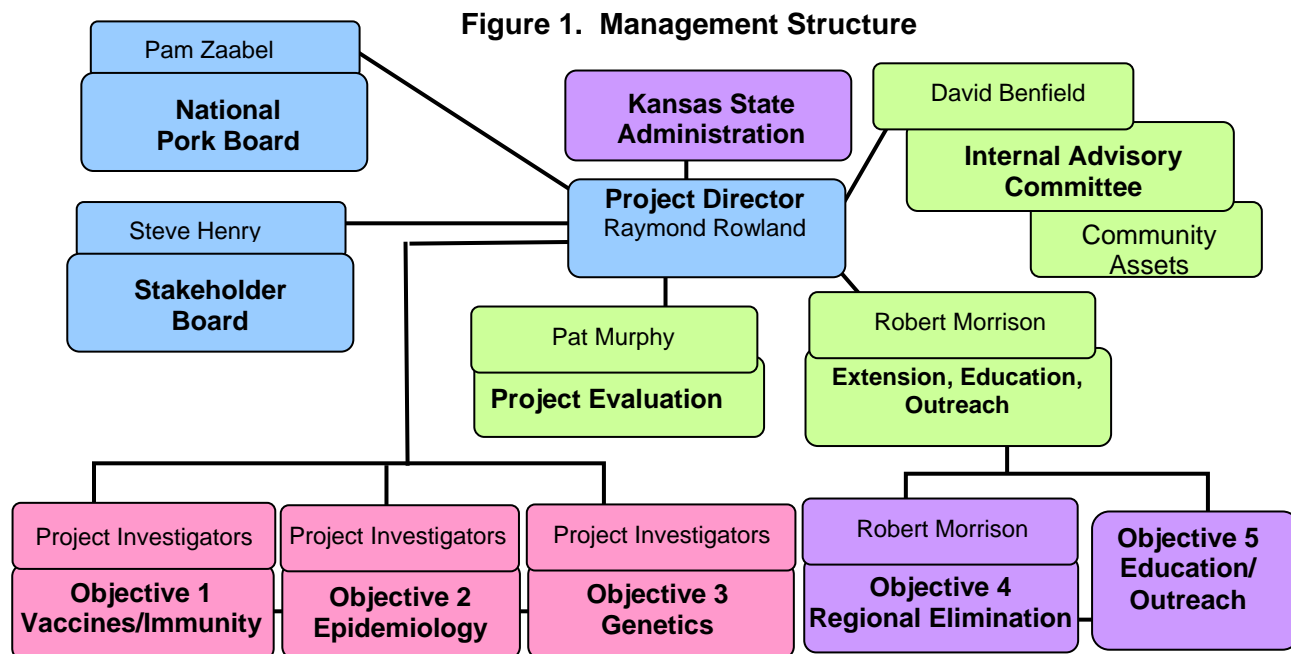


PRRS CAP2 Management Plan



CAP2 organizational map. The overall management philosophy of the CAP is to maintain a balance and coordinate research, Extension, education and outreach activities. The overall management scheme for the project is outlined in Fig.1. The principal components include; the Stakeholder Board, Project Director; Internal Advisory Committee, Extension, Outreach and Education Committee; and Kansas State University administrators. Supporting the management team is the NPB, through its representative, Pam Zaabel and participation on the PRRS CAP Stakeholder Board. NPB contributions to CAP2 are described in a letter of support from Pam Zaabel (**Document of Collaboration section D. Letters of Support from Producers**). Another important component is project evaluation and assessment, led by J. Pat Murphy of K-State Extension.

Stakeholder Board (SB). The PRRS CAP SB plays an active role by providing input on short and long-term goals, participating in proposal selection and evaluating CAP2 activities and progress. Brief biographies and biographical sketches of SB members are found in [Appendix N](#). The SB is chaired by Steve Henry, who is considered one of the most experienced and knowledgeable swine veterinarians in the U.S. He has extensive practical knowledge in the control and elimination of PRRS. His leadership skills are widely recognized within the swine industry and academic communities. Representation is also found in the NPB (Paul Sundberg), AASV (Daryl Olsen), USDA-APHIS (John Korsland), and United States Animal Health Association (Harry Snelson). The SB will have the authority to redirect CAP2 activities and funding. An important role for the board is to lobby for resources in support of PRRS CAP2 activities.

