Evaluability Assessment of the

Robert Wood Johnson Foundation's Health Games Research National Program

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- A. Health Games Research (HGR) Interview GuideB. Logic Model for the Health Games Research National Program

I. BACKGROUND AND PURPOSE OF EVALUABILITY ASSESSMENT

PROJECT BACKGROUND

This evaluability assessment (EA) was conducted to determine the readiness of the Robert Wood Johnson Foundation (RWJF) national program, Health Games Research (HGR), for evaluation; to propose options to increase the program's readiness for evaluation; and to suggest the focus, design, and methods that would produce a useful evaluation. Feedback from the EA should help to improve program design, implementation, and evaluation readiness, and should assist in making decisions regarding whether and how to evaluate the program.

HGR and a partner program called the Games for Health Project, which received funding that predates HGR by 3 years, comprise the RWJF Pioneer Team effort in the area of health games. The Pioneer Team has a mission unique among RWJF program teams, which usually are focused on one content area. HGR works across content areas to "support innovative ideas and projects that may lead to breakthroughs in the future of health and health care" (HGR Call for Proposals [CFP], p. 4). HGR is the second national program created by the Pioneer Team and would be one of the first to be evaluated. Given the team's mission and situation, designing an appropriate, useful evaluation of one of its programs may carry additional challenges but also opportunities for innovative evaluation design.

DEFINITION AND PURPOSE OF EVALUABILITY ASSESSMENTS

This project employed the EA method. Rigorous evaluation and research studies are costly and time-consuming, and there is a wide array of potential questions of interest and design options. In order to guide wise investments in evaluation and research, EAs can be used to determine whether a rigorous evaluation study is feasible and merited for a particular program, and, if so, what would be the optimal focus and design. EAs help avoid premature or misplaced investment in evaluation studies of programs that have not been adequately conceived or implemented, and allow evaluation resources to be targeted to studies that are most likely to provide the information truly needed by key stakeholders and that will fill important gaps in the evidence base.

EA is a process in which evaluators work with program funders, administrators, providers, and other stakeholders to help them get ready for evaluation (Patton, 1997). It involves clarifying goals, clarifying program design by specifying the program model, determining stakeholders' views on important issues, and exploring program reality, evaluation receptivity, and options (Wholey, 2004).

The objectives of the EA are to examine the HGR national program with regard to the following:

- Plausibility
 - A plausible, well-developed program design developed on the basis of scientific or political theory, empirical evidence, and/or sound logic, such that experts would agree that the program is likely to bring about the desired outcomes
 - Goals and objectives that are well defined and of a scale and scope to be reasonably achievable from the program being proposed

Feasibility

- A viable process proposed to implement the program
- Actual execution of the program process in such a way that it is likely to have theoretically achievable results
- Readiness for evaluation
 - Program information needs are well defined
 - Evaluation design conditions that would allow examination of the questions of interest
 - Available or collectible data to answer those questions at a reasonable cost
 - Receptivity by key stakeholders to fully participate in and partner with an evaluation team

II. METHODS

The EA consisted of five steps: (1) preliminary interviews and meetings, (2) document review, (3) key informant interviews, (4) refinement of the logic model, and (5) descriptive analysis of available quantitative data.

PRELIMINARY MEETINGS AND INTERVIEWS

The EA team conducted preliminary meetings and interviews with program leadership in order to understand more fully the purpose of the EA and evaluation information needs, receive an overview of the program and Pioneer Team, and further orient the program leadership to the EA method. This process consisted of the following:

- Conference call with the Program Officer, the evaluation Program Officer, and the HGR National Program Office director
- Meeting with the evaluation Program Officer
- Meeting with the HGR Program Officer
- Meeting with the HGR National Program Office director
- Attendance at first HGR annual grantee meeting

DOCUMENT REVIEW

The EA team reviewed documents to gain a general understanding of the program design and structure. The materials also served as a reference during analysis and report writing to provide clarification for the other data collected as part of the EA. The EA team reviewed the following documents:

- 1. RWJF Program Précis (internal document)
- 2. Initial HGR Logic Model (November, 2007)
- 3. HGR 2008 Call for Proposals
- 4. Abstracts of projects awarded grants in 2008 (Round I)
- 5. HGR Web site

INTERVIEWS

Using semistructured interview guides, the EA team conducted a total of 13 interviews (15 individuals). (See Appendix A for a list of the interview guide topics.) Prior to the visit, the team requested a list of National Advisory Committee (NAC) members and HGR grantees from the National Program Office (NPO). Then, the team prepared a draft list of suggested interviewees and enlisted the program leadership to help select five out of eight NAC members and four out of 12 grantee investigators for interviews. (Due to time and resource constraints, it was necessary to interview a subset rather than all NAC members and grantee investigators.) Once a final list of interviewees was agreed upon, the evaluation Program Officer sent invitations, and the EA team followed up with further communications. Dr. Gutman conducted a total of two in-person interviews and 11 telephone interviews. Prior to the interviews, respondents read and returned a

signed informed consent form which emphasized that the purpose of the interview was not to conduct an actual evaluation but rather to learn about the program. The document also stressed that interviewees' responses would be confidential. Table 1 shows the number of interviews by interviewee type.

Table 1. Interviews Conducted*

RWJF Staff	National Program Office and National Advisory Committee	Partner program	Grantee investigators	Total	
3**	5	1	4	13	

*Preliminary interviews and meetings are not counted here.

**One of these was a group interview with three members of the Pioneer Team.

These interviews averaged approximately 1 hour and were conducted with the following individuals:

- 1. Chinwe Onykere, Program Officer, RWJF
- 2. Robert Hughes, Chief Learning Officer and Pioneer Team Member, RWJF
- 3. Steven Downs, Deputy Director of the Health Group and Pioneer Team Member, RWJF
- 4. Paul Taurini, Senior Program Officer and Pioneer Team Leader, RWJF
- 5. Debra Lieberman, PhD, Director, Health Games Research National Program Office and Communication Researcher, University of California, Santa Barbara
- 6. Ben Sawyer, President of Digitalmill and Director of the Games for Health Project
- 7. James Gee, PhD, NAC Member, Arizona State University
- 8. Marguerita Lightfoot, PhD, NAC Member, University of California, San Francisco
- 9. Kevin Patrick, PhD, NAC Member, University of California, San Diego
- 10. J. Leighton Read, MD, NAC Chairperson, General Partner, Alloy Ventures, and Executive Chairman, Seriosity, Inc.
- 11. Elsie Taveras, MD, NAC Member, Harvard Medical School
- 12. Stacy Fritz, PhD, Grantee Investigator, University of South Carolina
- 13. Geri Gay, PhD, and Sahara Byrne, Grantee Investigators, Cornell University
- 14. Peter Bingham, MD, Grantee Investigator, University of Vermont
- 15. Deborah Tate, PhD, Grantee Investigator, University of North Carolina at Chapel Hill

The term "program leaders" will be used in the report to refer collectively to RWJF staff members, the NPO director, and NAC (i.e., excluding the grantee investigators). The term "core program leaders" will be used in the report to refer only to RWJF staff members and the NPO director.

LOGIC MODEL

The EA team used information collected during the EA via document review and interviews to refine and revise the initial logic model developed by RWJF staff members when designing the program. The EA team reviewed and discussed this draft 2-hour model during a 2-hour telephone meeting with the Program Officer and the Director of the National Program Office. Additional discussion and refinement ensued until a logic model was achieved that the program leadership thought could serve as a working model to guide the program and a potential evaluation. (See Appendix B.)

ANALYSIS OF GRANTEE APPLICATIONS AND AWARDS

The EA team used information provided by the NPO and RWJF to conduct a brief analysis of all the grant applications and a separate analysis of those who were awarded grants.

III. IDENTIFIED ELEMENTS OF THE PROGRAM AS DESIGNED AND IMPLEMENTED

The review of program documents and interviews helped the EA team identify various elements of the program as designed and as it is currently being implemented.

PROGRAM AS DESIGNED

Overview of Status

HGR was developed by the RWJF Pioneer Team and then authorized by the trustees in August 2007. The total authorization for 54 months contains three funding components: the Games for Health Project at \$1.25 million, HGR national program at \$6.75 million (\$4 million for grants and \$2.75 for technical assistance and program administration, i.e., NPO), and \$250,000 for evaluation and assessment.

The first HGR CFP was issued in November 2007, followed by the award of the first set of grants and implementation of the first annual grantee meeting in May 2008. The second CFP is expected to be issued in January 2009.

As indicated by the program précis, sustainability of HGR is dependent upon finding additional funding sources to work in partnership with RWJF (RWJF, 2007): "Renewal for this program is uncertain at this time but efforts to sustain the field of games for health beyond this investment will be a critical component of this project. From the beginning the national program director will be working to build public and private partnerships to bring other funders to this issue."

Brief History of the Program

At approximately the time that the Pioneer Team was formed, two experts in the nascent field of serious games met with RWJF staff members to introduce the idea of serious games and their application to health. The appeal of supporting health games was multiple and included the approach's innovativeness, the opportunity to be in the forefront of a new movement, and the potential for health games to have a large impact on the knowledge and behavior of target audiences. As indicated by one Pioneer Team member (unless stated otherwise, all quotes in this section are from Pioneer Team members), "I think that the combination of this is where people are, it's a medium that more and more people are finding comfortable, that it's a medium that's particularly powerful, and then I think the last thing was it sort of felt pioneering. This is the kind of wave we ought to try to catch early because typically health care and health were not really playing in it." As another Pioneer Team member stated: "...playing games appears to be a lot more fun but also the knowledge is 'stickier,' you can have fun, you can absorb more, and you're able to do more with it long term. And that was a pretty powerful notion. Whether it holds true is an open question, but that's something Pioneer gets to explore."

Taking a broader perspective, the area of health games fits one of the Pioneer Team's change models, which is to "look at what they think is an important prime moving societal trend, and if we can alter the course of the trajectory of that, and it may be just a little bit, but the trend is so powerful and important that even that would really make a major (impact)..." Or, put another way, "The Foundationhistorically had been most successful when it has caught a wave at the right time and somehow altered the course of it, changed it a little bit."

