➤ Promoting Behavior, Health and Development in Children, Youth and Families
➤ Biological Bases of Behavior, Health and Development
➤ Social and Demographic Change
➤ Innovative Methods
# Contents

## 4 From the Director

### 6 Promoting Behavior, Health, and Development in Children, Youth, and Families

- **The Network on Child Protection and Well-Being**
  - *Building a Team of Experts Dedicated to the Prevention and Treatment of Child Abuse*

- **The Center for the Protection of Children**
  - *Penn State Hershey Puts Protection of Children at the Forefront of New Center*

- **Discussing Parenting at Risk**
  - *Initiative Gives Researchers a Forum to Discuss Projects, Brainstorm Ideas*

- **The SIBS Program**
  - *Brothers and Sisters Learn to Build Positive Relationships*

- **New Angles on Childhood Obesity**
  - *From Parental Involvement to the Brain’s Influence on Appetite, the COPT Program Provides Trainees with a Variety of Transdisciplinary Opportunities*

- **The Clearinghouse for Military Family Readiness**
  - *SSRI’s Newest Research Center*

- **Aiming High to Improve the Well-Being of Airmen**
  - *A Partnership with US Air Force Medical Operations Command*

## 20 Biological Bases of Behavior, Health, and Development

- **The Center for Sport Concussion Research and Service**
  - *New Virtual Reality Lab Opens the Door to Concussion Research*

- **Translating Knowledge into Practice for Improving Health**
  - *Institute Focuses on Behavior, Exercise, and Nutrition Influences with BENI Program*

- **Analyzing Anxiety**
  - *Modifying Attention Biases to Promote Healthy Social-Emotional Development*

- **Gender and Perceptions**
  - *Study Identifies the Ways Hormones Affect Brain Functioning*

- **The Smoking Research Lab**
  - *Facility Supports Studies Aimed at Prevention and Intervention Programs for Smokers*

## 28 Social and Demographic Change

- **Revisiting Africa**
  - *Book Challenges Common Misconceptions of Religion and AIDS in Malawi*

- **Census Research Data Center**
  - *Coming to Penn State in 2014*

- **The Association of Religion Data Archives**
  - *Providing Accessible Data to Social Scientists*

- **Training Students for Global Connections**
  - *Universities Collaborate to Slow Brain Drain in Ghana*

## 36 Innovative Methods

- **Preserving Privacy in Human Subjects Research**
  - *Developing Approaches to Increase Data Access and Research Accuracy*

- **Do the Locomotion**
  - *Identifying How a Brain’s Optic Flow Changes Over Time*
Welcome to the Social Science Research Institute. Our mission is to foster interdisciplinary research that addresses critical human and social problems. Toward this end, we provide scientific leadership and offer a range of support services and funding mechanisms to social and behavioral scientists across Penn State. SSRI is one of five, cross-university research institutes supported by the Office of the Vice President for Research. We also receive generous financial support from the colleges of Agricultural Sciences, Education, Health and Human Development, and the Liberal Arts.

In this year’s report we showcase research projects that reflect areas of strength in the social and behavioral sciences at Penn State and that SSRI has targeted for support: Promoting Behavior, Health, and Development of Children, Youth and Families; Biological Bases of Behavior, Health and Development; Social and Demographic Change; and Innovative Methods. We provide background on some of the research units within SSRI, including the Population Research Institute, the Clearinghouse for Military Family Readiness, and our newest unit, the Network on Child Protection and Well-Being.

Leaders in these units promote and support the work of social science faculty members from across the university whose research is relevant to their mission. Our report also provides some information about SSRI’s infrastructure supports, including the Survey Research Center, the Geographic Information Core, the Social, Life and Engineering Sciences Imaging Center, and the Children, Youth, and Families Consortium. The investigators highlighted in this report made use of SSRI’s shared facilities and resources in developing their successful research programs. Below I share some of highlights of the year that also are described in this Annual Report.