Board decisions, including addition and subtraction of members, are made by majority vote. The process of adding members to the SB will be initiated as needed. Subcommittees within the SB include a Budget Committee, which provides budget oversight and an annual budget review of the project, and the Executive Committee, which provides core leadership within the SB. The Executive Committee is responsible for making the final approval of proposals for funding, preparing progress reports and an annual evaluation of the project. The chair of the SB, will lead the Executive Committee, which is composed of three members previously approved by members of the SB. The Executive Committee is composed of Jay Calvert (virologist and Associate Research Fellow at Pfizer Animal Health), Paul Sundberg (Vice President, Science and Technology, NPB) and Daryl Olsen (veterinarian and representative of AASV). One concept put forth has been to find ways to integrate the different animal CAPs. Both the Johne's and Avian Influenza (AI) CAPs face many of the same stakeholder issues; e.g. vaccines, diagnostics, pathogen biology and epidemiology as the PRRS CAP. This overlap among CAPs was made evident by the participation of Dr. Rowland on the AI CAP proposal review panel. The PRRS CAP will also recruit members of the other CAPs to serve on ad hoc review panels. The project directors for the AI and Johne's CAPs, David Perez and Vivek Kapur, will serve as ad hoc members of the SB. They will receive PRRS CAP updates and information and based on their own experiences and provide input into SB decisions.

Table 1. PRRS CAP2 External Advisory Board (EAB)

SCIENTIFIC MEMBERS

Virology	Udeni Balasarya
Immunology	Artur Summerfield
Epidemiology	Eric Neumann
Diagnostics	Steven Kleiboeker
Vaccinology	Jay Calvert**

SWINE VETERINARIANS

USDA-APHIS	John Korslund
Private Practice	Steve Henry*
Private Practice	Mark Fitzsimmons
Private Practice	Jim Lowe
American Association of Swine Veterinarians	Daryl Olsen**
United States Animal Health Association	Harry Snelson

PRODUCERS/INDUSTRY

Murphy Family Farms	Steve Pollmann
Genus/PIC-Genetics	Montse Torremorell
National Pork Board	Paul Sundberg **
Producer	Jay Hawley

POLICY/ADVOCACY

National Pork Producers Council	To be named
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*Chair of the Stakeholder Board

** Member of the Stakeholder Board Executive Committee

The SB will have two major meetings each year. The first is a face-to-face 1 to 2 day meeting to evaluate progress of the CAP2 management and project objectives, including research, Extension, education and outreach. Pat Murphy will also present a summary of the project evaluation. The second meeting will be held as a virtual conference. On a quarterly basis, members of the SB will receive updated project reports from one of the investigators on a funded project. The purpose is to provide an update on a particular CAP activity and educate board members on important issues. On an annual basis the SB will provide an assessment of CAP2 progress and make recommendations for improving the CAP. The annual report by the SB will be placed in a compendium describing all PRRS activities for the year, which will be available to the public through the CAP website.

Project Director (PD) and Co-Project Directors (Co-PDs). Raymond Rowland, Department of Diagnostic Medicine, College of Veterinary Medicine, Kansas State University was elected Project Director by vote of the PRRS CAP2 Steering Committee. Dr. Rowland, a professor and noted scholar in arteriviruses, has provided leadership on prior initiatives, such as the coordinating writer of the CAP1 proposal and as PI of the “Big Pig” project in PRRS CAP1. Currently, Rowland is the chair of the multi-institutional, multi-disciplinary NC-229 Committee and chair of the 2006 and 2007 International PRRS Symposium organizing committees. The PD will provide the coordination needed to ensure that projects receive funding in a timely manner and that decisions and recommendations made by the SB and committees are carried out. The PD will have the support of a full time administrative assistant, who assists the PD in the daily activities as well as schedule meetings, reply to inquiries and be available when the PD is out of the office. Also supporting the project is a grants manager, Lisa Duer, who will manage the subcontracts and interact with K-State grants administration. Several Co-PDs will assist in the CAP management. Pam Zaabel, Director of Swine Health Information and Research at the National Pork Board, will assist CAP2 by coordinating research priorities with the NPB PRRS Initiative, by avoiding duplication of funding, providing support for new and innovative ideas and developing community research, outreach and extension infrastructure. David Benfield, Associate Director of the Ohio Agricultural Research and Development Center and administrative advisor for NC-229 will chair the Internal Advisory Committee. He is a PRRSV scholar and has experience managing large program projects. Evaluation of CAP2 activities is managed by Pat Murphy, Ag Extension at Kansas State University. He will develop and oversee an evaluation plan for the project (described in more detail in [Appendix J](#)). He will also serve as an Extension advisor. Extension projects are managed by Robert Morrison, University of Minnesota, a pioneer of on-farm PRRSV elimination. He is chair of the Extension, Education and Outreach Committee.