The Pioneer Team tends to use a staged approach to exploring and developing a cutting-edge area. The first grant represented "an early stage of investment" and was intended to support more exploratory activities. The initial grant to the Games for Health Project gave Foundation staff members entrée into the world of serious games and vice versa. The grant, for \$250,000 for 2 years, was awarded in December 2004 to Ben Sawyer of Digitalmill, who is the leader of the Games for Health Project and who leads the annual Games for Health Conference. (An additional "bridge" grant of \$40,000 was awarded for the third year.) The purpose was to provide Mr. Sawyer's organization with increased support to expand what it was already doing with the intention of nurturing and expanding a very small number of people within the serious games field who were interested in applying games to health. The grant "was basically an exploration into the intersection between the world of video games and the world of health and healthcare." The intention was to stimulate a market for health games and perhaps new video games. Concretely, the grant provided support for convening two more annual conferences and other activities designed to increase the level of communication, interaction, and collaboration among this small group of individuals, with the hopes of building a stronger network with an increased sense of identity and visibility. These activities, also referred to by Pioneer Team members as connecting activities, included building a Web site and maintaining a listsery. Foundation staff members thought Mr. Sawyer was, in the words of a Pioneer Team member, "a great kind of connector and sort of field builder and evangelist." An advisory committee was also established, an unusual occurrence for such a small grant, but one that reflected RWJF's commitment to the program and its future growth.

During the subsequent 3 years, RWJF staff members attended conferences and meetings and received numerous unsolicited proposals, which led them to formulate a deliberate strategy for this area: "And that then began to help us think, have an opportunity to begin to develop a strategy about well, how would we try to influence this sort of amorphous thing, and where are the opportunities where we could make a difference versus a venture capitalist coming in on the one hand. And what are our particular capacities where we can really add some value to this (field)."

The Pioneer Team decided to continue investing in convening as part of building the field of games for health, while simultaneously expanding investment to evaluate the effectiveness of health games. This decision was influenced by two key lessons from the first phase of Pioneer's investment in the field. First, the games community needed to understand that games for health were both a viable market and pretty interesting to do. They also needed to understand that, at least more than they were used to, a lot of decisions within the health sphere are driven by evidence-based research, not just by marketing. On the other hand, the health community needed to understand the potential benefits to patients and consumers of using games for health. According to one respondent, if you asked most health professionals in 2004, *"they would have a negative opinion of games and say they induced violence, they make our kids fat, they're everything that's wrong with our culture."* Another influence on the Pioneer Team's decision to support research exploring the effectiveness of health games was that research and evaluation are tools with which the Foundation had deep experience and expertise.

At the same time, the Pioneer Team decided not to focus on using games to train health care professionals because a lot of U.S. Department of Defense funding already was supporting training activities. The Pioneer Team also decided not to focus on supporting development of one stellar health game, even though they received several unsolicited proposals to do so, because they did not think there was enough evidence available at the time to design such a game. "It's a little bit like financing a Hollywood movie. You can spend a whole lot of money and a whole lot of marketing and sign up the big stars, and it can be 'Ishtar.' There also wasn't enough evidence to use to build an Ishtar."

In the end, RWJF program staff members decided to propose an authorization that would (1) continue the Games for Health Project's convening function, (2) add a new, distinct but interrelated national program, HGR, that would focus primarily on strengthening health games research and the resulting evidence base, which would help improve the design, implementation, and effectiveness of health games in the future; and (3) provide a small additional amount of funding for program evaluation.

GOALS

(See also Logic Model, Appendix B)

The first HGR Call for Proposals (2007) states that the primary goal of the program is to strengthen the evidence base and, as a result, improve the design, implementation, and effectiveness of health games: "The Health Games Research program was established to strengthen the evidence base related to health games delivered or supported by digital technology" (p. 3). It further states (p. 3) that "more research is needed to help establish a solid base of theory and evidence that can contribute to improving the design and implementation of health games." Elaborating further on this goal (p. 4), the CFP indicates that HGR will support research that aims to accomplish the following:

- Gain deeper understanding of fundamental social, emotional, and cognitive processing of game play experiences related to health, in order to develop theoretically grounded, evidence-based strategies or principles for designing and implementing health games successfully
- Assess advantages and disadvantages of games as health interventions
- Identify potential limitations and negative effects of health game features

Other related aims of the program stated in the CFP (p. 5) are to accomplish the following:

- Increase the number of high-quality, effective health games available to the public
- Promote interest and participation in the health games field by—
 - increasing public awareness; and improving the public's ability to assess the quality of health games; and
 - encouraging more game industry professionals, health experts, and researchers to become involved in the development of health games
- Provide validated research evidence and additional relevant information and data to educators, medical practitioners, public health officials, insurers, health and disease associations, business leaders, policy-makers, game publishers, government agencies, and other decision-makers who create, buy, recommend, and fund health games

Given these goals, the key audiences for the program appear to be the following:

• The researcher community, including individual investigators, academic and medical research institutions, and agencies/organizations that fund health promotion research and media research

- The games industry, including game designers and developers, private companies, and investors
- The health and health care field, including clinicians, case managers, health insurers, health plans, health educators, public health specialists, health communicators, and other experts
- Policy-makers and decision-makers in the fields of research, game development, and health, and also in Government, education, and community service

Program leadership and grantees tended to echo these interrelated goals. Almost every respondent mentioned strengthening the evidence base as a primary goal of the program, and most pointed more specifically to testing the effectiveness of health games. A few respondents also mentioned other more specific objectives within the goal of strengthening the evidence base, notably contributing to theory regarding how and why games work, and enhancing the quality of research on health games. A few program leaders emphasized the aim of enhancing the research base, leading to distillation of design principles for building more effective games, and distillation of principles for implementing health games in health and health care settings.

Approximately half of the program leadership, including all core leaders, also stated the goal of promoting connections and ultimately collaboration, in the field of health games among game developers and health professionals. As one member of the program leadership said, *"The second (goal) was to continue to foster interactions between these two houses, the house of games and the house of health care."*

By contrast, no stakeholder mentioned promoting public interest and participation in the field of health games. Perhaps this is because the program is still in its early stages of development and this goal is not yet a priority. However, one core program leader stated explicitly that directly trying to influence the public was no longer a primary or perhaps even secondary goal of the program, although it is a desirable trend.

Only two respondents mentioned communicating/disseminating research evidence and additional relevant information and data to key audiences as a program goal. However, this goal may not have been mentioned as frequently because the program is still relatively new.

The only two goals mentioned by stakeholders that were not stated in the CFP were changing societal attitudes toward health behavior, and increasing the use of technology, specifically health games, to improve health. However, the latter could be seen as a statement of an ultimate outcome of the program.

EXPECTED OUTCOMES

(See also Appendix B, Logic Model)

It is important to reinforce the overarching point made by some of the core program leaders and others that a nascent societal trend was already afoot toward serious games and even health games, and that the strategy of HGR is to *"ride this wave"* and hopefully accelerate it and enhance it by making it more evidence based. Thus, the outcomes envisioned are *"acceleration"* or *"enhancement"* of this societal trend, rather than creating outcomes *"from scratch"* that would have started from no trend in this direction. However, it is also important to note that there was not a strong trend toward

increasing research in this field, or toward using theory-based empirical research in game design, so discerning outcomes specific to health game research should be a less difficult task.

NAC members and grantee investigators mentioned one or, at most, a few expected outcomes. By contrast, as is typical in EAs, core program leaders tended to lay out several expected outcomes, explicitly or implicitly, indicating a logical sequence among them. NAC members and grantee investigators did not indicate lack of agreement with the more complex description of outcomes, but rather seemed not to have thought about the program outcomes to the same extent as core program leaders. Among core program leaders, there seemed to be a high degree of consensus on most outcomes, and an unclear level of consensus on others.

Respondents stated outcomes that fell into three sequential groupings: short term, intermediate, and long term. **Short-term outcomes** massed into four categories: (1) improved evidence or knowledge regarding the design and effectiveness of health games, (2) increased collaboration and number of research and development partnerships, (3) increased interest in and use of health games research findings, and (4) increases in favorable attitudes toward health games on the part of health and health care providers. All respondents mentioned the first category, most mentioned the second, while only a few (some core program leaders) mentioned increased interest in and more favorable attitudes toward health games.

Six areas of outcomes that seemed to flow logically and temporally from the set of short-term outcomes were emphasized by some respondents, and thus were grouped as **intermediate outcomes**: (1) increased number of researchers working in this field, (2) increased amount and quality of health games research, (3) increased funding available for research and health game development, (4) increased number of effective health games developed, (5) increased acceptance of games as tools for health, and (6) increased use of appropriate games in health and health care. Most or all core program leaders explicitly mentioned the first and second of these outcomes, while only one or two core program leaders mentioned the third and fourth. Based on the entire set of interviews, it appears that the lack of articulation of all intermediate outcomes by all core program leaders implies lack of awareness and perhaps lack of explicit and full consensus but not disagreement. In addition, core program leaders acknowledged the program has a *"low level of control"* over the last intermediate outcome area (increased use of appropriate games in health and health care reimbursement policies, could greatly inhibit or facilitate this outcome.

The logic seems to be that the combination of an improved evidence base for health games, including principles of game design, increased dissemination of research findings and how to apply them to game design, and growth in partnerships and connections, especially between the game world and the health world, and more interest in and favorable attitudes toward health games among health professionals would lead to accelerated growth of the health games research field, including additional investment. Further, this growth would fuel increased development of more numerous effective health games through greater utilization of evidence and design principles. Additional intermediate outcomes expected were that the strengthened evidence base would also increase acceptance of games as tools for health and health care, and all of these developments would lead to increased use of games in health practice.

A broad area of outcomes was mentioned by most program leaders as the **ultimate or long-term outcome** of HGR, namely, to accelerate and elevate the contribution of health games to improving health behavior and health care, and ultimately health outcomes. Thus, there would be two components of the long-term outcome: (1) it would happen faster than it would have without the program, and (2) health games would have a greater effect than they would have otherwise. The logic seems to be that all of the short-term and intermediate outcomes in combination would result in accelerating the contribution of interactive games to better health, health care, and ultimately health outcomes. However, during discussion of the logic model, core program leaders acknowledged that the program has a *"low level of control"* over this ultimate outcome because various factors out of the program's control and direct focus could facilitate or inhibit it, such as policy decisions about reimbursement of games, and whether a game producer had developed an adequate business model and had made wise decisions about game production.

PLANNED PROGRAM STRATEGIES AND COMPONENTS

(See also Logic Model, Appendix B.)

Support for research grants—Authorization of the HGR program provided \$4 million for grants *"for research that has the potential to advance the design and effectiveness of interactive games and game technologies aimed at improving health."* The authorization envisioned two rounds of grants to conduct research in two categories of games on the basis of RWJF goals and the current state of the field, namely (1) increasing physical activity through exertion in order to play a game or engagement in physical activities that are fostered and supported by playing a game, and (2) improving self-care (including improvements in healthy lifestyle, prevention behaviors, adherence to treatment plan, and/or self-management of chronic conditions), through the knowledge, self-concepts, attitudes, beliefs, emotions, skills, activities, and social relationships that are fostered by playing well designed health games.