Reflecting the longstanding strength of Penn State’s faculty, the Children, Youth and Families Consortium supports basic and applied research on the behavior, development and health of youth and families. Building on faculty expertise and infrastructure support, I am pleased to announce the launch, this year, of The Penn State Network on Child Protection and Well-Being. The Network represents Penn State faculty’s response to the news of child sexual abuse on its campus. Our faculty proposed, and Penn State President Rodney Erickson provided support for, a new academic mission focused on combating child maltreatment. The Network serves as a coordinating center for developing and implementing the educational, engagement, and research missions identified by Penn State’s Presidential Task Force on Child Maltreatment. Dr. Jennie Noll, professor of Human Development and Family Studies and Margaret Gray, assistant director of SSRI were recruited in Spring 2013 to co-direct Network activities.

The Network on Child Protection and Well-Being:
• Builds on Penn State’s strengths in children, youth, and families
• Creates synergies within and across existing units to maximize impact
• Relies on existing infrastructure to maximize efficiencies and hasten the translation of science into practice.

As this year’s report also highlights, the reach and impact of Penn State’s research on military children, youth, and families continued to grow. I also am very pleased to report that the Clearinghouse for Military Family Readiness was named as a Penn State research center in Spring, 2013. Center designation acknowledges the accomplishments of the Clearinghouse to date and enhances its visibility at Penn State and beyond. We describe the new center and some of its research projects on page 16. Directed by Professor Daniel Perkins from the Department of Agricultural Economics, Sociology and Education, the Clearinghouse is a model of engaged scholarship wherein science-based knowledge is being translated into programs that promote the health and well-being of the children and families of our nation’s military women and men.

Social science faculty members at Penn State continued to advance understanding of the biological bases of behavior, health, and development, including through collaborative projects with faculty members at the Penn State Hershey College of Medicine. This year, SSRI joined forces with the Clinical and Translational Science Institute to fund five new research projects that examine the behavior, exercise, and nutrition influences in health and disease. These projects are described on page 21.
In collaboration with the Colleges of Health and Human Development and the Liberal Arts, SSRI provided support for a new laboratory for studying the neurobiology of smoking (p. 26). The Smoking Research Lab is located in Chandlee Lab, which also houses the Social, Life and Engineering Sciences Imaging Center (SLEIC), and allows investigators to efficiently incorporate neuroimaging into their study protocols. This year’s report highlights several other programs of study led by social behavioral neuroscientists at Penn State that use neuroimaging technology at the SLEIC.

Penn State’s Population Research Institute (PRI) is one of 24 such units around the country that is funded by the National Center for Child Health and Human Development (NICHD). Directed by Jennifer Van Hook, professor of Sociology and Marianne Hillemeier, associate director and professor of Health Policy and Administration, PRI promotes and supports research that is aimed at understanding the behavior and health of targeted local, national and international populations. In this year’s report, we describe work being conducted within the Association of Religion Data Archives (ARDA). Led by PRI Associate, Roger Finke, professor of Sociology, the ARDA has been housed at PRI for over 15 years, and continues to draw the attention of scholars, policy makers, and the media on an array of domestic and international religious issues (see story on page 32). We also showcase findings from a new book by PRI Associate, Jenny Trinitapoli, assistant professor of Sociology, on religion and AIDS in Africa (see story on page 28).

Another highlight of the year was our ongoing, successful cluster hire in Innovative Methods. In this report we introduce the first two new co-funded faculty members who were recruited as part of this initiative, Soo-yong Byun, assistant professor of Education Theory and Policy, and Sy-Miin Chow, associate professor of Human Development and Family Studies. Two other SSRI co-funded faculty members, also recruited as part of the Innovative Methods cluster hire, will join us during the 2013/2014 academic year: Dr. Orfeu Buxton, currently an assistant professor at Harvard Medical School, will join the department of Biobehavioral Health, and Dr. Gregory Shearer, assistant professor of Internal Medicine at Sanford School of Medicine, will join the department of Nutritional Sciences. Two additional searches are ongoing in the Department of Psychology and the Department of Educational Psychology, Counseling and Special Education. The SSRI/CYFC co-funded faculty program represents a significant component of our Institute’s activities and funding. Working with departments and colleges, we are able to target areas of opportunity and growth that go beyond disciplinary bounds and to attract and support faculty members with interdisciplinary research programs. Co-funded faculty members, Michelle Frisco and Daniel Perkins and their research are also showcased in this year’s report.

