention and social-environmental factors influencing these outcomes.

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Summary of Progress to Date:

The Outcomes supplement is examining the relation between changes in behavior and quality of life using common measures across the five sites.

- HMC Presentation:** Our group organized and presented two panel discussions at the April 7-8, 2008 HMC meeting. Based on analyses, instructions, and examples provided by ORI, sites analyzed their data and developed PowerPoint slides for the panel presentations. Two telephone conferences devoted to organizing this panel were completed. The panel discussions covered the following topics:
 - Outcomes Panel 1:** Working with Multiple Health Behaviors (Qualitative Results). This panel covered topics such as why certain behaviors were targeted for intervention; why the intervention targeted multiple versus single behaviors; the intensity of the interventions from the participant's perspective; how sequencing of multiple behaviors was handled; the ease with which participants made multiple changes; whether it was better to change behaviors all at once or to make behavior changes one at a time; whether there were other mediators or moderators, environmental, or psychosocial factors that interacted with the multiple behaviors (e.g., depression); and key lessons learned.
 - Outcomes Panel 2:** Results on Multiple Health Behaviors and Quality of Life (Quantitative/Empirical Results). This panel covered the baseline relation between behavioral measures and quality of life, behavioral outcome changes from baseline to the second study time point, analyses of any improvement and clinically significant improvement using a standard such as at least one SD improvement or to criterion, and whether quality of life improved from baseline to the second time point. The panel also addressed whether or not **change** in behavioral outcomes was related to **change** in quality of life, and whether the magnitude of the relation between behavioral outcomes and quality of life was impacted by covariates (such as age, gender, SES, comorbid conditions), the relation between number of behavioral areas improved and improvement in quality of life, and, finally, questions for general discussion, such as: What is the time course of quality-of-life change with behavioral interventions? Are some behaviors more linked to quality of life than others?
- Requesting Data from Sites:** We have received baseline and, recently, followup data from all sites. ORI (Lisa Strycker), which is conducting the analyses, has completed downloading, incorporating, and checking to make sure all the followup data are present, but work remains to prepare the data for analysis as SPSS system files matched to baseline data.

HMC Supplement Progress Reports – OUTCOMES Continued

January 2009

Supplement Title: Transbehavioral and Quality of Life Outcomes: Cross-Site Analyses and Resources

Supplement Chairs: Deborah J. Toobert, Ph.D., Oregon Research Institute and
Russell E. Glasgow, Kaiser Permanente, Denver, CO

Analyses:

Analytic work with the data is under way. The following analyses have been completed:

From 2008 report:

1. We have received data in various formats from all sites: Hughes/Seymour, Williams, Roll, OHSU, and ORI
2. We have discussed and determined a scheme for summarizing each project's behavioral and quality of life outcomes, which included a combination of study topic, sample, research design, and recruitment procedures.
3. We have discussed and determined a scheme for standardizing or establishing a criterion (e.g., percent at criterion) to handle various health-behavior measures across projects.
4. We have analyzed the relationships between (1) demographic characteristics, (2) quality of life, and (3) different summary scores on health outcomes (e.g., number of areas at criterion, weighted scores), by individual sites and across sites. These analyses have been completed or are well under way for individual sites and will be presented at the April 2008 meeting.
5. We have completed baseline analyses within each site and compared across sites.
6. We have examined whether smoking more cigarettes per day predicts greater quality of life.
7. We have completed geocoding of ORI participant addresses and merged the geocodes with existing ORI datasets.
8. We have obtained census tract variables for Lane County, Oregon (e.g., racial composition, unemployment, poverty, vacant housing, intersections), for use in the planned environmental analyses, and have merged these data with individual-level ORI data.