Table 2. PRRS CAP2 Management Team

Name	Institution	Role	Principal Responsibility
Raymond Rowland	Kansas State University	PD	Overall management
David Benfield	Ohio State University	Co-PD	Scientific Coordinator and Chair of the Internal Advisory Committee
Pam Zaabel	National Pork Board	Co-PD	Liaison with the NPB
Robert Morrison	University of Minnesota	Co-PD	Extension Coordinator and Chair of Extension/Education/Outreach Committee
J Pat Murphy	Kansas State University	Co-PD	Project Evaluation Coordinator and Extension advisor

Internal Advisory Committee (IAC)-The IAC represents the depth and breadth of PRRS scientific expertise and is international in composition. The IAC is a sounding board for new research ideas, infrastructure needs, and identifies potentially new project directions. Members are volunteers who possess a scientific knowledge related to pigs or PRRS and have a passion for the project. David Benfield will serve as the scientific coordinator of the IAC. The IAC enjoys a think tank and feedback function within CAP2, including the preparation of a yearly self-assessment report to identify gaps in PRRS research. The IAC members will highlight CAP2 productivity by organizing workshops and preparing publications on important research results. Examples include the organization of workshops on new technologies, discussions of controversies related to PRRS, workshops on diagnostic interpretation and standardization, preparation of special publications in journals, and contributing PRRS CAP research articles to lay publications. The IAC also manages the community assets (see **Facilities and Other Resources**).

Table 4 Internal Advisory Committee Composition

IAC member	Affiliation	Expertise
David Benfield	Ohio State University	Coordinator
Pam Zaabel	National Pork Board	National Pork Board Liaison
D. L Harris	Iowa State University	Vaccines
Dongwan Yoo	University of Illinois	Vaccines
Richard Hesse	Kansas State University	Vaccines/Diagnostics
Fernando Osorio	University of Nebraska	Vaccines
X.J. Meng	Virginia Tech	Vaccines
Mike Murtaugh	University of Minnesota	Immunity
William Golde	USDA PIADC	Immunity
Armin Saalmuller	University of Veterinary Medicine, Vienna, Austria	Immunity
Luis Enjuanes	Universidad Autónoma, Madrid, Spain	Immunity
Federico Zuckermann	University of Illinois	Immunity
Jeff Zimmerman	Iowa State University	Epidemiology/Ecology
Monte McCaw	North Carolina State University	Epidemiology/Ecology
Scott Dee	University of Minnesota	Epidemiology/Ecology
Eric Nelson	South Dakota State University	Diagnostics
Susan Schommer	University of Missouri	Diagnostics
Jane Christopher Hennings	South Dakota State University	Diagnostics
Joan Lunney	USDA-BARC	Genetics
Douglas Smith	University of Michigan	Genetics
Kay Faaberg	NADC	Viral Genetics

Extension, Education and Outreach Committee (EEOC). One recommendation by the review panel was the addition of an Extension committee who could support and direct Extension, outreach and educational activities within the CAP. In response, a meeting was held at the NPB in August 2007, which included invitations to Extension specialists from all over the U.S. The meeting provided an outline of activities to be conducted under the PRRS CAP as described in

Objective 5. Two important functions of the EEOC are the coordination and review of materials placed on the E-extensions portal and the outreach to minorities and minority insitutions.

Table 4. Extension/Outreach/Education Committee

Member	Institution	Expertise
Robert Morrison- Chair	University of Minnesota	Regional PRRS Elimination
Bruce Brodersen	University of Nebraska	Infectious Disease Specialist
Barbara Straw	University of Michigan	Swine Extension
Butch Baker	Iowa State University	Swine Disease Management
Monte McCaw	North Carolina State University	Disease Management and Education
Dale Polson	Boehringer-Ingelheim Vet Medica	Swine Diseases- Risk Assessment
Derald Holtkamp	Iowa State University	Swine Diseases- Risk Assessment
J Pat Murphy	Kansas State University	Ag Engineer and Extension
Pamela Zaabel,	National Pork Board	NPB Education and Outreach

Management of Research, Extension and Education Funding

Funding of Research Projects. A significant departure from CAP1 is in the funding and management of research, Extension and education. The PRRS CAP2 Steering Committee made several recommendations on funding priorities, including a primary emphasis on technology and tools related to vaccines, immunity and epidemiology, and a secondary emphasis on host genetics and diagnostics. These areas were distilled in the three research objectives; vaccines/immunity, epidemiology/ecology and host genetics. The steering committee also recommended that CAP2 fund large multi-year research projects. CAP2 will support funding of single research projects up to \$250,000 per year for up to four years. The funding of large multi-disciplinary, multi-institutional projects makes the CAP2 project distinct from other funded PRRS research and provides the best opportunity to pursue expansive, high-risk approaches. Consistent with the goals of the CAP, projects will be required to be multi-disciplinary and multi-institutional. Investigators submitting CAP2 requests for funding will be required to leverage the project dollars through a match of at least 25%. All participants in CAP research will follow the Guiding Principles described below, including the sharing of reagents and data with other members of the PRRS community.