Social science researchers at Penn State have a long history of providing interdisciplinary education for young scholars. This year, we describe two of Penn State’s funded training programs within the social sciences. First, as part of the PRI’s activities, a new cadre of scholars from Africa is being trained in demographic research and methods. Funded by the Hewlett Foundation, this program is led by PRI Associate, Francis Dodoo, professor of Sociology. With funding from the US Department of Agriculture and support from the CYFC, another group of graduate students is participating in an education program aimed at building capacity around pediatric obesity prevention. Led by Leann Birch, professor of Human Development and Family Studies, this training program includes faculty and graduate students from both Human Development and Family Studies and Nutrition Sciences.

In addition to these stories, SSRI’s 2013 Annual Report showcases other significant projects that reflect the broad scope of research in the social and behavioral sciences at Penn State. I am very pleased to share this glimpse of the exciting work being conducted by my social science colleagues.
Promoting Behavior, Health and Development in Children, Youth and Families

Research on children, youth, and families at Penn State crosses the translational spectrum. It includes basic research on the developmental neuroscience of childhood psychopathology and gene-environment interactions in adolescent risk behavior. Researchers also conduct studies aimed at developing and evaluating interventions for promoting positive youth development and family relationships. Within SSRI, the CYFC promotes and supports research in this broad area.

Penn State launched the Network for Child Protection and Well-Being in Fall, 2012 with the goal of bringing together an interdisciplinary group of faculty members whose research, teaching, and service is aimed at the prevention and treatment of child abuse and neglect. The Network’s mission is to advance child protection and well-being through Penn State’s tripartite academic agenda.

The Network builds on the expertise of Penn State faculty members who are leaders in children, youth, and family research and whose work crosses the spectrum from basic science to application and practice. With more than 400 faculty members from multiple disciplines represented—including biobehavioral health, education, human development and family studies, law, medicine, nursing, psychology, and sociology—the Network aims to spark the collaborations that are vital to addressing the complex and multi-faceted problems of child abuse and neglect. Consistent with the SSRI’s mission of promoting and supporting interdisciplinary collaboration, the Network will bring together researchers, clinicians, educators, and policy-makers to develop comprehensive approaches for combating child maltreatment and its harmful long term consequences.

“The Network will promote interdisciplinary research and collaborations among researchers, practitioners, and policy makers,” said Dr. Susan McHale, Social Science Research Institute director. “By co-funding faculty positions, developing educational opportunities such as coursework, workshops and conferences, and providing support for new basic and applied research, we hope to advance knowledge and evidence-based practice and to assist in the training of the next generation of researchers and professionals.”

Foundational Centers

**The Child Study Center**
csc.psych.psu.edu
Directed by Dr. Karen Bierman, distinguished professor of Psychology, the Child Study Center integrates research, teaching, and outreach to promote children’s development and well-being through interdisciplinary science. Located in the College of the Liberal Arts, the Center includes faculty members from disciplines ranging from psychology, education, and human development and family studies.

**The Prevention Research Center**
www.prevention.psu.edu
Directed by Dr. Edward Smith, the Prevention Research Center brings together an interdisciplinary group of faculty members whose work is aimed at preventing problems and promoting well-being in children, youth and families. Research in the center also is aimed at developing methods in prevention science. The PRC is a unit within the College of Health and Human Development.

**The Center for the Protection of Children**
www.pennstatehershey.org/web/protection-of-children
The Center for the Protection of Children brings together an interdisciplinary group of clinicians and researchers who aim to prevent maltreatment, improve reporting of suspected abuse, provide comprehensive care for children who have experienced abuse, and advance knowledge about how best to protect vulnerable children and support them and their families. Directed by Dr. Benjamin Levi, Professor of Humanities and Pediatrics, the Center is located at the Penn State Hershey Children’s Hospital. See page 8 for more information.

**The Center on Children and the Law**
www.law.psu.edu/academics/research_centers/children_and_the_law
The Center on Children and the Law, part of the Penn State Dickinson School of Law, creates a collaborative forum for interdisciplinary research, outreach, and service on children’s issues that intersect with the legal system. The Center is directed by Lucy Johnston-Walsh, clinical law professor and director of the Children’s Advocacy Clinic.
The Network is built on four foundational centers (read more about each center below). These centers, each of which brings together faculty, students, and staff from multiple disciplinary backgrounds, encompass established teams with a history of conducting innovative, high impact, basic and translational research focusing on children, youth, and families. Together, the directors of the foundational centers and their collaborators will work to broaden the scope of research on children, youth, and families at Penn State, to build collaborations with professionals and policy makers in the child protection community, and to advance knowledge and evidence-based practice aimed at combating child abuse and its consequences.

