Evaluation Report

Synthesizing and Predicting Infectious Disease while Accounting for Endogenous Risk Working Group

Meeting 2: November 9-11, 2009

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Executive Summary

Brief Synopsis of Event

This report is an evaluation of a NIMBioS Working Group entitled "Synthesizing and Predicting Infectious Disease while Accounting for Endogenous Risk," (SPIDER) which held its second meeting at NIMBioS November 9-11, 2009. NIMBioS Working Groups are chosen to focus on major scientific questions at the interface between biology and mathematics. NIMBioS is particularly interested in questions that integrate diverse fields, require synthesis at multiple scales, and/or make use of or require development of new mathematical/computational approaches. NIMBioS Working Groups are relatively small (10-15 participants), focus on a well-defined topic, and have well-defined goals and metrics of success. Working Groups will typically meet 2-3 times over a two-year period, with each meeting lasting 3-5 days; however, the number of participants, number of meetings, and duration of each meeting is flexible, depending on the needs and goals of the group.

The second meeting of the SPIDER group comprised 11 participants, including organizers Eli Fenichel (Arizona State University), Carlos Castillo-Chavez (Arizona State University), Peter Dazsak (Consortium for Conservation Medicine, NY), and Charles Perrings (Arizona State University). Five participants from the first meeting of the working group were not present at the second meeting, and two participants in the second meeting did not attend the first meeting.

The first meeting of the SPIDER Working Group brought together disease ecologists, economists, and mathematicians to facilitate the development of predictive models both to forecast the risks associated with EIDs in humans, livestock, wildlife, and plants, and to assist in the development of risk management strategies. The first meeting of the SPIDER Working Group facilitated work on feedback between human behavior and emerging infectious disease risk. The group is employing a network motif to organize research combined with cross-cutting themes. The network motif organizes research themes to within nodes (e.g., countries, regions, or localities), on edges or pathways between nodes, and as a complex system. Cross-cutting themes include uncertainty and learning and computational issues. Each sub-group is developing a working paper and material for a synthesis paper.

At the second meeting of the SPIDER Working Group, progress continued on merging human behavioral and infectious disease models to improve understanding of disease risk and to build better predictive models. The working group clarified its definition of "prediction" in terms of the group's objective, which is to build models that can predict disease risk under alternative management strategies and policies. The group has also identified a modeling framework that is applicable to local, regional, national, and international scales.

Evaluation Design

An electronic survey aligned to the following evaluation questions was designed by NIMBioS' Evaluation Coordinator with input from the NIMBioS Director and Deputy Director:

1. Were participants satisfied with the Working Group overall?

2. Did the meeting meet participant expectations?
3. Do participants feel the Working Group made adequate progress toward its stated goals?
4. Do participants feel they have a good understanding about the work being done by other subgroups within the group?
5. Do participants feel they gained a better understanding of t how the work of the various subgroups will tie together to reach the working group's goals?
6. What impact has the working group had on participants' research agendas?
7. Were participants satisfied with the accommodations offered by NIMBioS?
8. Were participants satisfied with communication between group meetings?
9. Have participants produced any products/publications associated with the working group?

The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey were sent to 7 Working Group participants on November 16, 2009 (organizers Eli Fenichel, Carlos Castillo-Chavez, Peter Dazsak, and Charles Perrings were not included in the evaluation). Reminder emails were sent to non-responding participants on November 23 and 30, 2009. Because of low response, an additional reminder was sent out on December 7, 2009. By December 14, 2009, 4 participants had given their feedback, for a response rate of 57%. This is unusually low for NIMBioS evaluation survey response rates, which usually fall between 75% and 100%. The low response rate may be attributed to the fact that the data collection period coincided with the time of year that many people are out of office and thus do not access their work email accounts, though which participants were contacted to take part in the evaluation.

An electronic demographics survey aligned to the reporting requirements of the National Science Foundation was designed by NIMBioS' Evaluation Coordinator with input from NIMBioS' Director. The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey were sent to the 7 working group participants for whom NIMBioS did not have complete information on October 28, 2009. Reminder emails were sent to non-responding participants on October 11 and 14, 2009. By October 18, 2009, 6 participants had filled out the survey for a response rate of 86%. Demographics questions regarding gender, race, and ethnicity, and disability status were optional (disability status is not reported in this evaluation report). All demographics information is confidential, and results are reported only in the aggregate. When feasible, the evaluator filled in missing demographic data from other sources (e.g. address, institution, field of study). The evaluator did not assume race, ethnicity, or disability status for any participant who did not report this information.

Highlights of Results

- Overall satisfaction with the Working Group was high among survey respondents, all of whom indicated they either agreed or strongly agreed that the Working Group was very productive and met their expectations.

- 100% of respondents thought the presentations were useful and that the presenters were very knowledgeable about their presentation topics.

- Overall, respondents reported being satisfied with the travel, housing, and other amenities provided by NIMBioS.