The first CFP (2007) indicated that the first round of awards would be for up to 15 grants, each lasting up to 2 years, consisting of up to six smaller projects between \$50,000 and \$100,000, and up to nine larger projects between \$100,001 and \$200,000. The CFP goes on to state that: "Junior investigators or those who are new to the health games field may want to propose a smaller project as a way to get started in the field. HGR welcomes and encourages these types of smaller-scale studies." The first CFP also indicated that studies must go beyond assessments of effectiveness to a more detailed theory-based discussion of how and why the design principles of games were effective so that future researchers can use this information to more efficiently and effectively create health games: "Studies must do more than show that playing an interactive game has contributed to a desirable health outcome. The research must also demonstrate, with scientific rigor and theoretical grounding, how players respond...to the game play experience, and how those responses influence the desired outcome. The findings must lead to a set of validated design principles that other health game designers could use in the future..." Further, "the program has three targeted areas of interest: (1) Theory based design principles, (2) Comparative analysis of games versus other health intervention methods, and (3) Meeting the needs of specific target populations."

One key requirement for grants was that: "...resources should be used primarily to conduct research. No more than 25% of a project's funding may be used, if needed, to develop prototype game software or technologies that will be used in the study." This funding, as stated by one core program leader, was for "tweaking a game or making a little prototype to test or something, but it was not mainly to develop media."

RWJF Pioneer Team members explained some of the reasoning that went into the grant making parameters. The idea behind a total of 24 to 30 grants over two rounds was "a question of the tipping point of the number of projects that we felt we could do that would actually build the field or start to get some momentum going that could build without us (RWJF). We thought 10 projects, not enough. You don't want five rounds of funding. With Pioneer, you want to get in...move forward and get out...The size of grants, what is feasible and what type of research could be done in a year or two."

Also, in accordance with the program précis, the Pioneer Team did not want to be the sole funders of this initiative. Instead, they wanted to establish strategic partnerships and collaborations with other governmental, private, and nonprofit organizations that could provide additional funding. "I don't think we should be the only funder funding [the HGR Director] and her team and funding researchers that we started to fund through the first few rounds. I would hope that the researchers within their institutions get more buy-in in the work that they're doing and can do more...But also that other funders, either private, more government funds, NIH or Cigna, the health insurers, other types of large entities can come in..."

Provide leadership—As with most RWJF national programs, the Program Office and, more specifically, the NPO director, is expected to provide national leadership for the goals and concept of the program. In the case of HGR, this could include, in addition to direct leadership for HGR, pursuit of the director's own research in this field, and presentations at scientific and gaming conferences and other related venues, advising game developers and the industry, and working with other funding organizations to leverage funding for the field. One core program leader also expressed the hope that National Advisory Committee members would use their expertise and status to provide leadership to promote program goals and concepts among their constituencies, as is typical in RWJF national programs.

Synthesize and disseminate research and resources—A key function of the program is "*widespread dissemination of research findings and resources related to health games research*" (RWJF précis, p. 2). Or, as one core leader stated, "*packaging and putting into readable and understandable terms information about our field and about the research*." The program is expected to develop dissemination mechanisms, such as research briefs, a Web site, newsletter, scientific and other presentations, and a strategic communications plan in collaboration with RWJF communications staff members and consultants.

Create tools and resources to advance the field—One role of the National Program Office is to develop tools and resources for building the field of health games research. Currently the NPO is developing an interactive, online searchable database of information and evidence related to health games (including findings beyond RWJF-funded studies); "Body Game" software that facilitates health game development at a lower cost; and findings from a national survey of adults' and children's video game use.

Promote sustainability for the field—RWJF programs generally, and their research programs specifically, are expected to promote other funding for the field they are building. This can consist of funding to continue the program itself or at least its functions when RWJF leaves the area after "seeding" it, as well as additional funding during the time that the program is operating. Programs often run for a few or several years, providing more time to generate replacement funding than is the case for HGR. Concretely, working on sustainability typically means enlisting public research agencies (e.g., National Institutes of Health) and other private foundations and organizations to provide funding.

Convening players and facilitating communication—HGR was designed to complement the main function of its partner program, the Games for Health Project, which convenes and brings together professionals from the game development industry world and the world of health. HGR's emphasis is on supporting and improving research that will guide the theory-building and development of effective health games through studies conducted in the social and behavioral sciences, learning sciences, health promotion sciences, and related fields; attracting younger, newer investigators (*"build the pipeline"*); and providing resources for them. HGR's emphasis is also on dissemination of findings and on brokering partnerships between health games researchers and game developers and technology companies. The national program plans to conduct one grantee meeting per year, and will facilitate communication among grantees, other researchers, and key nonresearch audiences (such as game developers/industry, health care systems and providers) by means of a Web site, newsletter, research briefs, conference presentations, press tours, and other methods. Thus, RWJF national programs are expected to conduct "external" communications by using marketing and public relations techniques, to inform the world about the program, its services, its accomplishments, and its goals.

Games for Health—HGR and the Games for Health Project were designed as partner programs, two parts of what RWJF staff members thought was needed to move forward the field of health games. It was hoped that the two programs' activities would be complementary, that the activities of one program would reinforce and complement but not duplicate the activities of the other. For example, the Games for Health Project could help bring together game developers and health games researchers so that they could better understand each other, make connections, and ultimately build partnerships and collaborations. Further, the project's Games for Health conferences and other activities could serve as venues for disseminating findings and design principles generated by HGR studies and synthesis products.

Planned Outputs

Seven areas of program outputs were indicated by core program leaders, approximately parallel to the program strategy/activity components: completed studies, publications in peer-reviewed journals, presentations at scientific and game conferences, synthesis products (such as research briefs), tools and resources for the research field, dissemination of research and syntheses, and communications products and tools, such as media coverage.

PROGRAM AS IMPLEMENTED

Since HGR program authorization in August 2007, RWJF staff members have appointed a national program director and formed a National Advisory Committee. Then the program issued its first CFP in November 2007. The first set of grants was awarded in May 2008, and the first annual grantee meeting was held the same month. The second CFP is expected to be released in January 2009.

Selection and Role of Program Director, Development of National Program Office and National Advisory Committee

The first steps to implementing the program were selecting a director, staffing the National Program Office (NPO), and forming a National Advisory Committee (NAC). For a director, RWJF staff members looked for someone who truly understood the intersection between interactive games and health, and who was extremely strong in research but also innovative, who was located at an

institution that would be supportive. They were also looking for someone forward-thinking who would partner well with the Games for Health Project and its director.

Once selected, the NPO director initiated staffing the National Program Office, which consisted of hiring a deputy director and an administrative assistant. Hiring a deputy director was challenging, requiring approximately 10 months. This delay seems to have occurred primarily because the university has an extremely long process of establishing, approving, recruiting, interviewing, reviewing, and hiring for new positions, and also because the deputy director position was funded as a part-time position, and perhaps also because the national program is so cutting-edge. The NPO accomplished an enormous amount during the first year without a deputy director, and a well qualified person has now been hired. If the program had been given more time to issue a first CFP and conduct a first round review and grant award process, then it is possible that the program could have accomplished even more by way of infrastructure building in the first year with a deputy director in place. For example, the communications infrastructure (i.e., Web site, newsletter) might have been further developed by this time if a deputy director had been in place, thus making it available sooner for the first round of grantee investigators. However, given the existing plan to issue an RFP within 3 months and award grants within 8 months, it was probably just as well that the director did not have to train and orient a deputy director.

RWJF staff members, with input from the NPO director, selected the NAC members. The process was designed to select an academically, creatively, and ethnically diverse set of experts at the intersection of health and research and interactive games. The NAC consists of experts on health behavior and health care research who have some expertise in the application of interactive media and technology, sometimes interactive gaming; experts on research on serious games in communication, psychology, and other areas; experts from the world of game development and design; and experts in health and health care delivery. As one respondent described, they are "[r]eally an eclectic group of folks but all really passionate and interested."

To date, the NAC was highly involved in reviewing applications resulting from the first CFP, and helping the NPO and RWJF staff members select those to be recommended for funding. There was also some discussion at the end of the review meeting regarding the future composition and role of the NAC as well as what the focus should be for the next round of grant making. NAC members expressed interest in being "ambassadors" for the program and field and also providing technical assistance to help grantee investigators design their studies. RWJF staff members were most interested in NAC members speaking to their own professional/expertise group (the ambassador role), and also helping the NPO and RWJF determine a long-term vision for the program. On the other hand, NAC members are all very busy professionals. Since the review meeting, two NAC members attended and made presentations at the first annual grantee meeting. However, NAC members interviewed did not seem to know much about how the program was progressing since the grants were awarded, and they said they would like to have more information. As one core program leader stated, *"I don't think we've gotten there yet and figured out how we can keep the NAC connected to each other in between the review periods, but I think they were interested in that."*

Awarding Grants for Research Studies

Development of the first call for proposals—The CFP for the first round of grants (2008) was developed by RWJF staff members and the NPO director, with input from the director of the Games for Health Project. NAC members who were not involved in the authorization RWJF already had settled the total amount of funding for the program and the parameters of the grants. The program concept was refined during the development of the CFP. As a core leader stated, "*The CFP writing process was where the rubber hit the road in trying to make sure we were all very clear about the goals and focus of the program*."

The emphasis on funding research that would contribute to development of theory and design principles, as well as clarify effectiveness, was adopted before the development of the CFP, when the NPO director advised early on that it was important to learn more about "why" and "how" games improve health outcomes in addition to testing whether games can achieve these goals.

One disagreement surfaced during CFP development and remains a concern for some members of the program leadership. Some thought that a significant portion of the program funds should directly support overcoming current game design challenges, including the technical aspects of constructing games and the related high costs for new developers to enter the games development industry: As one program leader said "Design research, meaning... you do the research into figuring out how to build certain things." Another also suggested that "it would be useful to build resources that would then enable from a technical standpoint more people to build games...the problem was still that we weren't doing enough to lower the cost of entry..." One could call this "computer science research" from an engineering standpoint. Concurrent with this issue, these members of the program leadership advocated that it would be more advantageous to be less open, more targeted in the CFP or even commission projects instead of issuing a CFP: "Sit down and just decide what studies you really want done. Sit down and decide what pieces of engineering you think should really be built." They were concerned that the program tactic of mainly supporting adoption, or at most adaptation, of existing games would limit findings regarding effectiveness because very few existing health games are worth testing rigorously. For example, a mobile game that actually causes people to increase how much they walk has yet to be built. (A mobile game is one that is used on a hand-held device, such as a cell phone.) Program leadership members who raised this issue stated that it had been aired with everyone and settled, and they were hopeful the selected tactic (strictly limiting funding for games to 25% of each project) would work but remained concerned.

