

# **Pennsylvania Department of Health Final Performance Summary Report Formula Grants**

## **Overview of the Health Research Project Performance Review Process and Criteria**

An applicant that receives a health research grant under Tobacco Settlement Act / Act 77 of 2001, Chapter 9, is subject to a performance review by the Department of Health upon completion of the research project. The performance review is based on requirements specified by Act 77 and criteria developed by the Department in consultation with the Health Research Advisory Committee.

As part of the performance review process, each research project contained in a grant is reviewed by at least three experts who are physicians, scientists or researchers. Reviewers are from the same or similar discipline as the research grant/project under review and are not from Pennsylvania. Reviewers use the applicant's proposed research plan (strategic plan), the annual progress report and final progress reports to conduct the review. A grant that receives an unfavorable performance review by the Department may be subject to a reduction in funding or become ineligible for health research funding in the future. The overall grant evaluation rating is based on the ratings for the individual research projects contained in the grant.

This performance review report contains the outcome of the review for the grant as a whole (outstanding, favorable, or unfavorable), strengths and weaknesses of each research project, as well as recommendations for future improvement.

The following criteria were applied to information submitted by research grant recipients:

- **Criterion 1 - How well did the project meet its stated objectives? If objectives were not completely met, was reasonable progress made?**
  - Did the project meet the stated objectives?
  - Were the research design and methods adequate in light of the project objectives?
  - Consider these questions about data and empirical results: Were the data developed sufficiently to answer the research questions posed? Were the data developed in line with the original research protocol?
  - If changes were made to the research protocol, was an explanation given, and, if so, is it reasonable?
  - Consider (only for clinical research projects) the extent of laboratory and clinical activities initiated and completed and the number of subjects relative to the target goal.
  - Were sufficient data and information provided to indicate or support the fact that the project met its objectives or made acceptable progress?
  - Were the data and information provided applicable to the project objectives listed in the strategic research plan?

- **Criterion 2 - What is the likely beneficial impact of this project? If the likely beneficial impact is small, is it judged reasonable in light of the dollars budgeted?**
  - What is the significance of this project for improving health?
  - Consider the value of the research completed towards eventual improvement in health outcomes.
  - Consider any changes in risk factors, services provided, incidence of disease, death from disease, stage of disease at time of diagnosis, or other relevant measures of impact and effectiveness of the research being conducted.
  - Consider any major discoveries, new drugs and new approaches for prevention, diagnosis and treatment, which are attributable to the completed research project.
  - What are the future plans for this research project?
  
- **Criterion 3 - Did the project leverage additional funds or were any additional grant applications submitted as a result of this project?**
  - If leveraging of funds were expected, did these materialize?
  - Are the researchers planning to apply for additional funding in the future to continue or expand the research?
  
- **Criterion 4 - Did the project result in any peer-reviewed publications, licenses, patents, or commercial development opportunities? Were any of these submitted/filed?**
  - If any of the above listed were expected, did these materialize?
  - Are the researchers planning to submit articles to peer-reviewed publications, file for any licenses, or patents or begin any commercial development opportunities in the future?
  - Consider the number/quality of each.
  
- **Criterion 5 - Did the project enhance the quality and capacity for research at the grantee's institution?**
  - Were there improvements made to infrastructure?
  - Were any new investigators added or were any researchers brought into the institution to help carry out this research?
  - Were funds used to pay for research performed by pre- or post-doctoral students?
  
- **Criterion 6 - Did the project lead to collaboration with research partners outside the institution, or new involvement with the community?**
  - Are the researchers planning to begin any collaborations as a result of the research?
  - For clinical research only: consider the number of hospitals and health care professionals involved and the extent of penetration of the studies throughout the region or the Commonwealth.

## **Overall Evaluation Rating**

An overall evaluation rating is assigned to each research project. The rating reflects the overall progress the project attained in meeting the stated goals and objectives. The rating is based on a scale of 1–3, with 1 being the highest. An average rating is obtained from all the reviews (minimum of 3) of each project and is the basis for the determination of the final overall rating for each project as follows:

1.00 – 1.33 = *Outstanding*

1.34 – 2.66 = *Favorable*

2.67 – 3.00 = *Unfavorable*

The grant level rating is an average rating from all projects as above. The numerical rating appears in parentheses for the grant and each project in the ***Overall Grant Performance Review Rating*** section of the report.