- 100% of respondents agreed that participating in the working group meeting increased their understanding of the work being done in by others in the group, as well as how everyone's work would come together to achieve the goals of the group.

- 100% of respondents agreed that the format of the Working Group was very effective for achieving its goals, and that the Working Group made adequate progress adequate progress was made toward developing the group's concept paper on modeling risks associated with EIDs.

- All respondents said that participating in the working had influenced their research agendas. Two participants noted that the group had lead to collaborations that otherwise may not have occurred.

- 75% of respondents said they left this meeting with a good idea of what their contribution will be at the next meeting.

Conclusions and Recommendations

Overall, the Working Group was very successful in making progress toward its goals. Working Group respondents were satisfied with the meeting, indicating that it was a productive experience that met their expectations. Respondents were also satisfied with the accommodations offered by NIMBioS.

All respondents agreed that participating in the working group meeting increased their understanding of the work being done in by others in the group, as well as how everyone's work would come together to achieve the goals of the group. Some respondents indicated the most beneficial aspect of the working group was the small group discussions, where specific tasks were assigned and details were worked out. Other respondents indicated the whole group discussion were the most beneficial aspect. Most respondents said they felt the expectations for the next working group meeting are clear, in the sense that they were leaving this meeting with a good idea of what they needed to accomplish before the next meeting.

All respondents indicated they had used the Wiggio for communicating with their group in some way, with the most common form of communication being posting or reading a message to or from one or more group members. All respondents agreed that the Wiggio was either "Very useful" or "Somewhat useful" for the purpose of communicating and/or collaborating with other members of the working group.

All respondents said that participating in the working had influenced their research agendas. Two participants noted that the group had led to collaborations that otherwise may not have occurred. Two other participants commented that the working group had led to many new ideas for research. One respondent said his/her research agenda had been influenced tremendously, and he/she would be applying for a grant to support this research in the next six months.

At the time of reporting SPIDER working group has reported to NIMBioS one accepted journal article, one conference presentation, and one student project that have resulted from the group's work.

No suggestions were made regarding working group content; however, one participant felt the format could have been improved with the inclusion of more break times. No participants offered suggestions for how organizers could better facilitate communication/collaboration among group members between meetings. Two participants made comments, however, that they would like to see more of the working group participants in attendance at the meetings.

Based on analysis of participant response data, the recommendations to NIMBioS and/or Working Group organizers are as follows:

- The content and format of the working group appear to be on track for achieving the group's goals and do not appear to need any significant changes.
- Working group organizers should continue to monitor group publications and products and encourage group members to report these to NIMBioS as they become available.
- Analysis of attendance records show that five of the original 14 members (36%) of the working group did not attend the second working group meeting. As this was the first follow-up meeting

for a working group at NIMBioS, NIMBioS staff should monitor attendance at follow-up working group meetings to see if attrition is a global problem. If so, NIMBioS may need to consider developing best practices to encourage working group member participation throughout the life of the working group

SPIDER Working Group Evaluation Report

Background

The Synthesizing and Predicting Infectious Disease While Accounting for Endogenous Risk (SPIDER) comprised 11 participants, including organizers Eli Fenichel (Arizona State University), Carlos Castillo-Chavez (Arizona State University), Peter Dazsak (Consortium for Conservation Medicine, NY), and Charles Perrings (Arizona State University). Five participants from the first meeting of the working group were not present at the second meeting, and two participants in the second meeting did not attend the first meeting. Participants came from a variety of other institutions, including the United States Department of Agriculture and several universities in the United States and the United Kingdom (See Appendix A).

NIMBioS Working Groups are chosen to focus on major scientific questions at the interface between biology and mathematics. NIMBioS is particularly interested in questions that integrate diverse fields, require synthesis at multiple scales, and/or make use of or require development of new mathematical/computational approaches. NIMBioS Working Groups are relatively small (10-15 participants), focus on a well-defined topic, and have well-defined goals and metrics of success. Working Groups will typically meet 2-3 times over a two-year period, with each meeting lasting 3-5 days; however, the number of participants, number of meetings, and duration of each meeting is flexible, depending on the needs and goals of the group.

The SPIDER Working Group brought together disease ecologists, economists, and mathematicians to facilitate the development of predictive models both to forecast the risks associated with EIDs in humans, livestock, wildlife, and plants, and to assist in the development of risk management strategies. The first meeting of the SPIDER Working Group facilitated work on feedback between human behavior and emerging infectious disease risk. The group is employing a network motif to organize research combined with cross-cutting themes. The network motif organizes research themes to within nodes (e.g., countries, regions, or localities), on edges or pathways between nodes, and as a complex system. Cross-cutting themes include uncertainty and learning and computational issues. Each sub-group is developing a working paper and material for a synthesis paper.