Grant application process and characteristics—Grantee investigators interviewed found the application process generally clear. There were Web conference calls to help prospective applicants clarify the program and CFP requirements. A list of frequently asked questions was then posted on the Web site. The only concern that was expressed was that the timeframe was too compressed, particularly the brief time period between publication of the CFP and submission of proposals.

One hundred twelve (112) applications were submitted in response to the first CFP, which most interviewees thought demonstrated healthy demand for the program grants. The proposals submitted reflect a diversity of institutions, researchers, focal areas, and research methods.

Applicant organizations—Eighty-seven (78%) of the applicants were affiliated with organizations that had 501(c)(3) status. Of these organizations, only two were not university based. One appears to be a privately owned company and the other is a health care organization affiliated with a county public health district. The rest of the 25 applicant organizations (22%) were Government or for-profit organizations.

Funding level—Ninety (80.4%) of the proposals requested funding between \$100,000 and \$200,000 and 19 (17%) requested smaller grants of less than \$100,000. The remaining three proposals (2.7%) requested funding in excess of \$200,000, and were eliminated during a screening process.

Academic degrees—One indicator of diversity was the range of academic and professional degrees held by the proposed principal investigators, as indicated in Table 2. Although 86 (77%) held doctoral degrees solely or in combination with other degrees (but not an MD), 13 (12%) held MD degrees (either solely or in combination with other degrees). One applicant held a PhD and was an RN. Ten researchers (8.9%) had doctorates in fields such as education, public health, demography, psychiatry, chiropractic, and physical therapy. Eight researchers (7.1%) held master's degrees only in the fields of business, fine arts, science, public health education, and science in nursing. One applicant held a bachelor of arts degree, and the degrees for three applicants were not identified.

Degree	Number (percentage)
PhD only or with others (not MD)	86 (77.0)
MD only or with others (master's or PhD)	13 (12.0)
Master's	8 (7.1) ¹
Bachelor's	1 (0.89)
Unidentified	3 (2.7)

Table 2. Academic Degrees of Proposed Principal Investigators

Positions/titles—The researchers also had a variety of positions within their respective organizations. Thirty-eight (34%) were assistant professors and 23 (20.5%) were associate professors. Another 18 (16.1%) reported they were professors and 11 (9.8%) were directors. These numbers include two individuals who had multiple titles, including one who was an associate professor and director of research and another who was an assistant professor and director. Five additional individuals had the term "research" included in their title. These titles were senior research psychiatrist, research associate, health research scientist, faculty researcher, and research instructor. Those remaining were a more heterogeneous mix of singularly reported titles. Given these titles, one could argue that at least 34% of the applicants were early in their research careers.²

¹ The master's degrees include one master's of fine arts, one master's of public health, one master's of education, one master's of science in nursing, one master's of science/bachelor's of medicine/bachelor's of surgery, one master's of business administration/registered respiratory therapist/agricultural education and communication, and one master's of business administration/master's of science in electrical engineering.

² These titles were as follows: epidemiologist, postdoctoral fellow, media lab manager, president, clinical coordinator, clinical scientist, chair and dean, chief of endocrinology, teacher, neuropsychologist, psychological assistant, interim department chair, advanced registered nurse practitioner, and co-investigator.

Focal area—The types of proposals submitted were quite evenly spread across the two focal areas indicated in the CFP—physical activity or self-care—or a combination of both. There were 44 (39.3%) proposals focusing solely on physical activity, 43 (38.4%) on self-care, and 25 (22.3%) that were classified as hybrid because their focus was a mixture of physical activity and self-care.

Methods—The types of methods proposed were quite heterogeneous, as can be seen in Table 3, on the basis of information provided by applicants to queries embedded in the RWJF Grantmaking Online system. Categories of methods were embedded in these queries and may be overlapping. Although the vast majority of applications were classified as field experiments (n = 51) (45%), lab experiments (n = 21) (18.7%), or surveys (n = 20) (17.9%), of all these applications, there were six (5.3%) proposed randomized clinical trials and four (3.6%) observational studies among the group.

Type of proposed study method	Number (percentage)
Field experiment	51 (45.0)
Lab experiment	21 (18.7)
Survey	20 (17.9)
Randomized controlled design	6 (5.3)
Observational study	4 (3.6)
Assessment of physical activity (e.g., fitness gram)	2 (1.8)
Pretest or posttest study	2 (1.8)
Design of experiments	1 (0.89)
Engineering system design	1 (0.89)
Total digital eye–tracking analysis	1 (0.89)
Facilitate guided questionnaire	1 (0.89)
Exploratory	1 (0.89)
Mixed method	1(0.89)

Table 3. Applicants' Proposed Study Methods

Grant review process and funded project characteristics—Program grantees and leaders were quite satisfied with the grant review process, during which all proposals were first screened by the NPO and RWJF staff members and then reviewed by NAC members. The program leadership met as the review committee to develop final recommendations to RWJF for funding.

Diversity also is reflected in the 12 applicant projects that were awarded grants. Four of the 12 (33%) grantee organizations were affiliated with university-based organizations that do <u>not</u> have 501(c)(3) status. The rest of the organizations are classified as 501(c)(3) and, with the exception of one medical center, they are all university-based organizations.

The funded projects were distributed approximately evenly between the two focal areas, with five (41.7%) focused on physical activity and five (41.7%) on self-care, while two projects (16.7%) were hybrids. Ten (83.3%) received funding within the \$100,000-\$200,000 range, two (16.7%) received funding for the smaller type study (less than \$100,000). Seven of the studies (58.3%) were funded for 2 years, three (25%) for approximately 18 months, and two (16.7%) for approximately 1 year.

Concerning the principal investigators, eight (66.6%) had PhD degrees solely or with an additional, less advanced degree; three (25%) were MDs; and one had an MFA (8.3%). Similarly, five (41.7%) of the lead investigators had the title of assistant professor, three (25%) were associate professors, one (8.3%) was a professor, one was a research psychiatrist (8.3%), one was a postdoctoral fellow (8.3%), and one was a media lab manager (8.3%). Again, one could argue that given their positions, at least half of the lead investigators were early in their research careers (assistant professor or postdoctoral fellow).

The study methods of the awarded projects were also somewhat heterogeneous. Seven (58.3%) of the funded studies were field experiments, whereas two (17.6%) were lab experiments. There also was one (8.3%) randomized control design, one survey (8.3%), and one (8.3%) study classified as a community-based experiment.

Unfortunately, information for the target audience of each of these studies was only available for the funded grantees, so we are unable to make a comparison between applicants and grantees. For grantees, seven (58.3%) of the studies were proposed to target adults only. The subgroups included in this category are college freshmen, older adults, young adults, adults with alcohol dependence, and adults with diabetes. Two (16.7%) studies were planned to focus on adolescents only and one (8.3%) study targeted youth aged 8 to 18 years who have cystic fibrosis. One study (8.3%) was conducted with families with overweight children and another one (8.3%) with youth and adults.

Development of second call for proposals—The program leadership was about to begin developing the second CFP when EA data were being collected. Core program leaders expressed interest in understanding grantees' experiences during and after the first round of grants in order to improve the process by addressing issues or concerns that may have arisen. For example, almost all grantee investigators and program leadership interviewed mentioned that additional time was needed to respond to the CFP. Similarly, interviewed grantee investigators also recommended that the announcement of awarded grants be more organized and less rushed. Program leadership also wanted to ensure that the new CFP materials were clearly written and understood. Some suggested it might be helpful to provide prospective applicants with *"stimulus materials,"* such as three outstanding examples of games that could be the focus of the research. *"These games are rich with health promotion strategies and different environments in which they could be played so you could study different people and different social and solitary interactions..."* However, they also expressed concern that this approach might stultify creativity.

Core program leadership also discussed the possibility of increasing the total dollars per grant for the larger grants from \$200,000 to \$300,000. Finally, the core program leadership was trying to decide if only researchers and developers who were already well versed in theory, design principles, and/or effectiveness research should be eligible for the second round of funding. This revision of the eligibility criteria could potentially enable the research to be conducted faster and with less cost and time-intensive technical assistance provided directly by the NPO director.

Other program components—Most other program components are less developed than the grant making component, as would be expected given the tight timeframe for program start-up and the first round of grant making and the timing of the EA. The remaining program components are as follows:

- Provide leadership—The NPO continues providing leadership for the field and promoting the program concept. The program director has been actively connecting with researchers and research organizations, game developers and industry, presenting at conferences, as well as making progress on her own portfolio of research in this field.
- Synthesize and disseminate research—It is premature to assess the feasibility of this strategy/activity because grantees received their awards in April 2008 and the earliest project is not expected to be completed until May 2009.
- Create tools and resources—The NPO has created a "starter" Web site linked to RWJF's site, and it is working with a public relations firm to design a new and more extensive program Web site. The NPO is in the process of developing other tools, including an interactive online searchable database of resources in the field, and information about HGR to distribute at conferences. The NPO is developing tools such as "Body Game" software that makes it easier to develop new games at lower cost and is conducting a national survey of video game use. (The NPO will not be hosting a listserv because the Games for Health Project hosts a listserv that is reportedly very active.)
- **Promote sustainability**—The NPO has had early-stage discussions with key funding organizations, notably the Centers for Disease Control and Prevention (CDC), HopeLab, and the Johnson & Johnson Company, about the possibility of funding for specific projects.
- Facilitate communications—The first annual grantee meeting took place in May 2008 adjacent to the annual Games for Health conference. Grantee investigators were uniformly enthusiastic about the meeting, noting that it helped to clarify the nature of the program and their grants, and enhanced networking among researchers and between researchers and the world of game developers/industry. In terms of communications with audiences external to the program, the NPO has been working with a public relations firm and the media, already yielding \$3 million of media coverage for the program.
- Partnering with the Games for Health Project—Leadership of the Games for Health Project has already assisted with early development and guidance of HGR, HGR leadership has been attending the Games for Health Conferences for several years, and the HGR grantee meeting and Games for Health Conference were held consecutively in May 2008. Additional steps that the Pioneer Team may take to maintain and enhance the two programs' partnership, however, are not clear.

The following key points were made regarding other program components moving into the second program year:

• Facilitate communications—Grantee investigators were eager for program mechanisms and tools to facilitate communications among them, particularly a listserv or intranet collaboration tool, such as WebOffice, since they commenced their studies 4 months ago and would like to share methodological and implementation issues with one another. Investigators were also particularly interested in identifying common measures that could be

used across studies, as was discussed at the grantee meeting, although they stated that at this point such decisions may come too late for them to include in data collection that is already underway.