The Network will also oversee efforts to increase the number of faculty experts at Penn State in the field of child maltreatment. In fall, 2012, Penn State’s Presidential Task Force on Child Maltreatment recommended that the University invest in the recruitment of new research and clinical faculty members with specific expertise in child maltreatment. Following this recommendation, approval was granted for hiring at least 12 new tenure-track faculty members across the University Park and Hershey campuses, who together will advance the Network’s mission. “The expertise of these new faculty members will build on the expertise of our current faculty toward developing novel approaches to prevention, detection, treatment and public awareness of child abuse and neglect,” Dr. McHale said.

Beyond the four foundational centers, the Network will draw on expertise within at least ten other affiliate units (see below) from across the University where research, education and service relevant to the Network’s mission are being conducted. The affiliate directors have committed to consulting and collaborating with Penn State’s new faculty members, bringing their unique expertise to bear on efforts to advance research and practice around protecting children and promoting their health and development.

As new knowledge is generated through this broad research collaborative, the Network’s goal is to work with community partners in the translation of research findings to evidence-based practice and informed public policy. The Network also will work to forge partnerships that promote sharing of expertise, dissemination of information from researchers and practitioners, and implementation of public policy.

www.protectchildren.psu.edu

Affiliates

Better Kid Care Program
betterkidcare.psu.edu
Dr. Claudia Mincemoyer, director

Center for Cyber-Security,
Information, Privacy, and Trust
cybersecurity.ist.psu.edu
Dr. Peng Liu, director

Center for Nursing Research
nursing.psu.edu
Dr. Janice Penrod, director

Center for Online Innovation in Learning
coil.psu.edu
Dr. Frederico Fonseca, co-director

Clearinghouse for Military Family Readiness
www.militaryfamilies.psu.edu
Dr. Daniel Perkins, director

Division of Child and Adolescent Psychiatry
www.pennstatehershey.org/web/psychiatry/education/residency/childfellowship
Dr. Fauzia Mahr, director

Educational Risk Initiative
cyfc.psu.edu/content/educational-risk-initiative
Dr. Paul Morgan, director

EPISCenter
www.episcenter.psu.edu
Brian Burnibarger, director

Justice Center for Research
www.justicecenter.psu.edu
Dr. Doris MacKenzie, director

Rock Ethics Institute
rockethics.psu.edu
Dr. Nancy Tuana, director
The Center for the Protection of Children

Penn State Hershey Puts Protection of Children at the Forefront of New Center

The Penn State Hershey College of Medicine opened the Center for the Protection of Children (CPC) in Spring, 2013. One of the four foundational centers of the Network for Child Protection and Well-Being, the CPC aims to prevent child maltreatment, improve suspected abuse reporting, provide care for abused children, and support vulnerable children and their families.

Clinicians and scientists at the CPC also will collaborate to build a translational research program aimed at developing, implementing, and evaluating evidence-based practices for treating victims of child abuse and neglect and preventing the negative health outcomes that often emanate from childhood trauma.

The Center was launched with support from the Penn State Hershey Children’s Hospital (PSHCH) and a portion of Penn State’s Big Ten bowl game proceeds from 2011. With support from the PSHCH and funds from the Network on Child Protection and Well-Being’s cluster hire initiative, the Center is now in the process of recruiting pediatricians and psychologists who will work together to provide services to children and their families.

“Too often in the handling of child maltreatment, professionals work in a disconnected fashion,” Dr. Benjamin Levi, center director and professor of Pediatrics, said. “By housing so much expertise in one place, the CPC will provide comprehensive services which will yield a continuum of care not typically seen in the field.”

Dr. Levi is also focused on building an organization that supports the conduct of the interdisciplinary research that will serve as a foundation for clinical practice.

“This Center is a huge step,” Dr. Levi said. “It’s bringing together nearly 200 experts from within the Penn State research community and supporting their work. It’s creating opportunities for like-minded researchers to be innovative and collaborative through special funding and research opportunities.”