Participant Demographics

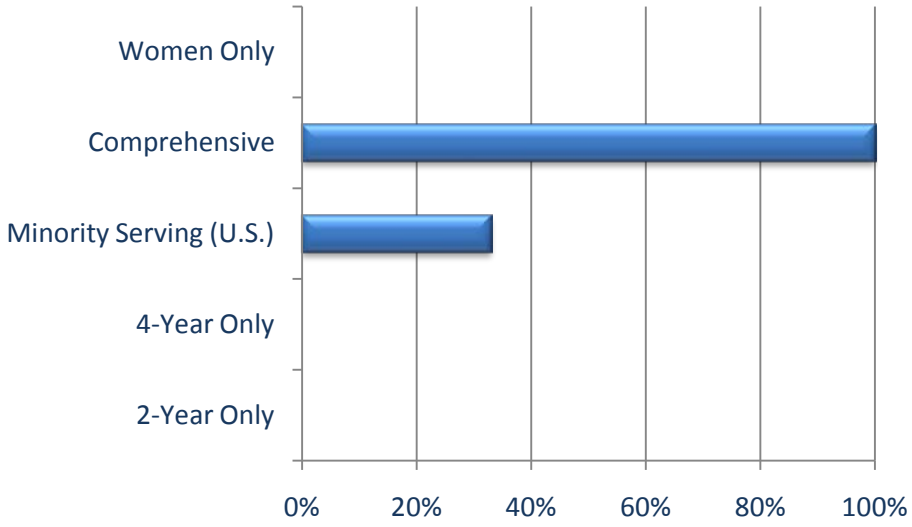
Meeting participants were college/university faculty (82%), graduate students (9%) or from a non-profit organization (9%). Primary fields of study for the 33 participants included agricultural sciences/natural resources, biological/biomedical sciences, and mathematics (Table 1).

Table 1. ***Participant fields of study and areas of concentration***

Field of Study	Concentration	# Participants
Agricultural Sciences/Natural Resources	Agricultural Economics	2
Biological/Biomedical Sciences	Mathematical Biology	1
	Zoology	1
Health Sciences	Epidemiology	1
Mathematics	Applied Mathematics	3
	Mathematical Biology	1
Social Sciences	Economics	2

Participants represented 8 different institutions across the United States and the United Kingdom. Within the U.S., six states were represented. Of the 6 different colleges/universities, all were classified as comprehensive (having undergraduate and graduate programs) schools (Figure 1).

Figure 1. **Characteristics of participants' colleges/universities (n=6 unique)**



The 3 females and 8 males (three of whom self-identified as being of Hispanic/Latino ethnicity) mostly self-identified racially as white (Figures 2 & 3).

Figure 2. **Racial composition of program participants (n=11)**

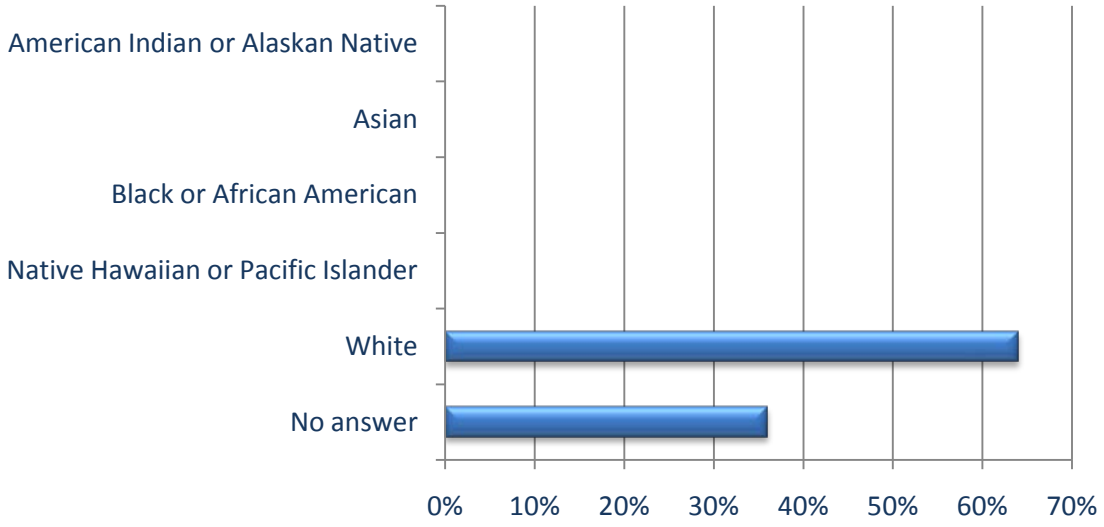
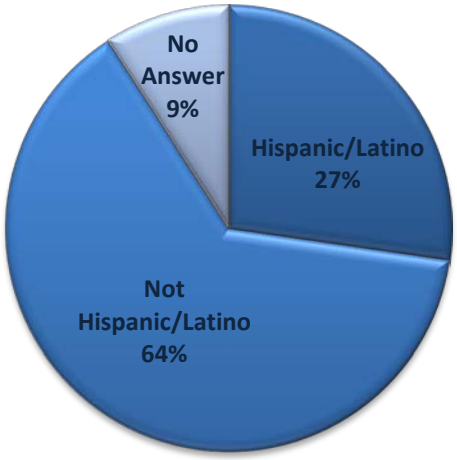