Since 2008 report

1. On November, 25, 2008 Drs. Glasgow and Toobert, and Ms. Strycker met, and discussed and agreed on the next analytic steps, which include analyzing the MLP data at the first time point of maintenance and deciding that we will analyze site data separately in the same way that we analyzed the MLP data.
2. John Roll's baseline data gave Lisa Strycker at ORI a chance to create the entire setup, which we copied for the other sites. Problem encountered: John Roll had few cases because he added QOL and the diet and PA outcomes at our request after they started the study and after an IRB delay, so there are as few as 5 cases with data on some of these measures.
3. Computed categorical variables for outcomes. For John Roll's data, Lisa computed a smoking/nonsmoking variable (dichotomized from his number of cigarettes/day and cotinine variables), a 5+a-day fruits and vegetables variable (dichotomized from the total number of daily fruits and vegetables off the nci fv screener) so is this greater than or equal to 5 fruits vs. less than 5 fruits a day, a 40-or-less pct of fat per day variable (dichotomized from the percent of daily fat off the NCI fat screener; Lisa went with 40-or-less percent calories from fat because no one in John Roll's sample had less than 30%, the usual cutoff. But this threshold won't work for MEDLIFE, and not sure about other projects, and won't be very sensitive to change. We are unsure what the solution is, and not sure John Roll's sample should drive the cutoffs for everyone, and a 5+ days of weekly PA variable (dichotomized from the weekly frequency of moderate pa variable from the CHAMPS).
4. Correlated demographic variables with QOL. In John's data, only five cases were available for these correlations, the relationships were nonsignificant but their values were worth noting, .3 to .5, which suggests moderate relationships between QOL (especially the Healthy Days construct rather than the 1 general health item) and demographics. Higher QOL was associated with younger people, being male, being nonHispanic, being more highly educated, not having a spouse/partner, and not being employed.
5. Correlated demographic variables with outcome variables – continuous and categorical. These relationships were lower than those between demographics and QOL, except for the fact that Hispanics tended to smoke less than nonHispanics.
6. Correlated QOL with outcome variables (continuous and categorical) in John Roll's data. There were .3 to .6 r values between QOL and smoking, exercise, and fruits and vegetables – but not fat (r around .15). Not smoking and eating fruits and vegetables were related to higher QOL, but more exercise was correlated with lower QOL, both for the 1-item QOL and for the Healthy Days index (and, unfortunately, this was the strongest relationship).
7. Lisa conducted separate regressions for each set of outcomes (smoking, fruits/veg, fat, physical activity) using John Roll's data:

HMC Supplement Progress Reports – OUTCOMES Continued

January 2009

Supplement Title: Transbehavioral and Quality of Life Outcomes: Cross-Site Analyses and Resources

Supplement Chairs: Deborah J. Toobert, Ph.D., Oregon Research Institute and
Russell E. Glasgow, Kaiser Permanente, Denver, CO

a. 1st step=demographics that were significant in correlations, 2nd step=BMI, 3rd step=continuous outcome, 4th step=QOL 1 health item

b. 1st step=demographics that were significant in correlations, 2nd step=BMI, 3rd step=categorical outcome, 4th step=QOL 1 health item

c. 1st step=demographics that were significant in correlations, 2nd step=BMI, 3rd step=continuous outcome, 4th step=QOL Healthy Days (combination of items 2 and 3) [If available]

d. 1st step=demographics that were significant in correlations, 2nd step=BMI, 3rd step=categorical outcome, 4th step=QOL Healthy Days (combination of items 2 and 3) [If available]

She was unable to conduct full regressions with John's data because there were more variables than cases. But when she removed the demographics to see if she could find patterns between BMI, outcomes, and QOL, almost nothing was significant. The BMI step never was significant. There was a significant relationship between QOL and the CHAMPS measure (as described in #6 above). She will revisit these regressions when we get more baseline data from John, but should be able to complete and compare them with Geof's data and with ORI data.

Findings (Describe): Please refer to the Ninth Bethesda Meeting on the HMC website for the actual slides for site-by-site data. We noted that the panel presentations on Quality of Life were a little hard to integrate because we were reporting on different Quality of Life measures. In our final analyses, we will have a common Quality of Life outcome. What follows are the topics covered by each of the quantitative multiple health behavior presenters. The quantitative and qualitative panel discussions with slides were presented by Geof Williams, Heather Patrick, Diane Elliot, Lisa Strycker, and Deborah Toobert. The two panels were moderated by Russ Glasgow.

1. Each site has correlated baseline behavioral outcomes and quality of life
2. Each site decided what constituted clinically significant improvement
3. Each site presented Quality of Life treatment effects
4. Each site presented changes in behavioral outcomes correlated with changes in quality of life
5. Each site presented the number of behavioral improvements correlated with changes in quality of life
 - a. Each site presented number of clinically-significant improvements and QOL change

Presentations or Papers:

Lecture, speech, address, or reading

Elliot, D. PHLAME: Promoting healthy lifestyles: Assessing QL and Behavioral effects, Health Maintenance Consortium, OBSSR, Bethesda, MD, April, 2008.

Elliot, D. PHLAME: Qualitative multiple health behavior questions and answers, Health Maintenance Consortium, OBSSR, Bethesda, MD, April, 2008.

Williams, G. C., Patrick, H., Niemiec, C. P. Smoker's Health Study, Qualitative results, Health Maintenance Consortium, OBSSR, Bethesda, MD, April, 2008.