The request for applications (RFA) is initiated by the SB, which will provide information on the areas to be funded and the instructions for proposal submission (see [Appendix K](#) for a draft of the CAP2 RFA). In addition to research funding, the RFA contains announcements for Extension and outreach funding opportunities. The RFA will be announced and made available in January or February, 2008. As for CAP1, passive venues for the distribution of RFAs include the PRRS website, NPB website, PRRS CAP Newsletter. Active outlets include direct emails to CAP1 participants, attendees of the International PRRS Symposium, Conference of Research Workers in Animal Disease (CRWAD), American Association of Veterinary, Immunology (AAVI), American Association of Swine Veterinarians, (AASV), American College of

Veterinary Microbiology (ACVM), and research directors of minority institutions. These venues reach an excess of 500 individuals in over 20 institutions in North America, South America, Europe, and Asia.

Research applications (Objectives 1-3) will adhere to the USDA guidelines for standard NRI applications, with the exception of a 12 page limit. Application and review are similar to those utilized for the Avian Influenza CAP. All submitted research proposals will undergo a two-step review. The first is peer review by research and Extension experts. External reviewers will be proficient in the scientific area identified in the application and only projects meriting successful peer reviews will be considered for funding. Based on a ranking score and priority, the SB will make the final selections of funded projects.

Process for Review and Funding of Research and Extension Applications.

- 1) Based on the number of applications received and research areas covered, the SB and PD will assemble a panel of reviewers and if needed include experts from the Avian Influenza and Johne's CAPs. Sufficient reviewers will be selected so that each grant will receive three reviews (primary, secondary and tertiary).
- 2) All reviews will be done anonymously; however, the names of the panel members will be made available in the annual report prepared by the SB. All reviewers must meet the NIH and USDA conflict of interest guidelines. The guidelines include a review and understanding of the NIH publication "**NIH conflict of interest, confidentiality and non disclosure rules: information for reviewers of grant applications and R&D contract proposals**". All reviewers will sign pre-review and post-review certification forms. Individuals who signed onto a CAP2 research proposal or applied for funding from CAP2 are excluded as reviewers.
- 4) Members of the review panel will meet to evaluate and rank proposals. For each proposal, the primary reviewer presents an evaluation of the proposal. Proposals will be evaluated for relevance, scientific merit, innovation, likelihood of success, budget justification and the experience and credibility of the investigators. These same criteria are applied to the evaluation of USDA and NIH research applications. The secondary reviewer presents an evaluation of the proposal using the same criteria. The tertiary reviewer presents only a summary of his/her evaluation of the proposal. Each proposal is discussed by the entire panel the each eligible (non-conflicted) panel member scores the proposal. The scores are totaled and averaged. The average score and reviews are submitted to the SB.
- 6) The SB will evaluate the panel scores and written evaluations and then rank the proposals for funding. The SB may discuss specific rankings with the panel via conference call. The SB will select proposals and make recommendations on the level of funding. Selection of a proposal for funding is based on majority vote. The recommendations of the SB are forwarded to the SB Executive Committee for final approval.
- 7) Awardees meet to design and implement a plan on how each project can be integrated. This would include removing duplication, sharing of reagents, etc. This integration is maintained through quarterly conferences (virtual or by phone call) among investigators.

8) The RFA for extension and education activities will be widely distributed, including the notification of minority institutions (see [Appendix K](#)). The process of application for Extension projects, described in Objective 4, is a two page pre-proposal, including draft budget. Dr. Morrison will bring together Extension and virus elimination experts to review the pre-proposals and select projects for further development. Selected projects are approved for funding by majority vote of SB.

Evaluation of PRRS CAP. On a yearly basis, all members of the CAP, including the SB, IAC, EEOC and funded participants will meet for a 1 to 2 day PRRS CAP conference. The meeting will also be open to other participants, including the NPB, AASV and the public. PI's who receive research and Extension funding will present progress reports to the group. The IAC and EEOC will also present progress related to their activities. A summary report will be made by the SB and include recommendations for continued funding of research and Extension projects. Based on an assessment of a project's progress, continuation of a project at an appropriate level of funding will be determined by the SB. This management model provides the flexibility for an investigator to stop work on an unfruitful area of research and pursue new areas with greater research promise. This philosophy is consistent with the stakeholder's view that research and Extension should address relevant issues. A description of all CAP activities, including important outcomes, impacts, reports, plans of work, activities assessment, evaluations, etc., will be assembled into a single compendium and distributed to stakeholders via the CAP website and by hard copy.