- **RWJF communications**—Core program leaders thought that further work is needed regarding how to talk about the two programs (Games for Health Project and HGR) so that their purposes are more clearly distinct.
- Provide leadership—Some program leaders strongly felt that leadership for the program could be amplified by engaging investigators and NAC members on a consistent basis in guiding the program and serving as program ambassadors. For example, grantee investigators could present symposia at conferences of their specialty research associations and at their universities. NAC members could work to increase the visibility of, and interest in, HGR and the field among their constituencies (i.e., game developers/producers, academic health care or health behavior research).
- Sustainability—In terms of sustainability, respondents also suggested that more effort be made to secure additional private and public funding; however, this does raise the question of how much the Pioneer Team will want the program to have the Pioneer Team /RWJF "brand."

Program Funding, Resources, and Sustainability

After 1 year of implementation, the program is entirely funded by the Robert Wood Johnson Foundation. RWJF staff members stated that they expected the NPO to start right from the beginning of the 4¹/₂-year authorization to seek additional and, eventually, replacement funding to continue to build the field of health games research. The NPO seemed to clearly understand this expectation and has begun working to attract other private and public funding for its office and the field (see above, Implementation).

Evolution of Program Design During Implementation

Many of the stakeholders were interviewed perceived that program design did not evolve much during the first year of program implementation. Several key elements, such as the timing, size, and number of rounds of grants and number of grants per round were set by the Foundation staff members prior to program implementation and did not change much. The goals and focus were expanded and clarified somewhat during development of the CFP and the review process and decisions, as described above, although one area of disagreement also surfaced, namely, the debate regarding whether the program should provide more funds for game development within a research context. The core program leadership has decided to increase the ceiling for grant cost, and is currently in discussions to refine outcomes. It appears that during this first year, beyond this core leadership discussion, not much other discussion has occurred about the expected outcomes of the program. It remains to be seen how the program may evolve during the next 3¹/₂ years of implementation.

IV. HIGHLIGHTED FINDINGS

Information collected through the interviews and review of documents provides some suggestion of the program's plausibility for attaining the desired goals and the feasibility of its full implementation.

PLAUSIBILITY

Overall, HGR program design involves ambitious goals and expected outcomes. The main program goals are relatively clear, with a reasonably high level of consensus regarding them among program leadership and grantee investigators (strengthen evidence base, grow collaboration and partnerships). The degree of consensus is not quite as clear surrounding some key elements of the goals mentioned by only one or two stakeholders, such as the importance of developing a theory of how and why games work and, in turn, design principles (a key feature of building the evidence base). The program design to achieve those goals contains relatively clear and realistic inputs, strategies/activities, outputs, and short-term outcomes with a generally high degree of consensus except for one aspect: what proportion of funding should be devoted to game design. Program outputs could be somewhat more well defined, although there is still ample time to specify these outputs. As is often the case with programs, the intermediate and long-term outcomes are somewhat less clear and explicit, particularly among stakeholders beyond the core program leadership, than the short-term outcomes given program inputs, strategies/dose, and intended outputs.

The HGR program design is based on the assessment of the Pioneer Team and its key advisors on the state and needs of the field of health games which they gained through exploratory activities, especially initial grants to the Games for Health Project, and Team staff attendance at key conferences and meetings. The initial design of HGR was not based on theory or empirical evidence related to field building, but instead was based on RWJF's prior practical experience with its national programs designed to build research fields.

Additional key points about program design are:

Plausibility or realism—The plausibility or realism of expected or assumed causal sequences (links) within a program logic model is often open to some question, as is the case for this model. For example, the likelihood that the combination of short-term outcomes, if achieved, will lead to the intermediate outcome of increased use of appropriate games in health care and public health is not really known. As more than one stakeholder pointed out, additional factors would have to be in place for increased use of health games to happen, even with a strong evidence base and an increase in the number of effective games developed. For example, health care and health professionals would have to know about the games and evidence, and policies would have to be in place to facilitate or at least permit utilization of games, notably reimbursement by public and private payers. Even for the more primary intermediate outcome of accelerating growth of the research field, additional investment by public and private funding organizations in health games research could fail to materialize due to broad economic or federal funding trends. RWJF has examples of program areas where a larger, more diverse and comprehensive set of programs was developed to cover more contributing factors (e.g., childhood obesity, tobacco cessation and managed care, tobacco control, end of life). Core program leaders have generally concluded that the dimension of "program level of control" should be used, with "low control" characterizing at least one intermediate outcome and the sole long-term outcome.

- **Expected outcomes**—Stakeholders beyond the core program leadership generally could be clearer about expected outcomes, particularly the logical sequence of outcomes, and to what extent the program is expected to bring about intermediate and long-term outcomes. A greater shared understanding and "buy-in" is needed at all levels of the program (core leadership, NAC, grantee investigators) in the expected outcomes and entire logic model. As is to be expected, NAC members and grantee investigators were equally aware of the primary expected outcomes but less aware of the secondary expected outcomes than core program leaders.
- **Timeframe**—It is uncertain whether 2 years to award grants (regardless of program effectiveness), or even 4¹/₂ years for the entire HGR program, is long enough to bring about the expected outcomes; this includes the short-term ones, but especially applies to the intermediate ones.
- **Dose**—It is also uncertain if two rounds of grants (24 to 30 studies) will be enough to accelerate building a research field on a sustained basis, more specifically, to convince investigators that there is a viable field in which to work, and to bring in other funders.
- Program strategies/activities—Some program strategies and activities could be better defined, specifically activities for synthesizing and disseminating research evidence and building the sustainability of the HGR program and the field. Detailed strategic plans for each of these components are not yet in place. Further, achieving or enhancing financial sustainability of a research field is typically challenging and time consuming, as can be seen from other RWJF national programs, including research programs such as Substance Abuse Policy Research Program (SAPRP) and Active Living Research (ALR). One area of less than high consensus surfaced regarding program strategies, namely, the strict limit on funding for game design and development within the grant making component. This issue has been aired among program leadership and the strategy maintained due to the limited amount of funding available to grantees (\$4 million for 24 to 30 studies), although concerns remain for a few program leaders.
- **Program outputs**—Some program outputs could be better defined; specifically, what are the expected synthesis and dissemination products and communications products? (Note that it may be too early in the program's evolution to determine the former.)

FEASIBILITY

Overall, the HGR program design seems feasible to implement, albeit with a highly intense effort on the part of all stakeholders, particularly the NPO. Key points regarding feasibility are

• Leadership—RWJF leadership seemed very satisfied with the selected NPO and NAC as the appropriate leadership for the program. Interviews with some program leadership members indicated that they would like to see NAC members more informed and involved in guiding the program and being ambassadors to their constituencies. In addition, the aggressive timeline for awarding the first round of grants, though achievable with tremendous effort, made it difficult to develop program infrastructure (e.g., hire deputy director, develop Web site and searchable database) during the first implementation year.

- **Grant making**—Most stakeholders, including core program leadership, thought that the total of 112 applications in response to the Round I CFP indicated early evidence of healthy demand for the grants, a judgment with which the EA team concurs on the basis of the history of other RWJF research programs. Program leadership also was generally satisfied with the appropriate focus and scientific quality of proposals that were awarded grants. This seems an early indication that the CFP attracted the kinds of studies expected. However, a concern surfaced regarding whether the proposals devoted enough effort to examining health outcomes. Another concern was whether there were enough applicants versed in appropriate theoretical bases for this research and thus in deriving design principles. To the extent that these concerns are validated, the feasibility of the program to assess effectiveness and produce theory-based, replicable design principles could be compromised.
- Synthesis and dissemination of research—Although it is early in the program's evolution for this task, the question arises: Could research briefs and additional documents be developed on the basis of what is already published and/or in the field, even before the first round of studies are completed? The ALR employed this strategy to accelerate enhancing the evidence base.
- **Communications**—Some early signs with respect to feasibility are encouraging: One annual meeting has already been conducted with a reportedly high degree of success for grantees and program leadership. Further, the NPO has already been working with a communications firm to generate media coverage for the program and field, and has generated \$3 million worth of coverage. For other components, the NPO has started developing tools for the field, such as a Web site and online searchable database of resources. However, the development of mechanisms for intraprogram communication (among researchers, with NAC members) seems to have lagged behind what NAC members and grantees needed in the late spring and summer of 2008. This may be due in large part to the aggressive timeline from the Foundation for issuing the first CFP and awarding the first round of grants coupled with the delay in hiring a deputy director. Since the EA interviews, the NPO has held conference calls with grantees and special interest groups of grantees, and developed WebOffice accounts for three groups: grantees, NAC, and Pioneer Team/NPO to enable online document sharing, communication, and collaboration.
- Sustainability—Program leadership may be underestimating the challenge of achieving sustainability. Other RWJF research programs have found sustainability for themselves and their fields highly challenging. Leveraged studies worked well for SAPRP and ALR; however, bringing in other private and public funding organizations to take over funding for the research area has been challenging. (Toward the end of the first 6 years, ALR's ratio of funds awarded to funds leveraged by grantee investigators was 1:1. After approximately 11 years, SAPRP's ratio of funds awarded to funds leveraged by grantee investigators was 1:2.5.) External factors that seem to have inhibited systematic funding from other organizations include constrained Federal funding for applied research, reluctance of other funding organizations to take over an area already associated with another funding organization (i.e., RWJF), more conservative or slower evolution, and decision-making by Federal funding organizations. Constrained NPO time and resources are the internal factors that tend to make securing other resources challenging. The internal factors may be ones that RWJF could ameliorate.

- Staffing and resources—Hiring a deputy program director was challenging and required approximately 10 months. Possible factors contributing to the amount of time required include the following: The university has an extremely lengthy process for establishing, approving, recruiting, interviewing, reviewing, and hiring for new positions; the position was funded as a part-time position so there were very few candidates; and the program is so cutting-edge that there were no candidates who possessed the media research and/or behavioral health expertise required for the job. This, coupled with the very aggressive timeframe for implementing the first round of grant making, created some stress and confusion for the NPO and grantee investigators, and a probable lag in developing other program infrastructure, notably intraprogram communications mechanisms.
- Partnership with the Games for Health Project—It is also premature to assess how well this partnership arrangement will work out. Thus far, the Games for Health Project has participated in guiding HGR, and the first annual meeting and the Games for Health conference were held consecutively in May 2008. It currently appears feasible that the relationship will lead to increased connections and partnerships between games developers and researchers, although there is some lack of clarity in delineating where the convening and communications roles expected of the program begins for one and ends for the other.
- **Timeframe**—The timeframe for getting the program up and running was extremely tight or *"highly aggressive,"* as one informant worded it. Eight months was an extremely brief timeframe (based on other RWJF programs) for an NPO to staff itself, select an NAC, develop a CFP, review and award grants, and host a first grantee meeting. Most non-RWJF stakeholders commented on this, finding it very stressful. There were several implications of the tight timeframe that may impact the feasibility of the HGR program:
 - Grantee investigators noted that they wished that the communications mechanisms and tools were already in place to support their grants at the time that their grants were awarded or soon thereafter, and particularly that a process was already in place for discussing and agreeing on common measures and outcomes for studies. They were unable to talk with each other as readily and when they did, they were not using a common language.
 - Program leadership did not have a fully shared vision of the program goals, strategies, output, and especially outcomes. The compressed timeframe for awarding the first round of grants seemed to preclude more than cursory discussion of the program design, as well as of the role of NAC members beyond grant review.