***Overall Grant Performance Review Rating***

**Grant Rating:** Outstanding (1.33)

**Project Rating:**

<b>Project</b>	<b>Title</b>	<b>Average Score</b>
0991701	Relationship between Parental Smoking, Dietary Habits, Salt and Sweet Preferences and Blood Pressure among Children	Outstanding (1.33)

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**Project Number:** 0991701  
**Project Title:** Relationship between Parental Smoking, Dietary Habits, Salt and Sweet Preferences and Blood Pressure among Children  
**Investigator:** Mennella, Julie

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### *Section A. Project Evaluation Criteria*

*Criterion 1 - How well did the project meet its stated objectives? If objectives were not completely met, was reasonable progress made?*

#### **STRENGTHS AND WEAKNESSES**

Reviewer 1:

Strengths: The project did an excellent job of meeting its stated objectives: (a) to assess taste preferences in children and their mothers, comparing non-smokers and smokers, so as to determine whether children of smokers prefer a higher level of salt, which may be related to dietary salt intake and blood pressure; (b) to determine whether there is a relation between salt and sweet preferences in adults and children, specifically whether greater salt taste liking drives consumption of salt and sweetened foods and beverages, as children of smoker vs. nonsmoker parents might prefer more intense sweetness and eat more sweets; and (c) to assess the influence of genetic variation on sweet and salty perception and preferences in children and their mothers.

The proposal described a well-thought-out protocol, using sophisticated modern methods for psychophysical assessment of taste, together with standardized tools for behavioral, anthropometric, biometric, and genetic assessment. The investigators collected an enormous amount of data on an enormous number of variables, making it likely that they could identify the most important factors controlling taste preferences in the children and adults. The methods for statistical analysis were excellent, and the sample of subjects was not only sufficient, but greater in size than initially projected. The project followed closely the experimental plan described in the proposal, thereby meeting the expectations set by the proposal. The most important results were: (a) that maternal smoking did not have a clear effect on children's taste preferences, although smoking was related to preference in mothers for fast foods and sweets; (b) that children have greater preference for sweet and salt than adults and that the preferences are related in both children and adults; (c), that the diets of smokers and their children are high in sodium, dietary intake of sodium being related to blood pressure in both children and adults; and (d) that variation in taste genes affect taste perception and preferences.

Reviewer 2:

The objectives of the project were to enroll 100 mother-child dyads and examine child salt/sugar preference by maternal smoking and by genotype. The design and methods were adequate to address the study questions.

The objectives were met. The investigators were able to enroll 109 children, whom they paired with 83 mothers. However, they obtained data on only 70 eligible mothers and 98 children. They evaluated sweet and salt preferences and genotyped these mothers and children.

Reviewer 3:

The project exceeded its stated objectives in terms of data collection and met its other objectives successfully. A major strength of the project was that the investigators were able to recruit more participants than originally projected, which increased statistical power of the study, particularly for the genotyping goals. An additional strength is the fact that the investigators were able to achieve their ambitious objectives in light of the duration and amount of funding. The only potential issue is that it appears that the investigators did not take into consideration the lack of independence among siblings in their statistical analyses. Given that the final sample included 20 sibling pairs and 3 sibling triads, it seems reasonable to investigate the potential correlation among siblings. Although this is certainly not a major weakness, it would be beneficial to investigate the extent to which siblings are correlated, and to possibly conduct sensitivity analyses to compare results from their current analysis to an analysis that takes into account correlations among observations.

***Criterion 2 - What is the likely beneficial impact of this project? If the likely beneficial impact is small, is it judged reasonable in light of the dollars budgeted?***

***STRENGTHS AND WEAKNESSES***

Reviewer 1:

Strengths: These novel findings are important for understanding, in particular, children's preferences for sweet and salt tastes, as taste and flavor preferences are important determinants of dietary choice and, consequently, on health and well-being. Promulgation of healthy diets is one of the most potent and cost-effective mechanisms available for health promotion and disease prevention. The clear effects of parental smoking on taste preferences were not evident, this is important too; given the care and thoroughness of the research, the results point to the need for further investigation of other factors affecting sweet and salt preferences. The findings on salt and sweet preferences will be important to nutritionists and others concerned with diet and health, and several of the findings are likely to spur further research on these significant issues.

Reviewer 2:

The project is significant in that the investigators demonstrated no influence of either maternal smoking or of genotype on child taste preferences. These findings indicate that environment, habits, or other factors are likely to be more influential for taste rather than the investigated factors and suggest that offspring of smoking mothers are not likely to have programmed taste preferences. However, the investigators do not emphasize the impact of their findings relative to the proposed aims, and instead have performed additional exploratory analyses to identify cross-sectional associations (e.g., between salt preference and habitual diet, or between salt and sweet preference). These findings are less useful.

Reviewer 3:

The project is significant in that its results add to knowledge about maternal smoking influences on intergenerational transmission of dietary habits, salt and sucrose preferences and about genetic factors related to sensitivity and preferences for sweet and salty tastes. The project met its stated research goals and is likely to contribute to better understanding, and possibly improved treatment, of dietary habits associated with childhood obesity. Major strengths of the project were the findings that children have more elevated salt and sweet preferences compared to adults, that diets of smokers and their children are higher in sodium, and perhaps most importantly that genetic variation in taste receptors genes is associated with taste perception and preferences. These findings have led to successful funding of an R01 grant to extend this area of research. In addition, the research team intends to submit additional NIH grant applications (one by a post-doctoral research fellow in the principal investigator's lab) in this area. A major benefit attributable to this project is its stimulation of successful funding for additional research.