Figure 3. **Ethnic composition of program participants (n=11)**



Evaluation Design

Evaluation Questions

The evaluation of the Meeting was both formative and summative in nature, in that the data collected from participants was intended to both gain feedback from participants about the quality of the current

Meeting and also to inform future meetings. The evaluation framework was guided by Kirkpatrick's Four Levels of Evaluation model for training and learning programs (Kirkpatrick, 1994[1]). The evaluation questions were developed according to level one of the model, participants' reactions, in order to gather information about how participants felt about the content and format of the Meeting, as well as the accommodations provided by NIMBioS. Several questions constituted the foundation for the evaluation:

1. Were participants satisfied with the Working Group overall?
2. Were participants satisfied with the accommodations offered by NIMBioS?
3. Did the meeting meet participant expectations?
4. Do participants feel the Working Group made adequate progress toward its stated goals?
5. Do participants feel they have a good understanding about the work being done by other subgroups within the group?
6. Do participants feel they gained a better understanding of t how the work of the various subgroups will tie together to reach the working group's goals?
7. What impact has the working group had on participants' research agendas?
8. Were participants satisfied with communication between group meetings?
9. Have participants produced any products/publications associated with the working group?

Evaluation Procedures

An electronic survey aligned to the evaluation questions was designed by NIMBioS' Evaluation Coordinator with input from the NIMBioS Director and Deputy Director. The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey were sent to 7 Working Group participants on November 16, 2009 (organizers Eli Fenichel, Carlos Castillo-Chavez, Peter Dazsak, Rick Horan, and Charles Perrings were not included in the evaluation). Reminder emails were sent to non-responding participants on November 23 and 30, 2009. Because of low response, an additional reminder was sent out on December 7, 2009. By December 14, 2009, 4 participants had given their feedback, for a response rate of 57%. This is unusually low for NIMBioS evaluation survey response rates, which usually fall between 75% and 100%. The low response rate may be attributed to the fact that the data collection period coincided with the time of year that many people take off of work and thus do not access their work email accounts, though which participants were contacted to take part in the evaluation.

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[1] From Kirkpatrick, D.L. (1994). *Evaluating Training Programs: The Four Levels.* San Francisco, CA: Berrett-Koehler.

optional (disability status is not reported in this evaluation report). All demographics information is confidential, and results are reported only in the aggregate. When feasible, the evaluator filled in missing demographic data from other sources (e.g. address, institution, field of study). The evaluator did not assume race, ethnicity, or disability status for any participant who did not report this information.

Data Analysis

Data from the electronic survey included both forced-response and supply-item questions. All data were downloaded from the online survey host into the statistical software package SPSS for analysis. Quantitative data were analyzed using SPSS, while qualitative data were analyzed in SPSS Text Analysis for Surveys. Qualitative responses were categorized by question and analyzed for trends.

Findings

Participant Satisfaction

Overall Satisfaction

Overall satisfaction with the Working Group was high among respondents, 100% of whom indicated they either agreed or strongly agreed that the Working Group was very productive and met their expectations. Some participant comments:

> *"This is one of the best workgroups I've had the opportunity work with. Too many ideas to tackle! Eli's doing a great job of organizing and communicating. He's the glue."*

> *"Excellent and we look forward in collaboration writing papers, and presenting the work at national arenas."*

All respondents thought the presentations were useful, and that the presenters were very knowledgeable about their presentation topics (Table 2).

Table 2. ***Satisfaction with various aspects of the Working Group***

	n	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I feel the Working Group was very productive.	4	50%	50%	0%	0%	0%
The Working Group met my expectations.	4	75%	25%	0%	0%	0%
The presenters were very knowledgeable about their topics.	4	75%	25%	0%	0%	0%
The presentations were useful.	4	50%	50%	0%	0%	0%
The group discussions were useful.	4	75%	25%	0%	0%	0%

Satisfaction with Accommodations

Overall, respondents reported being satisfied with the travel, housing, and facilities provided by NIMBioS during the Working Group. The majority of respondents also reported being satisfied with the comfort and resources of the NIMBioS facility, as well as the quality of meals provided (Table 4). Several respondents, however, did complain that the coffee was not good.

Table 3. ***Satisfaction with Working Group accommodations***

Please indicate your level of satisfaction with the Working Group accommodations:	*n*	Very satisfied	Satisfied	Neutral	Dissatisfied	Strongly dissatisfied
Comfort of the facility in which the Working Group took place	4	100%	0%	0%	0%	0%
Resources of the facility in which the Working Group took place	4	100%	0%	8%	0%	0%
Quality of meals	4	75%	25%	8%	0%	0%
Quality of drinks and snacks provided	4	75%	25%	8%	0%	0%

Working Group Format and Content

Progress Toward Goals

All respondents felt the format for the second meeting was effective for meeting its goals. All respondents also agreed that adequate progress was made toward developing the group's concept paper on modeling risks associated with EIDs. Participant comments:

> *"The big picture was really flushed out. I particularly like having a central unifying theme and then tasking specific topics to others in the group."*

> *"We finalized the details of the paper and the goals for the next 6 mos."*

Everyone also agreed that participating in the working group meeting increased their understanding of the work being done in by others in the group, as well as how everyone's work would come together to achieve the goals of the group (Table 4).