V. EVALUATION POTENTIAL

EVALUATION INFORMATION AUDIENCES AND NEEDS

Interviews with core program leadership indicated that an evaluation should be designed to inform the following key audiences: (1) RWJF Pioneer Team, (2) NPO director and staff members, and (3) the research field, including researchers and funding organizations. The research needs reported can be described relative to the two primary audiences, the Foundation and non-RWJF program leadership, although some needs are overlapping. The Foundation needs to center primarily on decision-making when the Program's current tenure ends, and decisions need to be made about the next steps regarding this area of investment. As one Pioneer Team member stated: "So, from a very practical sense we're going to need to get offensive, continue the path, or declare victory, or alter the path, or declare failure. Is there a road that we didn't take that we need to take (to achieve goals)? "Another Pioneer Team member added: 'It's not about the research, you can do research until you're blue in the face. There's no business model, and there's not likely to be one until some basic issues around the healthcare economy are fixed." On the other hand, the Foundation might receive numerous indications that this initiative is working, it just needs to keep working longer. Positive indicators might mean "we've achieved lift off" and no further investment is needed in this area. Additionally, the Foundation's needs for information were summarized as "How do you measure building a field? What are the metrics to measure that?"

Some indicators of success offered by Foundation staff members were the following:

- Trend in attendance at Games for Health conferences
- Scientific quality of research results
- Number of publications in peer-reviewed journals
- Proportion of publications cited
- Whether HGR studies spawn additional studies and work
- Whether other funders move into this space
- Whether there are early adopters of games in health care or health behavior and public health

Foundation staff members were also interested in lessons about evaluation design and methods from HGR that the Pioneer Team might apply to other programs. What might be pioneering ways to undertake evaluation?

In addition to assessing outcomes, non-RWJF program leadership wanted the evaluation to provide guidance for improving program implementation, including criteria and guidelines for prioritizing strategies and activities. Summative evaluation needs generally overlapped with those of RWJF staff member, such as:

- Were the stated goals achieved?
- Did the outcomes happen? To what extent? How do you know what the program did compared with what would have happened without it?
- What happened that we didn't expect? Did we respond to new opportunities? Were there unexpected side effects or positive effects?

EVALUATION CAPACITY

Stakeholders seemed generally very receptive to evaluation, as might be expected among researchers, although concerns regarding burden were present. Similarly, the NPO seems to have a high skill level and willingness to cooperate or partner with an evaluation but is stretched to the limit currently and for the foreseeable future with managing other aspects of the program. The NPO is working to develop a searchable, interactive online database for the program which could also serve as a source for some evaluation information. At this point, the NPO has worked with a consultant to create a specifications document, and an RFP will soon be distributed to find a developer to create the system. In the meantime, the NPO is gathering content for the database and working with a communications firm to develop the information architecture on the program Web site to display the database.

Additional likely data sources noted by the EA team were the following:

- Convening and communications
 - Games for Health conference attendance records and evaluations
 - HGR grantee meeting attendance records and evaluations
 - Media searches and documentation (to be conducted by a media relations firm) to identify the number and type of media "hits"
- Outputs
 - Program database—In addition to the number and characteristics of applicants and grants awarded, the NPO could collect data from grantee investigators on the number and type of the following items: (a) gray publications, (b) presentations, (c) articles submitted to peer-reviewed journals, (d) articles published in peer reviewed journals, (e) editorials, and (f) other relevant kinds of publications
 - National publications databases
 - National citation databases
- Short-term outcomes
 - National publications databases
 - National citation databases
 - National Institutes of Health (NIH) requests for applications and proposals, and NIH grants database (requests for applications (RFAs) from other funding organizations to determine whether other funding organizations are starting to invest in similar research
 - Scientific and other conference proceedings to determine the breadth and depth of research and discussion about games for health and health games research

EVALUATION ISSUES AND OPTIONS

Key considerations in designing an evaluation of HGR are as follows:

Logic model—It is important to have an explicit, clear, plausible, and agreed-upon program design to guide the evaluation focus and analysis. Subsidiary conceptual frameworks or theories also may be useful, such as ones regarding "field building" (Hirschhorn & Gilmore, 2004), on the role that research plays in policy and practice (Kindgdon, 1984; Weiss, 1979, 1998; Weiss, Murphy-Graham, & Birkeland, 2005), or how health care and health practice/systems change happens. However, we are aware of limited conceptual and

empirical resources regarding field building, and additional reviews would be useful (see Recommendations below).

- Rigorous design/causal attribution—It is generally not appropriate to employ a rigorous, experimental, or even quasi-experimental design to evaluate outcomes for this kind of multicomponent, broad, field-building program. It also may not be feasible if there are limited resources. Without this type of rigorous design, causation of outcomes cannot be attributed directly to the program but must rather be inferred from a more "ecological" type of design (Babylon, 2008; Columbia University, 2006) wherein in-depth description and temporal monitoring of the program is implemented with data collected on important components. Determining or even inferring causation for HGR outcomes is complicated further by the "*riding the wave*" nature of this program. One is not trying to infer or determine in this evaluation whether something or anything happened, but rather whether more happened and perhaps at a faster pace than without the program. A main evaluation design option for this kind of program is an in-depth case study using qualitative and quantitative methods.
- **Timeframe**—Estimating the timeframe for measuring outcomes is challenging for all programs, but especially for research programs due to the lengthy research pipeline consisting of funding awards, implementation, analysis/writing, submission for publication, and publication, to say nothing of the additional time for accumulation of evidence and synthesis and dissemination of findings. Thus, estimating a realistic timeframe for expecting to see even short-term and intermediate outcomes is essential. However, a detailed process evaluation of HGR could provide the necessary information to estimate a more realistic timeframe for subsequent rounds of HGR and other field-building initiatives.
- Measurement of outcomes—At various levels of analysis (individual attitudes, interests, and behaviors; broad clinical and public health practice; a research field, products development, and industry) in a cutting-edge, multidisciplinary field, outcome measurement can be complicated and costly. Contributing factors are that fewer data sources exist; it is more difficult to define the population of game developers/industry or relevant investigators; and there are more groups to sample. It also may be more difficult to identify opinion leaders who are not already involved in the program.
- Burden on NPO—The NPO is in a university setting and the director is a senior researcher, both positive factors for evaluation capacity. On the other hand, the NPO is stretched to the limit to implement this program in the allotted timeframe, at least thus far, so burden on the NPO for evaluation would need to be limited. Burden on NAC members and other stakeholders is also a consideration.

VI. RECOMMENDATIONS

Recommendations are provided in three areas: enhancing program design plausibility, enhancing program feasibility, and evaluation.

PLAUSIBILITY OF PROGRAM DESIGN

- 1. Discussion of the logic model among program leadership, especially core program leadership, can help to make the components and linkages more explicit, consensual, and useful in guiding the program and evaluation. In these discussions, it is especially important to achieve consensus on expected outcomes and degree of program control expected for each outcome area and type (short-term, intermediate, long-term), as well as the issues of program dose and timeframe overall and for each type of outcome. Such discussions have already begun between the NPO director and the lead RWJF Program Officer facilitated by the EA team. These discussions need to be continued then expanded to additional program leadership groups (NAC, Pioneer Team). The product would be a working logic model to guide the program and evaluation, including consensus on the varied desired outcomes for the program. Though consensus is reached on the logic model on the basis of current activities and desired outcomes, the model would be expected to evolve over time as the program evolves.
- 2. Program leadership should create a strategic plan for progress on sustainability, featuring clear expected outputs and outcomes fort this program component. Development of this plan should include the role of the NPO, RWJF staff members, and NAC, and could also include background discussions with other RWJF research programs about strategies utilized and lessons learned.
- 3. Program leadership should create a strategic plan for synthesis and dissemination sometime soon (perhaps after the second round of grants are awarded), which would also feature clear expected outputs and outcomes. Development of this plan could include discussions with members of other RWJF research programs about strategies utilized and lessons learned.

FEASIBILITY OF PROGRAM IMPLEMENTATION

- 1. Elongate the timeframe for grant making if possible in order to give the NPO more time for infrastructure development, especially NAC engagement, intraprogram communications, mechanisms/tools, and strategic planning.
- 2. Provide the NPO a chance to discuss and learn from other RWJF research fieldbuilding programs that are much further along, notably SAPRP, ALR, and Healthy Eating Research (HER), and Health Care Financing and Organization. This would include giving the HGR deputy director ample time and opportunity to discuss the deputy director role with other longstanding NPO deputy directors.
- 3. **Stage discussions between the HGR, NPO, and Games for Health leadership** about the role of each partner program and how they can achieve maximum complementarity.
- 4. Identify and implement strategies to **engage NAC members** more in guiding the program and being ambassadors to their constituencies. Potential strategies could include developing a PowerPoint presentation for the NAC members to use along with other promotional

- 5. materials that can easily be distributed and/or featured on their respective organizational Web sites or in their newsletters. The NPO also could provide the NAC members and other relevant parties with brief e-mail updates on grantee progress. To minimize the amount of data collection associated with this task, perhaps the updates could focus on highlighting the efforts of one grantee per month. These e-mails could also be sent in a format that facilitates posting to organizational Web sites and/or easy inclusion in newsletters. Lastly, the NPO could conduct a brief, one-time, low-cost survey, using a system like SurveyMonkey or Zoomerang, to determine the NAC members' informational needs and preferences for regular communication with the NPO. The NPO for the ALR program has been exemplary in this regard and could provide useful ideas and lessons learned.
- 6. **Commission low-cost, groundbreaking papers** on theory, key conceptual issues, and/or systematic literature reviews. This might help develop the theoretical and empirical underpinnings for current health games research and increase awareness among researchers of the common conceptual and theoretical basis for the field. The ALR program has done an excellent job of this, and HER is in the process of implementing this strategy.