On a quarterly basis, a brief (less than one page) web-based written report will be generated by the principal investigator of each project. This report will be in the form of a bullet list indicating progress towards milestones and problems encountered. This will be followed up by a conference call between project participants. Periodically, a single principal investigator will present a research update to members of the SB. This will be in form of a virtual conference.

Research progress by CAP2 will also be discussed with the larger PRRS research/extension community through presentations made by CAP2 participants at the annual International PRRS Symposium as well as related producer and swine health meetings.

One recommendation by the review panel was an evaluation plan that would document the ongoing progress of CAP2. The plan and its implementation will be headed by Pat Murphy, K-State Extension and results of the progress assessment presented and discussed at the annual meeting. A description of the proposed evaluation plan is found in [Appendix J](#).

Governing Principles for All CAP2 Participants. The unique and powerful advantages that come from coordinated research activities are not without obstacles. Thus, to maintain the focus on the swine industry's need for assistance in the elimination of PRRSV, CAP2 participants agree to the following governing principles:

- 1) We participate in CAP2 with the recognition that reducing the economic impact and animal welfare hardships caused by PRRSV is the priority of the CAP2 program. Our commitment is to the stakeholders who support our efforts.

- 2) We recognize that funding decisions are made based on merit and the priorities set by the stakeholders.
- 3) We will readily share all materials, reagents, and data generated through CAP2 research, extension and outreach activities. This will be done with the understanding that the processing of material transfer agreements and confidentiality statements will be expedited with all due speed.
- 6) We will support the growth and career development of young investigators.

Data management and Sharing. Data integration across institutions and participants is very important to fully realize the potential of CAP2. In CAP1 it was found that, because of the variety of data collected, there is no single, ideal database software. To address the need for data sharing, each principal investigator will be required to describe a plan for providing data in a software format that is generally accessible. This mechanism will provide a resource for independent analyses of data and avoid unnecessary duplication. In addition, separate databases will be developed through the genetics and epidemiology objectives. For example, James Reecy, at Iowa State will be developing a relational database for the genetics studies conducted by the PRRS Host Genetics Consortium. This database will be accessible by the PRRS community. All funded principal investigators and collaborators will be required to sign an agreement prior to receiving funding that data will be made available to CAP2 researchers upon request. The issues related to intellectual property protection were resolved during CAP1 by having all funded investigators sign a written agreement making data available but allowing each institution to pursue intellectual property rights. Access to PRRS CAP data would be gained through the CAP website.

Communication. Communication is an essential component of the PRRS CAP. Group communication under CAP1 was expedited through emails, conference calls, and annual or bi-annual face-to-face meetings. Besides face-to-face meetings, CAP2 will develop the means to conduct virtual conferences using web-based technology. This solution is built around GoToWebinar, which allows online screen sharing, on-line chat, freehand highlighting and drawing. Any particular meeting can have multiple presenters, or people in control of what others see on their screens, but can only have one presenter at a time. The current presenter can give screen control to someone else. The voice-bridge part of this solution will include an open source PBX system known as Asterisk. It provides both VOIP support with call conferencing capabilities. Asterisk features: (1) no limit on the number of conference calls, (2) recording of conference calls, (3) extension-based dialing, much like a standard phone system, (4) voice mail system with messages automatically E-mailed to the recipient, and (5) unlimited usage and can be used as a private, toll-free phone system between project members. Terry Hull, President of Network Resource Group, Inc., Manhattan, KS, will set up and manage virtual CAP2 communication. This asset will be available to all CAP2 participants.

Beyond CAP2- Developing a Self-Sustaining Strategy. The community of researchers, which form NC-229, laid the foundation for the first PRRS CAP. The PRRS CAP has been further expanded to include a larger research community as well as the establishment of several community assets. NC-229 and the community assets will continue beyond CAP2. A more important question is the fate of PRRS program project funding. As described throughout the proposal, the CAP2 SB has multiple roles. One important goal for the SB will be to develop a

business plan that preserves funding for PRRS research, extension and education. One scenario is the creation of an endowment or foundation with financial support from the stakeholder community. For example if the CAP2 can show sufficient impact to the swine community to receive the equivalent of one penny for each pig marketed in the U.S., this would be equivalent to \$1 million/year. PRRS “CAP3” would fill a much-needed niche within the swine industry. The plans for this mechanism will be discussed and developed over the course of CAP2.