***Criterion 3 - Did the project leverage additional funds or were any additional grant applications submitted as a result of this project?***

***STRENGTHS AND WEAKNESSES***

Reviewer 1:

Strength: Although additional funds were not leveraged for the present project, the investigators note that they have received a new grant from NIH on related research – a notable achievement in the current funding climate. The investigators also indicate plans to submit two additional applications to NIH, one for a National Research Service Award fellowship (for post-doctoral researcher, Dr. Stacie Miller) and another for an R01 grant to study how parental smoking affects children's health, including taste/odor sensitivity and preferences.

Reviewer 2:

An additional grant has been submitted, which is still pending. Two additional grants are also planned.

Reviewer 3:

The researchers have received a significant NIH R01 grant as a result of the current project and intend to submit two more NIH applications in this area of research. This project outcome is a major strength.

***Criterion 4 - Did the project result in any peer-reviewed publications, licenses, patents, or commercial development opportunities? Were any of these submitted / filed?***

***STRENGTHS AND WEAKNESSES***

Reviewer 1:

Although no publications to date are reported, several of the findings were presented at the 2011 meeting of the Association for Chemoreception Sciences (AChemS).

Reviewer 2:

One abstract has been accepted, and the researchers plan to submit a paper to a peer-reviewed journal.

Reviewer 3:

The researchers indicated that their progress would be marked by submissions to peer-reviewed journals. There were no publications at the time the final report was generated; however, the investigators are currently in the process of preparing a manuscript based on an abstract presented at the 2011 annual meeting for the Association of Chemoreceptive Sciences on the differences between adults and children in taste preferences. Given the high level of productivity demonstrated by the investigators on the current project, this reviewer is confident that the article will be submitted for publication.

***Criterion 5 - Did the project enhance the quality and capacity for research at the grantee's institution?***

***STRENGTHS AND WEAKNESSES***

Reviewer 1:

Strength: The quality and capacity of the Monell Center were enhanced by the use of grant funds to support six pre-doctoral and post-doctoral students.

Reviewer 2:

The project allowed for training of two junior investigators. The authors also mention that some subjects were participants in the federal Special Supplemental Nutrition Program for Women, Infants and Children (WIC); however, they do not report whether they communicated findings to WIC staff, which would have been a good way to disseminate results and improve education in the community.

Reviewer 3:

The project significantly enhanced the quality and capacity for research at the Monnell Chemical Senses Center, which is a major strength of the project. They trained a number of new investigators in this area of research. In addition, one of the post-doctoral fellows intends to submit an application for a National Research Service Award to investigate the effects of taste and olfactory learning in children whose parents smoke. Finally, they employed a total of six pre- and post-doctoral researchers.

***Criterion 6 - Did the project lead to collaboration with research partners outside of the institution or new involvement with the community?***

***STRENGTHS AND WEAKNESSES***

Reviewer 1:

No.

Reviewer 2:

No.

Reviewer 3:

This project led to successful collaboration with researchers from the University of Pennsylvania, which is likely to be a major influence on the success of future research projects and achievement of their goals for developing a strong program on the effects of parental smoking on child health. This is a strength of the project.

***Section B. Recommendations***

**SPECIFIC WEAKNESSES AND RECOMMENDATIONS**

Reviewer 1:

None.

Reviewer 2:

1. The investigators should be sure to address their aims as the primary conclusion of any publication resulting from this work. For example, the included abstract does not mention the null association between maternal smoking and child taste preference, or the implications of this finding. The abstract also does not include the genotyping results (perhaps not available at that time).
2. The analysis should account for clustering within mothers; it is not appropriate just to include the same mothers twice when there are siblings.

Reviewer 3:

It is recommended that the data also be analyzed using a statistical method that accounts for potential lack of independence due to some families having multiple siblings. These results can be compared to their current results based on statistical methods that assume independence of observations in order to determine the extent of the impact of correlated observations on the results.

***Generic Recommendations for Monell Chemical Senses Center***

Reviewer 1:

This is an outstanding project. It was well-conceptualized and well-carried out. The project produced results that are important to understanding the environmental and genetic sources of

preferences for sweet and salt, major contributors to dietary choice and to the health consequences thereof.

***ADDITIONAL COMMENTS***

Reviewer 3:

I did not identify any significant weaknesses that require improvement; although I would recommend that the data also be analyzed using a statistical method that accounts for potential lack of independence due to some families having multiple siblings. These results can be compared to their current results based on statistical methods that assume independence of observations in order to determine the extent of the impact of correlated observations on the results.