Table 4. ***Understanding of working group structure and function***

As a result of participating in this Working Group, I have a better understanding of:	*n*	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
the work being accomplished by the other subgroups within the Working Group.	4	50%	50%	0%	0%	0%
how the work of the various subgroups will tie together for the SPIDER group's concept paper	4	25%	75%	0%	0%	0%

Most Useful Aspects

Some respondents indicated the most beneficial aspect of the working group was the small group discussions, where specific tasks were assigned and details were worked out:

> *"The small groups were most beneficial since it allowed groups to concentrate on certain tasks and get down to details."*

> *"The small groups were very beneficial in particular discussion and the overall group provided an excellent input about the expectations."*

Other respondents indicated the whole group discussion were the he most beneficial aspect with regard to advancing the group's research agenda:

> *"The second day discussion of the big picture was really beneficial. Also the discussion of a unifying figure and theme. This will go far to focus our objectives and outputs."*

> *"Discussion and reconciliation of models between disciplines."*

Clarity of Expectations

Most respondents said they felt the expectations for the next working group meeting are clear, in the sense that they were leaving this meeting with a good idea of what they needed to accomplish before the next meeting (Figure 4). One participant who said he/she felt the expectations were clear, however, had this to say:

> *"I say yes with some hesitation. I don't think all the participants, including myself, were as prepared compared to the previous meeting. We really need to have some product for the next gathering and for some of us it was a little unclear what products we need to have in hand. That said, there were some clear writing assignments for the synthesis work."*

Figure 4. **Clarity of expectations for the next working group meeting**

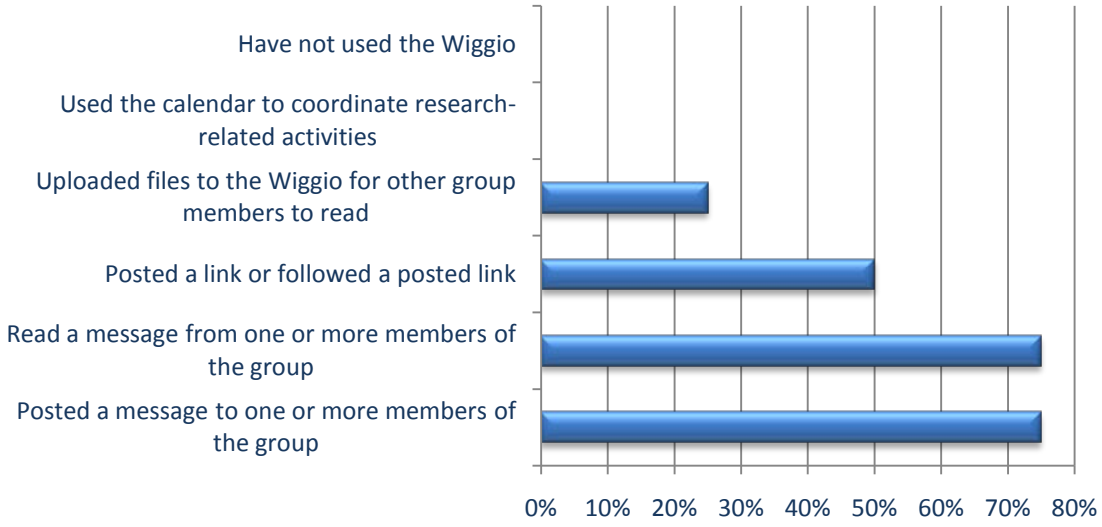
Communications

Each research group coordinated through NIMBioS is provided access to an online collaborative group site called "Wiggio." Wiggio's interface includes six basic tools:

- Calendar — A fairly simple shared calendar that allows users to manage group events.
- Folder — Users can upload most file types to Wiggio groups, where they can edit documents and spreadsheets within Wiggio and get automatic version-tracking. Group members also can download the file, change it and re-upload it.
- Meeting —Three types of meetings are available for users: in-person, conference call and chat rooms.
- Poll —Allows users to get a quick consensus from group members. Users ask questions, and get the responses back aggregated in a chart format.
- Messages — Through Wiggio, users can send and receive text, email, and voice messages. Each group has its own email address. When anyone in the group sends mail to that address, it gets redistributed to everyone in the group, according to their delivery preference.
- Links — Users can use the link tool to paste in links so that the group has a shared set of bookmarks, videos and/or resources.