Dr. Levi plans on developing a number of initiatives. These include establishing the Transforming the Lives of Children (TLC) clinic, which will provide comprehensive primary care to victims of child abuse, many of whom are in foster care. The TLC clinic will be designed to provide a safe and secure environment for child victims who may come from unstable home environments. The clinic will focus on the child’s medical, psychological, and developmental needs, as well as interventions to enhance the parenting skills of the child’s caregivers.

Center Programs and Key Collaborations

The CPC is building on new and existing programs to broaden its reach toward impacting research and advocacy efforts. Below are some of the programs currently located at and/or supported by the center.

Pennsylvania Shaken Baby Syndrome Prevention and Awareness
www.pennstatehershey.org/web/shakenbaby

Shaken Baby Syndrome is one of the most severe forms of child abuse caused by the violent shaking of an infant. It is important to inform parents, when their baby is born, how to deal with the frustrations of a crying baby, as well as to equip them with effective parenting and coping strategies.

U.S. News & World Report ranked the PSHCH among the nation’s top 50 children’s hospitals in three pediatric areas: cancer, diabetes and endocrinology, and orthopedics. The new 265,000 square-foot facility provides outstanding care to the children of central Pennsylvania.
“We envision TLC as a medical home for abused children where we will offer intensive assessment and therapeutic service to help parents and children develop skills that allow them to be safely and securely reunited,” Dr. Levi said.

The CPC will work to develop the next generation of clinician-scientists with expertise in child maltreatment. For example, Dr. Levi envisions a three-year training program in child abuse pediatrics. Through its range of education, research and clinical activities, the CPC is positioned to develop and promote new approaches to preventing and treating child abuse. And, by working closely with a broad range of stakeholders, the CPC will align its efforts in service to the communities it serves.

Look Out for Child Abuse Project
lookoutforchildabuse.org
This program provides information on child abuse and neglect. It is designed to be a go-to resource that helps community members identify and respond to signs of child abuse.

Family Foundations Project
prevention.psu.edu/projects/Coparenting_Pubs.html
Expectant parents can take advantage of fun participatory courses that help prepare them for parenthood. This evidence-based program teaches attitudes and skills that build a positive, healthy family.

Center on Children and the Law
law.psu.edu/academics/research_centres/children_and_the_law
The Center supports collaborative research, teaching, outreach, and service on issues that include children and the law.
Discussing Parenting at Risk
Initiative Gives Researchers a Forum to Discuss Projects, Brainstorm Ideas

The Parenting at Risk (PAR) initiative is a research support group. Researchers find intellectual and social support from a peer group that is interested in seeing colleagues succeed in their scholarly pursuits on the topic of parenting.

PAR is a Child Study Center (CSC) program that enhances research projects through the power of peer review. A group of eight to 10 faculty members who study parenting volunteer to provide constructive feedback to colleagues who are writing grant proposals, trying to get their work published, or developing new research ideas. The group meets about every three weeks for a session.

“It always feels good when a paper or grant that’s gone through PAR gets published or funded,” PAR Director and Professor of Human Development, Psychology, and Pediatrics Dr. Doug Teti said. “We think that spending a little bit of time with us and being open to our feedback can go a long way.”

Penn State’s group of parenting researchers conducts innovative work with a goal of providing evidence-based results that can be used to advance healthy parenting practices and family relationships that promote children’s development and well-being.

“What our group is trying to do is provide an informal venue for researchers to discuss their work at all stages,” continued Dr. Teti. “We sit down with them, offer feedback, discuss new ideas, and it’s been a great experience. These meetings focus on understanding the nature of this challenging topic.”

Research has shown that parenting is often an emotional, “in the moment” activity. Recent research has sought to capture the immediate nature of parenting and analyze
the “in the moment” aspects of it and its effect on children. PAR members also look at the challenges parents face and their effects, which can include child abuse and neglect.

“As a researcher, you are faced with lots of criticism and rejection in the peer review process,” Dr. Teti said. “We create an environment where we learn from each other in a supportive environment. We also have a lot of fun in the process.”

PAR is closely related to a similar CSC initiative called Early Pathways to Competence. Just like PAR, the group gathers faculty members together to enhance discussions, support research projects, and assist colleagues in generating new ideas and applying for grants. Early Pathways is directed by Dr. Pamela Cole, professor of Psychology and Human Development and Family Studies, and focuses on building the knowledge of the developmental process within the first five years of life. Whereas PAR studies the risk effects parents can have on child development, Early Pathways examines other factors that may have an impact on the development process, including financial, family, and cultural effects.