EVALUATION

The EA findings indicate that the HGR Program is, or can be, ready for evaluation with the right supports in place. Given program design level of plausibility, early indications of program implementation feasibility, and current level of commitment and dedication of the NPO and other stakeholders, it could be cost effective to invest in an evaluation that would provide much-needed information not only for the RWJF Pioneer Team and the rest of the program leadership, but also for the world of health games research and for other Foundation initiatives that are attempting similar field-building approaches.

We recommend an evaluation that uses the working logic model being developed as the underpinning and focuses foremost on responding to the needs of the RWJF Pioneer Team (and the rest of the Foundation) and the rest of the program leadership, while at the same time offering some useful information for the broader research community and field. The evaluation would examine process/strategies implemented, products and outputs, and at least some outcomes represented in the logic model. Careful consideration needs to be given to the timeframe for outcome evaluation, using estimates of time needed to produce the short-term, intermediate, and long-term outcomes. Similarly, careful consideration needs to be given to resources available for evaluation and the synchrony between those and an evaluation plan.

Key recommendations within this framework are as follows:

Focus

Prior to designing the evaluation focus and methods, a literature review and/or "think piece" should be developed on theory and concepts pertaining to field building, particularly research field building. In the meantime, a useful, practical, simple conceptual framework for field building might have three parts (Gutman et al, in press): (1) intellectual resources: theory and conceptual models, completed and published studies, and measurement tools and methods, findings, synthesis products, and a cumulative evidence base; (2) human resources: investigators enlisted in the research area, their commitment to the area, continued work in the area, effect on teaching, bringing in new and young investigators, connections and partnerships among researchers and between researchers and end users, game

developers/industry, and health care and health professionals; and (3) financial resources: leveraged funding and grants and additional RFAs and dollars stimulated from other funding organizations.

It is probably not practical to evaluate the long-term program outcome—improvement of health care, public health, and health outcomes. It is too distal, and the causal chain may be too complicated by other confounding factors that may be nearly impossible to disentangle, even with sufficient resources. Instead, the main evaluation questions could focus on strategies/activities, outputs, and expected short-term and intermediate-term outcomes:

- To what extent did HGR accomplish the strategies and activities and outputs expected?
- To what extent did HGR accelerate improved evidence on health games, including effectiveness, and attendant contributions to the theoretical basis and principles of game design?
- To what extent did HGR build human resources for this field, including investigators committed to and involved in this area of research, and connections and partnerships among researchers from diverse disciplines, and between the research world and the game world?
- To what extent did HGR increase financial resources for this field, including investment in health games research and game development?
- To what extent did HGR enhance interest in health games and use of health games findings by researchers and game developers/industry and more favorable attitudes to health games among the same groups?
- To what extent did HGR accelerate development of more effective, evidence-based games?
- To what extent did HGR accelerate and/or increase the use of games in health care and health behavior practice?

Design

These recommendations are preliminary and would probably shift, depending on the results of refining the evaluation focus. Currently, we recommend a prospective descriptive indepth case study utilizing repeated measures and both qualitative and quantitative data. One component of the evaluation could focus on program process and outputs, while a second component focuses on expected outcomes. The study should also be both formative (although the timeframe is very brief for that), providing feedback for program leadership, and summative. Repeated measures over 5 to 6 years could track trends in building the health games research field, as well as relevant changes in game development and production, and utilization of health games in health care and public health.

For example, development of the nascent field of health games research could be tracked by analyzing the published and gray literature to determine changes in the quantity, quality, and scope of research; and data on attendance at selected conferences (number of game developers, number of researchers, number of health care/public health providers). A parallel tracking would focus on health games development and production by collecting data on the quantity, quality, scope, and focus of health games, and on the use of research evidence and researchers to help develop them. This information then could be used to assess changes in expected outcomes during and after HGR.

Would a retrospective case study be just as useful and appropriate for this program as a prospective case study? The answer to this question depends on several methodological and practical trade-offs. A retrospective case study typically consumes fewer resources and imposes less burden on the NPO and other stakeholders. By contrast, it does not provide formative feedback to the program leadership, and interview and survey information reported by stakeholders can be limited and even biased by the passage of time and events. For capturing outcomes, the main questions about retrospective data collection are whether archival data will exist and be accessible to capture important outcome indicators (both cross-sectional and over time), and the extent to which repeated measures over time are important for data where archival data will not exist.

• Appropriate methods to utilize with the focus and design described above could include the following:

• Qualitative

- a. Interviews with HGR grantees and program leadership
- b. Interviews with opinion leaders in (a) game development/industry, (b) health care and health behavior/public health, and (c) health games research. Respondents for these interviews could be identified by using "snowball" sampling techniques, wherein one opinion leader suggests others to talk to. To facilitate conduct of the interviews, the interviews can be scheduled to occur during the Games for Health annual conference.
- c. Content analysis of funded studies, their findings, and synthesis products (HGR and other key areas supported by other funders) to identify the following:
 - 1. Results net on effectiveness
 - 2. Results net on theory and game design principles
- d. Alternatively, expert panels of nongrantees, rather than a content analysis, could be used to assess these issues. Specifically, three panels may be helpful:
 - 1. A panel of game developers and producers to comment on the perceived usefulness of research findings, evidence, and design principles generated by HGR grantees and the field.
 - 2. A panel of health care and public health providers to comment on perceived usefulness of health games for practice, the actual extent of their use, and perhaps perceived barriers to use.
 - 3. A panel of health games researchers that are not involved with HGR to comment on the scientific quality of the studies conducted by the HGR grantees and the studies' perceived usefulness and contributions to building the field of health games research.

• Quantitative

- a. Survey of grantee investigators
- b. Surveys of (a) health games field (i.e., attendees at Games for Health and other relevant meetings), and (b) health care and public health systems, to assess the following:
 - 1. Increased interest in and familiarity with health games and the evidence
 - 2. Increased favorable attitudes, acceptance
 - 3. Use of health games in practice (b only)
 - 4. Facilitators and inhibitors of use of health games (b only)

5. Facilitators and inhibitors of development and production of effective health games (a only)

These data could also be collected at the Games for Health annual conference. Perhaps a fun, innovative data collection mechanism can be created to ease the burden of data collection on the respondent and increase the likelihood of participation. One possible mechanism may be a portable, attractive kiosk that can be prominently featured in high-traffic areas and that provides meaningful incentives for completing a brief survey.

- c. Analysis of relevant publications, citations, RFAs, NIH grants, and leveraged grants by HGR, etc.
- d. Analysis of attendance and individual evaluations at HGR and Games for Health meetings and conferences (and perhaps other pertinent scientific and game conferences)

Table 4 provides a crosswalk between the recommended evaluation questions and recommended data collection strategies.

	Qualitative				Quantitative				
Evaluation Question	Interviews with HGR Ieadership	Interviews with HGR grantees	Interviews with key opinion leaders	Content analysis of funded studies	Survey of grantees	Survey of field	Analysis of publications, citations, and other agency funding requests	Evaluations of HGR and games for health conferences and meetings	Proposed program database
To what extent did HGR accomplish strategies and activities and outputs expected?	х	х		х	х		х	x	х
To what extent did HGR accelerate improved evidence on health games, including effectiveness, and attendant contributions to the theoretical basis and principles of game design?	х	x	x	х	х	x	х		
To what extent did HGR build human resources for this field, including investigators committed to and involved in this area of research, connections/partnerships among researchers from diverse disciplines, and between research world and the game world?	х	x	х		х	х	x	x	
To what extent did HGR increase financial resources for this field, including investment in health games research and game development?	x	x	x		x	х	x		
To what extent did HGR enhance interest in health games and use of health game findings by researchers and game developers/industry and more favorable attitudes to health games among these same people?	х	x	x		x	х			х
To what extent did HGR accelerate development of more effective, evidence- based games?	х	х	х		х	х			
To what extent did HGR accelerate and/ or increase the use of games in healthcare and health behavior practice?	х	х	х		х	х			

Table 4. Evaluation Questions and Recommended Data Collection Strategies

VII. CONCLUSION

The EA findings suggest that HGR is, or can be, ready for evaluation with the right supports in place. Given the degree of program design plausibility, feasibility of program implementation, and level of commitment and dedication of the NPO and other stakeholders, it could be cost effective to invest in an evaluation that would provide much-needed information not only for the RWJF Pioneer Team and the rest of the program leadership, but also for the world of health games research and for other Foundation initiatives that are attempting similar field-building approaches.

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APPENDIX A HEALTH GAMES RESEARCH (HGR) INTERVIEW GUIDE

HEALTH GAMES RESEARCH (HGR) INTERVIEW GUIDE

Introduction and Informed Consent Statement

Hi. My name is ______. Thank you for giving us this opportunity to discuss your program. We will do our best to stay on track. This should take no more than 1 hour (2 hours for lead administrators) of your time. You have received (by fax or email) a copy of our informed consent statement, and can follow along.

I am completing what is called an pre-evaluation assessment. As you may remember from what we shared when you were invited to do this interview, Macro International Inc., on behalf of the Robert Wood Johnson Foundation (RWJF) is conducting interviews as part of this pre-evaluation to assess HGR readiness for evaluation.

- The pre-evaluation is not about measuring the program's outcomes.
- The pre-evaluation is not about measuring whether the program is effective.
- Rather, through the pre-evaluation, we hope to learn from your program and, where possible, provide insights by suggesting areas for improving program performance and evaluation potential.

The pre-evaluation assessment will consist of interviews with key participants from the project management, National Advisory Committee, partners and grantees. We are asking you to participate in the study by answering our interview questions. The questions ask you to describe your experiences with and expectations of the HGR Program, including any challenges and facilitators you may have encountered.

You were chosen for this interview based on your involvement in the Health Games Research Program. You are the expert on your experience, and your opinions and thoughts really are invaluable.

Your answers to the interview questions will be kept confidential, except as otherwise required by law. Your interview will be audio taped in order to produce an accurate transcript of our discussion. Handwritten notes will also be taken. Both the transcripts and handwritten notes provide the data that will be analyzed and presented in the summary report that will be produced for the RWJF Program Officer. The audiotapes, transcripts and handwritten notes will all be destroyed upon conclusion of the project.

Unless you request otherwise, we will include your name and your role/title as a participant in the section of the summary report that lists all the individuals we contacted. You can choose not to have your name, role or title listed in the summary report, for whatever reason and without penalty.

We will never report your comments by name in the summary report, unless we have received direct written permission from you before the report is shared. Additionally, we will not share interview notes from this or any of the other interviews with anyone outside of our project staff.

This interview poses few, if any, risks to you. You will be asked about your experiences with the Health Games Research Program.

You may choose to end the interview at any time or not answer a question, for whatever reason and without penalty. Participation is completely voluntary. Refusal to participate involves no penalty or loss of benefits.