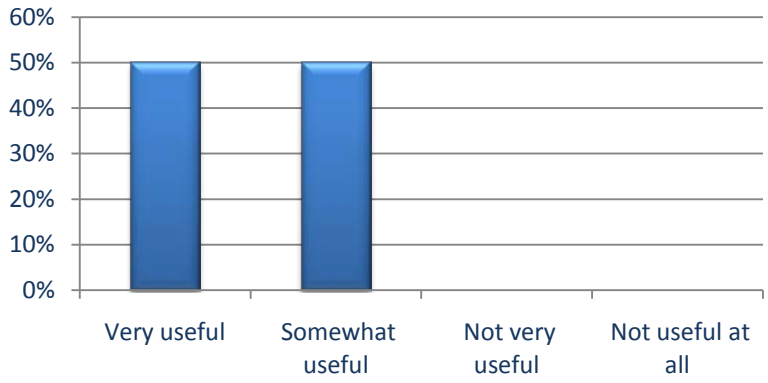
To evaluate its effectiveness, respondents were asked several questions about their use of the Wiggio as a communication tool, as well as their opinions of its usefulness. All respondents indicated they had used the Wiggio for communicating with their group in some way, with the most commons form of communication being posting or reading a message to or from one or more group members (Figure 5).

Figure 5. **Wiggio use**



Respondents who had used the Wiggio rated its usefulness. All respondents indicated that the Wiggio was either "Very useful" or "Somewhat useful" for the purpose of communicating and/or collaborating with other members of the working group (Figure 6). One participant indicated he/ she liked the Wiggio because it "allows the group members to post links or large files all in an organized webpage without having to email everyone with large MB files."

Figure 6. **Usefulness of the Wiggio for communicating with research group members**



Working Group Impact

Participant Research

All respondents said that participating in the working had influenced their research agendas. Two participants noted that the group led to collaborations that otherwise may not have occurred:

> *"It has provided me with new research avenues, areas I had wanted to explore previously but did not know how to begin in. It has also provided me with research collaborators."*

"Lead to collaborations that would not have otherwise arisen from working remotely."

Two other respondents commented that the working group had led to many new ideas for research. One respondent said his/her research agenda had been influenced tremendously, and he/she would be applying for a grant to support this research in the next six months, while another expressed concern at not having the resources to carry out the research ideas arising from the working group:

"Overall it has been very stimulating and useful. My only concern is that I do not have enough time and funding to carry out research on this topic between meetings. The number of ideas for further research are far exceeding what can be done at the meeting. Also, the differences in approaches and discussion of the different approaches to modeling EID has been outstanding. In particular, the SIR work and the computationally intensive work."

Publications and Products

NIMBioS asks all working group participants to report any publications and/or other products resulting from their involvement in NIMBioS-related research activities. Participants may report their publications through evaluation surveys or via an online reporting system available on the NIMBioS website (http://www.nimbios.org/research/products). A link to the reporting system may be found on the NIMBioS homepage. Research participants may report their results at any time, however, email reminders are sent to all research participants four times a year (March, June, September, and December) to solicit any unreported products.

At the time of reporting SPIDER working group has reported one accepted journal article, one conference presentation, and one student project that have resulted from the group's work (See Appendix D for more detail).

Suggestions for Future Working Group Meetings

Respondents were asked several questions soliciting ideas for improving working group meetings with regard to content, format, and communications. No suggestions were made regarding content, however, one participant felt the format could have been improved with the inclusion of more break times. Respondents were happy with group communications overall, as none offered suggestions for how organizers could better facilitate communication/collaboration among group members between meetings. Two participants made comments, however, that they would like to see more of the working group participants in attendance at the meetings:

"I really needed more people from my subgroup. This round of the meeting had a lower attendance and it was very much noticeable in the discussions."

"Just try to get more of the participants together. It seemed like many people were absent."

Conclusions and Recommendations

Overall, the Working Group was very successful in making progress toward its goals. Working Group respondents were satisfied with the meeting, indicating that it was a productive experience that met their expectations. Respondents were also satisfied with the accommodations offered by NIMBioS.

All respondents agreed that participating in the working group meeting increased their understanding of the work being done in by others in the group, as well as how everyone's work would come together to achieve the goals of the group. Some respondents indicated the most beneficial aspect of the working group was the small group discussions, where specific tasks were assigned and details were worked out. Other respondents indicated the whole group discussion were the most beneficial aspect. Most respondents said they felt the expectations for the next working group meeting are clear, in the sense that they were leaving this meeting with a good idea of what they needed to accomplish before the next meeting.

All respondents indicated they had used the Wiggio for communicating with their group in some way, with the most common form of communication being posting or reading a message to or from one or more group members. All respondents agreed that the Wiggio was either "Very useful" or "Somewhat useful" for the purpose of communicating and/or collaborating with other members of the working group.

All respondents said that participating in the working had influenced their research agendas. Two participants noted that the group had led to collaborations that otherwise may not have occurred. Two other participants commented that the working group had led to many new ideas for research. One respondent said his/her research agenda had been influenced tremendously, and he/she would be applying for a grant to support this research in the next six months.