Patrick, H. Smoker's Health Study, Quantitative results, Health Maintenance Consortium, OBSSR, Bethesda, MD, April, 2008.

Roll, J. Project results. Health Maintenance Consortium, OBSSR, Bethesda, MD, April, 2008.

Toobert, D. The Mediterranean Lifestyle Program: Working with multiple health behaviors: Qualitative results, Health Maintenance Consortium, OBSSR, Bethesda, MD, April, 2008.

Strycker, L. The Mediterranean Lifestyle Program: Working with multiple health behaviors: Quantitative results, Health Maintenance Consortium, OBSSR, Bethesda, MD, April, 2008.

Name of data contact: Lisa Strycker

HMC Supplement Progress Reports – OUTCOMES Continued

January 2009

Supplement Title: Transbehavioral and Quality of Life Outcomes: Cross-Site Analyses and Resources

Supplement Chairs: Deborah J. Toobert, Ph.D., Oregon Research Institute and
Russell E. Glasgow, Kaiser Permanente, Denver, CO

Plans for Sending HMCRC Final Data Set: Once analyses are completed, the final data set will be sent to HMCRC. Lisa Strycker from Oregon Research Institute will prepare the OUTCOMES supplement dataset with variables of interest, we will have de-identified the cases, and it will be made available to the HMCRC in multiple formats according to the data archiving guidelines from the Inter-University Consortium for Political and Social Research (ICPSR).

Date data will be transmitted to HMCRC: No later than Dec. 31, 2009

Next Steps:

1. Now that Lisa Strycker has all baseline and followup data, she will go through the same exercise as follows for each site:
 - a. Set up separate data sets containing the variables we want for the analyses. Then compute the constructs.
 - b. Compute descriptive statistics on all measures at all time points: demographics (including BMI), diet and PA and smoking outcomes, and QOL. Use these for a table summarizing the samples.
 - c. Compute categorical variables for outcomes for all projects.
 - d. Correlate demographic variables with QOL.
2. Correlate demographic variables with outcome variables – continuous and categorical on remaining projects.
3. Correlate QOL with outcome variables (continuous and categorical) in the remaining projects.
4. Conduct regressions for each set of outcomes (smoking, fruits/veg, fat, physical activity):
 - a. 1st step=demographics that were significant in correlations, 2nd step=BMI, 3rd step=continuous outcome, 4th step=QOL 1 health item
 - b. 1st step=demographics that were significant in correlations, 2nd step=BMI, 3rd step=categorical outcome, 4th step=QOL 1 health item
 - c. 1st step=demographics that were significant in correlations, 2nd step=BMI, 3rd step=continuous outcome, 4th step=QOL Healthy Days (combination of items 2 and 3) [If available]
 - d. 1st step=demographics that were significant in correlations, 2nd step=BMI, 3rd step=categorical outcome, 4th step=QOL Healthy Days (combination of items 2 and 3) [If available]

DETAILS for Quality of Life Analyses

Change analyses: Using improvement from baseline to followup, first do simple correlations, either Spearman if poor distributions or Pearson if reasonably distributed, among:

- a. Adjusted change scores, adjusting for baseline levels on 4 health behaviors.
- b. Improvements using adjusted change scores for the CDC Healthy Days measures of overall unhealthy Days, Mental unhealthy Days, Physical unhealthy Days, or reverse score if more interpretable.
- c. Patient demographics, using point-bi-serial correlations if appropriate.
- d. Based on these, do a hierarchical regression analyses to predict improvement or change in QoL. We can use all subjects, first entering demographics that were associated with change. Then enter improvements in health behaviors to predict improvements in a) mental health Days and b) Physical Health Days.

PAPERS Planned:

1. Complete Mediterranean Lifestyle Program analyses (80-month data were finished being collected Dec. 31, 2008, the data are being cleaned, and analyzed).
2. Paper #1: Prepare manuscript looking at relationships among behaviors and QoL
 - a. See how well treatment effects are correlated with quality of life using our different ways of looking at change.