Your participation in the study involves no prospect of direct benefit to you, but the study will yield generalizable knowledge about the Health Games Research Program.

If you decide to participate, here are some things you should know:

- You may discontinue participation at any time without penalty.
- You may skip any question.
- Any questions you have about this study will be answered before the interview begins. Contact information is provided below for any questions that arise after your participation.
- You will be provided with a copy of this consent form.

If you have questions about your rights as a participant you may contact the Project Director, Michelle Revels, at 404-321-3211.

Do you have any questions before we begin? [ADDRESS ANY QUESTIONS AND THEN BEGIN.] You may keep a copy of the consent form for your records.

Interviewer's Notes

(1)Throughout the interview, you may choose to refer to the draft program logic model as appropriate. Ask about the logic model or, particularly, the stated activities and outcomes. Does the interviewee feel it is an accurate representation of the program?

(2) For this evaluability assessment, the respondent categories are: Lead Administrators (Director of the National Program Office [NPO] and RWJF Program Officer [RWJF PO]), Partners (Games for Health Project), and Stakeholders (National Advisory Committee [NAC] and Grantees).

I. HISTORY

- Feasibility of Implementation
- Feasibility of Adoption
- Transportability/Generalizability
- 1) First let me ask you a little about the background of the program. How long has Health Games Research been in existence? Is there an expected end date? Plans/situation regarding reauthorization? (Lead Administrators)
- 2) What factors led to the development and implementation of the Health Games Research Program? (Lead Administrators)
 - Who started the process?
 - Who was part of the development team?
 - What was the motivation for creating Health Games Research?
 - Was this program/ adapted from an already existing program? How are Health Games Research and Games for Health related?

- Was a needs assessment (literature review or environmental scan) or similar data collection activity conducted prior to the start of Health Games Research? If so, how did this needs assessment (data collection activity) inform the development of the actual program/policy?
- What further development or refinement of the program design occurred after NPO/NAC were involved?
- Were you involved in developing Health Games Research? (Lead Administrators/ Partners/NAC)(By "involved in developing" I mean either at RWJF pre-authorization or, early on after authorization.)
 - If so, what was your role?
 - What, if any, barriers were encountered in developing the program? How were these challenges addressed?

II. DESCRIBE THE PROGRAM

- Potential Impact
- Feasibility of Implementation
- Feasibility of Adoption
- Transportability/Generalizability
- 1) What was the program based on? (Lead Administrators)
 - Specific guidelines or other evidence or experience?
 - Any theory?
- 2) What would you say are the goals of Health Games Research overall? (All Interviewees)
- 3) What would you say are the expected outcomes? What changes do you expect to see as a result of the program? (All Interviewees but mainly Lead Administrators)
 - Shorter-term vs. longer-term outcomes? Causal sequence? (Lead Administrators) (Probe using ideas from LM)
 - What are the expected outcomes for the grantees?
 - How do these expected outcomes contribute to the overall goals of the program?
- 4) Describe the different components of the Health Games Research program. (Lead Administrators, NAC)
 - What are the main strategies/activities?
 - How were these main strategies decided upon? What reasons?
 - For the grant making component of the program:
 - How did you decide upon the selection criteria?
 - How did you decide upon the time limit and amount of funding per grant?
 - What challenges, if any, did you encounter in writing the CFP? How those were addressed?

- What are plans for the next CFP (or other future ones?). How will it be similar/different from the first one?
- Other than grant making, what activities are planned or currently under consideration to help "build the field" of health games research?
- What activities are planned or under consideration to communicate and disseminate findings as they become available?
- How do these activities relate to the goals/outcomes?
- 5) What would you say are the strengths of the Health Games Research Program? (All Interviewees)
 - What factors do you think positively (will) affect the functioning of the program?
- 6) What, if any, barriers have been encountered thus far in implementing the program?(All Interviewees)
 - Political factors?
 - Financial factors?
 - Human resources?
 - What strategies have been used to overcome these barriers?
- 7) What, if any, barriers have you encountered in your work on the program? (All Interviewees)
 - What strategies have been used to overcome these barriers?
- 8) What kind of support does the Health Games Research program receive from RWJF? (Lead Administrators/Evaluators)
 - Financial
 - Technical support, political support, general support
 - Issues with this support? How have/are these challenges being addressed?
- 9) What kind of training or support did you receive to perform your role in this program? What kind of training and/or support is provided to others who work on the program? (Lead Administrator/Staff/Evaluators)
- 10) Has the program been modified since its authorization? If so, why? (Lead Administrators/ NAC?)
 - Based on your experiences thus far, what (further/additional) changes need to be incorporated, if any?

III. STAKEHOLDERS

- Reach to Target Population
- Feasibility of Implementation
- Acceptability to Stakeholders
- Feasibility of Adoption
- Transportability/Generalizability
- Intervention Sustainability
- 1) How would you describe your current role in the program? (All Interviewees)
- 2) How would you describe the target audiences for this program? By target audiences we mean groups whom the Program is aimed to involve and impact. (All Interviewees)
 - Why are X, Y, Z target audiences?
 - What, if any, considerations were made in the development of the program to meet the needs of this target audience(s)?
- 3) Have the target audiences (games, health and communication researchers, game developers, health providers) been involved in the program? How so? (Lead Administrators) Are there plans to do so in the future?
 - How difficult has it been to involve these groups?
 - How well do you think these groups know about the program?
- 4) How well do you think the **general public** knows about this program? What efforts have been made thus far to inform the general public? (All Interviewees)
- 5) How receptive do the target audiences appear to be to the program? (All Interviewees)
 - How have the games developers reacted to it? (What sorts of ways have you captured this information?)
 - How have games, health and communication researchers reacted to it? (What sorts of ways have you captured this information?)
- 6) What benefit have you (your organization) seen from partnering with the program? (Partners)
- 7) Has partnering with the program in any way been a burden on you or your organization (program)? How so? (Partners)
- 8) In your opinion, who else (organizations or roles, not names) needs to be involved with the program? (All Interviewees)
- 9) Over the past year, have any staff-related issues affected your program? If so, in what ways? (Lead Administrators/Staff)
 - Has it been difficult to secure the desired staff?

IV. EVALUATION

- Options for Further Evaluation
- Staff/Organizational Capacity
- 1) For this program and what it is trying to accomplish, how would you define success? (All Interviewees)
 - Has the definition of success changed since implementation began? How? Why?
- 2) Do you think the program is on the road to success? Why? (All Interviewees)
- 3) What evaluation activities are you interested in for the future, if any? (Lead Administrators/Evaluators)
 - What questions would you like to answer?
 - Implementation (big picture)?
 - Impact (big picture)?
- 4) Describe the plan or your ideas for measuring the implementation of the Health Games Research program. (Lead Administrators/ Evaluators)
 - What parts of this plan are being carried out at this time?
 - What data do you think you need?
 - What data do you collect?
 - Who is or could be responsible for measuring/monitoring implementation?
 - Are other staff members involved in data collection? How so?
- 5) How is or could success be measured or documented? Do you have plans for measuring outcomes such as grantee research output (publications, identification and validation of design principles, adaptations to meet the needs of specific populations, dissemination of research findings) and the development of "research field" and/or a community of practice, etc? (Lead Administrators/Evaluators)
 - What are your ideas about appropriate indicators for each outcome area (LM)?
 - Do you have baseline data? Do you intend to collect follow-up data? At what time? (*pre-post or posttest only design*)
 - Do you plan to collect data at specified points over time (*time series*)? What length of time?
 - Do you plan to follow a sample of grantees over time (*cohort study*)? What length of time?
 - What do you think the evaluation activity tell you about the success of the program/policy?

- 6) What are the available data sources? (Evaluators or Lead Administrators*)
 - What data collection tools or instruments are used? (Request to see, have copies of data, data collection tools, or evaluation reports.)
 - Describe the data collection methods used.
- 7) How do you plan to analyze your data? (Evaluators or Lead Administrators*)
- 8) What kinds of data collection have you tried in the past? (Evaluators or Lead Administrators*)
- 9) What, if any, barriers have you encountered (do you anticipate encountering) in evaluating the program/policy? (Evaluators or Lead Administrators*)
 - What effect have political factors had on the evaluation, if any?
 - What effect have financial factors had on the evaluation, if any?
 - What specific strategies have been used to overcome these barriers?

10) Who will see your evaluation reports? (Evaluators or Lead Administrators*)

- Do they appear to want to hear about evaluation results?
- Do they use any of the information you provide? In what sorts of ways?
- 11) What have been some key lessons learned from your experience thus far with the program? (All Interviewees)
- 12) If someone was to work with you to conduct a rigorous evaluation, would your program have the interest and capacity to contribute to detailed data collection? (Evaluators/Lead Administrators)
 - What kind of assistance do you think you would need?

V. FUNDING

- Feasibility of Implementation
- Feasibility of Adoption
- Intervention Sustainability
- 1) How is the program/ funded? (Lead Administrators)
 - Who funds the program and at what level?
 - What other financial resources does this program rely on?
 - How much does the program cost to administer?

^{*} If there is an evaluator (or some other person responsible for evaluating and/or monitoring the program) on the program, ask this question of the evaluator. If the program does not have a designated evaluator, ask this question of the lead administrator.

Probe: What was the general ratio of costs during start-up to ongoing costs? What is the ratio of cost across program components?

- 2) Are non-monetary resources provided for the program (such as people's time, equipment, etc.)? What are they? (Lead Administrators)
- 3) Were there any changes made to the design or implementation of the program in response to the amount of funding received? **(Lead Administrators)**
- 4) Is the funding sufficient to support adequate staffing and other resources to carry out the program activities? (Lead Administrators/Staff/Evaluators)
 - If not, what aspects of the program are affected by insufficient funding? How so?
- 5) Are there any restrictions on the funding that affect the implementation of the program? (Lead Administrators)
- 6) What is your sense of whether the program will continue to receive these resources over time? (Lead Administrators)
 - What do you think the program might do to continue if these resources were not available?

VI. CLOSING

Interviewer's Note

If you have not already done so, ask the lead administrator about the draft logic model. Does s/he feel it is an accurate representation of the program/policy?

That wraps up my list of questions for you at this time. Do you have any questions for me? [ADDRESS ANY QUESTIONS]

• If no questions "Thank you again for taking the time to speak with me. We sincerely appreciate and value your input!"

APPENDIX B LOGIC MODEL FOR HEALTH GAMES RESEARCH

Logic Model for the Health Games Research National Program

Build a field—accelerate maturation, growth of field; improve research of health games and its implementation in game design and usage



Early Assessment of the Robert Wood Johnson Foundation's Health Games Research Initiative