At the time of reporting SPIDER working group has reported to NIMBioS one accepted journal article, one conference presentation, and one student project that have resulted from the group's work.

No suggestions were made regarding working group content; however, one participant felt the format could have been improved with the inclusion of more break times. No participants offered suggestions for how organizers could better facilitate communication/collaboration among group members between meetings. Two participants made comments, however, that they would like to see more of the working group participants in attendance at the meetings.

Based on analysis of participant response data, the recommendations to NIMBioS and/or Working Group organizers are as follows:

- The content and format of the working group appear to be on track for achieving the group's goals and do not appear to need any significant changes.
- Working group organizers should continue to monitor group publications and products and encourage group members to report these to NIMBioS as they become available.
- Analysis of attendance records show that five of the original 14 members (36%) of the working group did not attend the second working group meeting. As this was the first follow-up meeting for a working group at NIMBioS, NIMBioS staff should monitor attendance at follow-up working group meetings to see if attrition is a global problem. If so, NIMBioS may need to consider developing best practices to encourage working group member participation throughout the life of the working group

Appendix A

List of Participants

Participants

Last name	First name	Institution
*†Castillo-Chavez	Carlos	Arizona State University
Ceddia	Graziano	University of Reading
*Daszak	Peter	Wildlife Trust
*Fenichel	Eli	Arizona State University
†Gonzalez	Paula	University of Texas El Paso
Hickling	Graham	NIMBioS
Jerde	Christopher	University of Notre Dame
*Perrings	Charles	Arizona State University
Springborn	Michael	University of California Davis
Velazquez	Leticia	University of Texas El Paso
Villalobos	Christina	University of Texas Pan American

* Organizer of Working Group
†Not present at first working group meeting

Participants who attended the first working group meeting, but not the second

Last name	First name	Institution
Chowell-Puente	Gerardo	Arizona State University
Finnoff	David	University of Wyoming
Garrett	Lynn	United States Department of Agriculture APHIS
Holloway	Garth	University of Reading
*Horan	Richard	Michigan State University

* Organizer of Working Group

Appendix B

SPIDER Working Group Survey, Meeting Two

SPIDER Working Group Survey
Second Meeting

Thank you for taking a moment to complete this survey. Your responses will be used to help measure the progress of your Working Group, and to improve future Working Groups hosted by the National Institute for Mathematical and Biological Synthesis. Information you supply on the survey about your opinions of the Working Group will be confidential, and results will be reported only in the aggregate.

Please check the appropriate box to indicate your level of agreement with the following statements about the second Working Group meeting: (Strongly agree, Agree, Neutral, Disagree, Strongly disagree)

I feel the meeting was very productive.
The meeting met my expectations.
The presenters were very knowledgeable about their topics.
The presentations were useful.
The group discussions were useful.

How do you feel about the format of the working group?
☐ This was a very effective format for achieving our goals
☐ This was not a very effective format for achieving our goals
The working group format would have been more effective if:

Please check the appropriate box to indicate your level of agreement with the following statements. As a result of participating in this working group, I have a better understanding of:
(Strongly agree, Agree, Neutral, Disagree, Strongly disagree)

the work being accomplished by the other subgroups within the Working Group
how the work of the various subgroups will tie together for the SPIDER group's concept paper

Do you feel the Working Group made adequate progress, for its second meeting, toward developing its concept paper on modeling risks associated with EIDs?
☐ Yes
☐ No
Comments:

Do you feel the expectations for the next working group meeting are clear (in the sense that you are leaving this meeting with a good idea of what you need to accomplish before the next meeting)?
☐ Yes
☐ No
Comments:

What aspect of this meeting of the Working Group did you feel was the most beneficial in advancing the group's research agenda? (e.g. discussions with the whole group/small groups, opportunity to resolve technical difficulties, or a particular activity)

What, if anything, would you change about the Working Group meeting?

How has participating in the Working Group influenced your research agenda thus far?

Accommodations

Please indicate your level of satisfaction with the Working Group accommodations:
(Very satisfied, Satisfied, Neutral, Dissatisfied, Very dissatisfied, Not applicable)

Comfort of the facility in which the working group took place
Resources of the facility in which the working group took place
Quality of meals
Quality of drinks and snacks provided

Please indicate any changes NIMBioS can make to improve the resources and/or accommodations available to Working Group participants:

Communications

In what ways have you used the Wiggio for communicating/collaborating with other members of your Working Group?

Posted a message to one or more members of the group
Read a message from one or more members of the group
Used the calendar to coordinate research-related activities
Uploaded files to the Wiggio for other group members to read
Posted a link or followed a posted link
I have not used the Wiggio
    Why did you not use the Wiggio?

How useful do you feel the Wiggio has been for the purpose of communicating and/or collaborating with other members of your Working Group?
Very useful
Somewhat useful
Not very useful
Not useful at all

Please use this space for any comments you have about the Wiggio:

What, if anything, do you feel your Working Group organizers can do to better facilitate communication/collaboration among group members between meetings?