HMC Supplement Progress Reports – OUTCOMES Continued January 2009

Supplement Title: Transbehavioral and Quality of Life Outcomes: Cross-Site Analyses and Resources

Supplement Chairs: Deborah J. Toobert, Ph.D., Oregon Research Institute and
Russell E. Glasgow, Kaiser Permanente, Denver, CO

- b. Compare outcomes (baseline and change) with quality of life using Healthy Days beginning with an ORI dry run. However, ORI only has the 1-item Healthy Days for our true baseline in our dataset (T1). So we will first run the analyses with that one item and use our true baseline to start. Then ORI will do it all over again with 48-month Medlife dataset, which has all Healthy Days items. We will run analyses separately for mental vs. physical health items. These summary scores have now been created, so they can be analyzed.
 - c. Explore the relationship among changes in multiple health behaviors and changes in QoL.
 3. Separate analysis: Use Healthy Days measure concurrently with our behavioral measures and see how the behavioral measures relate to Healthy Days. Using multiple regression, develop a composite measure, and using current metrics look at Healthy Days. See if multiple health behaviors predict the Health Days quality of life measure plus examine this for Healthy Days overall, unHealthy Days, mental, physical; and incorporate more than fat, PA, CIRS, stress management, expand to other behaviors.
 - a. Do this concurrently first, then think about how to look at change, and then try a composite measure; whether they met clinical threshold,
 4. Measurement model question: relationships among these different outcomes; are different outcomes changing in similar or different ways? Russ: conceptually we don't expect these to fit in the same way; basic idea might be interesting; across HMC different projects have different behaviors.
 5. Split the Preventive Medicine paper by finding a journal that would allow the three papers and package them together.
 - a. This paper could answer questions like: How do we take what is reported from whomever is reporting and convert it into something like quality-adjusted life years? We didn't have actual data in the PM paper.
 - b. A review of the ways to combine multiple behavioral outcomes:
 - i. Clinically significant change.
 - ii. Weighted change using CDC weightings.
 - c. Another analysis idea that Geoff Williams will have to explain more is "time to event". If you intervene on diet, for example, or smoking, how much time until there is a cardiac event? This is meaningful for clinicians; clinicians' attention would be caught by linking the behavior change to something.

HMC Supplement Progress Reports – Weight loss January 2009

Supplement Title: Predictors of Long-Term Successful Weight Loss

**Supplement Chair/
Affiliation:** Suzanne Phelan, PhD - Brown Medical School / The Miriam Hospital

Purpose: To 1) identify the latent cluster of environmental, dispositional, and behavioral factors that best distinguish a group of Long-Term Successful Weight Losers from a group of overweight Unsuccessful Weight Losers; 2) examine whether the latent cluster of factors may be used to predict who, among those losing weight after 6 months of treatment, will remain successful at 12 and 18-month follow-ups; 3) compare the relative importance of each latent factor (i.e., environmental, dispositional, and behavioral) in predicting successful weight loss at 12 and 18-month follow-ups; and, 4) determine whether the same cluster of latent factors are associated with successful weight loss in Caucasian and African-American participants.

Outcomes Group:

(In addition to HMCRC members)

Amy Gorin	amy.gorin@uconn.edu
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Summary of Progress to date: We have completed the baseline manuscript, which is currently under review by co-authors. Parts of the paper were presented at national meetings last year (at The Obesity Society and the Society of Behavioral Medicine).

Analyses: Bayesian model averaging was used to summarize across multiple models the probability of a variable distinguishing weight loss maintainers from treatment seeking obese populations (TSO-1 and TSO-2 from Gorin and Lowe data sets, respectively).

Findings: The variables that most consistently and strongly discriminated WLM from both the TSO –1 and TSO-2 were more physical activity, more dietary restraint, and less dietary disinhibition.

Presentations or papers:

1. **Phelan, S.,** Gorin, A., Liu, T., Hogan, J., Lowe, M., Fava, J., Wing, R.R (2008). What distinguishes long-term weight loss maintainers from the treatment seeking obese? Analysis of environmental, behavioral, and psychosocial variables in diverse patient populations. The Obesity Society, Phoenix, Az.
2. **Phelan, S,** Gorin, A., Liu, T., Hogan, J., Lowe, M., Fava, J, Wing, R.R. (2008). What distinguishes long-term weight loss maintainers from the treatment-seeking obese? Analysis of environmental, behavioral, and psychosocial variables. Society of Behavioral Medicine, San Diego, CA.

Name of data contact: Suzanne Phelan, Ph.D.

Plans for sending HMCRC final data set: Data collection is ongoing. Data sharing plans will be discussed with co-investigators of the supplement.

Date data will be transmitted to HMCRC: Data collection is ongoing. Data sharing plans will be discussed with co-investigators of the supplement.

Next Steps: Once the follow-up assessments are completed by Gorin and Lowe (~ 12/2010), predictor analyses will be conducted, and the manuscript(s) based on these findings will be prepared.