Publications and Products

Please indicate in the appropriate boxes any publications and/or other products that have resulted from your activities at NIMBioS. Please provide NIMBioS with an electronic copy of any new publications.

Journal articles and/or book chapters: (Include if work is published or in press)

Reports, white papers and other non-refereed materials:

Presentations: (Indicate presenter(s), date, title, and venue)

Proposals submitted for follow-on research: (Indicate funding status, title, investigators, and sponsoring organization)

Publications and Products, continued Meeting or meetings: (Indicate date, location, title, organizer, and number of participants)

Student training: (List theses or dissertations, new courses, course materials or training meetings, including name, data, title)

Data, software, and/or web sites: (Please provide a brief description and provide NIMBioS with a copy where appropriate)

Publicity in popular press: (Include articles, in popular magazines, radio and video coverage, and online publicity)

Please provide any additional comments about your overall experience with the working group:

Appendix C

Open-ended Survey Responses

Open-ended responses, by question and response category

Do you feel the Working Group made adequate progress, for its second meeting, toward developing its concept paper on modeling risks associated with EIDs? Comments: (n=2)

The big picture was really flushed out. I particularly like having a central unifying theme and then tasking specific topics to others in the group.

we finalized the details of the paper and the goals for the next 6 mos.

How has participating in the Working Group influenced your research agenda thus far? (n=4)

it has influenced tremendously, and we will be applying for a grant proposal in the next six months.

It has provided me with new research avenues, areas I had wanted to explore previously but did not know how to begin in. It has also provided me with research collaborators.

Lead to collaborations that would not have otherwise arisen from working remotely.

Overall it has been very stimulating and useful. My only concern is that I do not have enough time and funding to carry out research on this topic between meetings. The number of ideas for further research are far exceeding what can be done at the meeting. Also, the differences in approaches and discussion of the different approaches to modeling EID has been outstanding. In particular, the SIR work and the computationally intensive work.

Do you feel the expectations for the next working group meeting are clear (in the sense that you are leaving this meeting with a good idea of what you need to accomplish before the next meeting)? Comments: (n=1)

I say yes with some hesitation. I don't think all the participants, including myself, were as prepared compared to the previous meeting. We really need to have some product for the next gathering and for some of us it was a little unclear what products we need to have in hand. That said, there were some clear writing assignments for the synthesis work.

What, if anything, would you change about the Working Group meeting? (n=3)

Facilities and support were all either good or excellent.

I really needed more people from my subgroup. This round of the meeting had a lower attendance and it was very much noticeable in the discussions

we did not have enough break times

The working group format would have been more effective if: (n=0)

Please indicate any changes NIMBioS can make to improve the resources and/or accommodations available to Working Group participants: (n=2)

Better coffee.

Facilities are great. Food is quite good. My only plea is for good coffee. Current coffee is sufficient, just not "good".

Please provide any additional comments about your overall experience with the working group: (n=2)

excellent and we look forward in collaboration writing papers, and presenting the work at national arenas

This is one of the best workgroups I've had the opportunity work with. Too many ideas to tackle! Eli's doing a great job of organizing and communicating. He's the glue.

What aspect of this meeting of the Working Group did you feel was the most beneficial in advancing the group's research agenda? (e.g. discussions with the whole group/small groups, opportunity to resolve technical difficulties, or a particular activity) (n=4)

Discussion and reconciliation of models between disciplines.

discussions with the whole group and in small groups were effective. The small groups were most beneficial since it allowed groups to concentrate on certain tasks and get down to details.

The second day discussion of the big picture was really beneficial. Also the discussion of a unifying figure and theme. This will go far to focus our objectives and outputs.

the small groups were very beneficial in particular discussion and the overall group provided an excellent input about the expectations

What, if anything, do you feel your Working Group organizers can do to better facilitate communication/collaboration among group members between meetings? (n=2)

Just try to get more of the participants together. It seemed like many people were absent.

so far so good in every detail

Why did you not use the Wiggio? (n=0)

Please use this space for any comments you have about the Wiggio:

Wiggio allows the group members to post links or large files all in an organized webpage without having to email everyone with large MB files.

Appendix D

Working Group Related Products

Journal articles and/or book chapters

Eli P. Fenichel, Richard D. Horan, and Graham J. Hickling, "Management of Infectious Wildlife Diseases: Bridging Conventional and Bioeconomic Approaches," Ecological Applications, p. , vol. (20XX). Accepted

Reports, white papers and other non-refereed materials

Presentation s

Christopher Jerde, Peter Daszak, David Finnoff, David Lodge, Katherine Smith. The parallels of emerging infectious diseases and biological invasions: the biology behind an economic risk model OSC2 DIVERSITAS Conference, Cape Town South Africa Symposium 20:Ecological and economic impacts of disease emergence through wildlife trade: consequences for biodiversity and public health policies. October 14, 2009.

Proposals submitted for follow-on research

Student training

One participant reports working with student on project. Project not specified.

Data, software, and/or web sites

Publicity in popular press

Meeting or meetings