“It’s really unique as universities go,” Dr. Cole said. “PAR and Early Pathways both have diverse groups that emphasize different elements of the same dynamic child development process. If you think about it, you can’t have one without the other.”

PAR to Host 2014 Special Topic Meeting

Scholars from across the country will network and learn about new developments in the area of parenting. Initiative directors, Drs. Doug Teti and Pamela Cole, received funding from the Society of Research in Child Development (SRCD) to host a conference that will cover a variety of topics regarding “New Perspectives in the Study of Parenting-at-Risk.” These include individual risk conditions for parenting processes, fathering at risk, and parenting intervention and policy. The two-day meeting will be held in 2014 at Penn State’s University Park campus.

www.srcd.org/meetings/special-topic-meetings
A body of research shows that siblings can have important influences on child and family functioning, and Penn State researchers are beginning to shed light on intervention strategies that can cultivate healthy and supportive sibling relationships.

Parents rank their children’s sibling rivalry and conflict as the number-one problem they face in family life.

“In some other cultures, the roles of older and younger, male and female siblings are better defined, and in those more-structured family relationships, there is not much room for bullying and disrespect,” said Dr. Mark Feinberg, research professor in the Prevention Research Center for the Promotion of Human Development. “In the United States, and Western culture more generally, there are few guidelines for parents about how to reduce sibling conflict and enhance bonding and solidarity among siblings.

“This is an important issue not only because siblings share a life-long relationship, but also because sibling relations appear to be as important as parenting and peer relations for many aspects of a child’s development and well-being.”

The SIBlings are Special (SIBS) Program, started by Drs. Feinberg and Susan McHale, professor of Human Development and Family Studies, addresses relationships between brothers and sisters, which the investigators see as critical for learning life skills that can strengthen a child’s development.

Results from a randomized trial involving 16 elementary schools in Pennsylvania demonstrated that the program shows promise in promoting healthy sibling relationships, improving family life and enhancing children’s social, emotional and academic development. The researchers published their findings in the current issue of the *Journal of Adolescent Health*.

“What we have learned from testing the SIBS program lays the groundwork for evidence-based programs designed to prevent sibling relationship problems, as well as foster mutually beneficial relationships,” Dr. Feinberg said.

SIBS consists of 12 after-school sessions for elementary-aged sibling pairs, as well as monthly family nights. The program focuses on ways siblings can share responsibilities and practice making them work together to create a positive experience for all involved.
decisions together. Session topics include negotiating win-win solutions to conflict, setting goals together, finding mutually enjoyable activities and understanding each other's feelings. During the program's three family nights, children show parents what they have learned, and parents learn productive strategies for handling sibling relations—which typically have been ignored by most parenting programs.

"Sibling relationships are the only life-long relationships in most people's lives," Dr. Feinberg said. "This makes it especially important that sisters and brothers learn at a young age, how to work as a team and support each other."

Researchers observed the sessions and administered questionnaires to both the parents and children. Siblings who entered the study were randomly assigned to receive the afterschool SIBS program or to a control condition. Parents of siblings in both the intervention and the control conditions received a popular book about sibling relationships.

Siblings exposed to the intervention demonstrated more positive interactions and increased self-control, and according to their teachers, demonstrated greater social competence and academic performance. They also experienced decreases in internalizing problems, such as depression, shyness, and worry.

Results also showed that SIBS enhanced child-mother relationships. Mothers involved in the SIBS program demonstrated increased use of appropriate sibling parenting strategies, such as helping resolve conflicts peacefully and encouraging siblings to work problems out by themselves. These mothers also reported lower levels of depression symptoms after the program was completed compared to mothers in the control condition.

"Overall, the results of the SIBS intervention were promising," said Dr. McHale. "Brothers and sisters got along better, learned from each other and liked being around each other more. As individuals, siblings in the study were better off emotionally and academically. Mothers also benefited, with many reporting being happier about their personal and family lives."

The National Institute on Drug Abuse funded SIBS as a part of the National Institutes of Health's American Recovery and Reinvestment Act. SIBS is a part of the Prevention Research Center at Penn State.

“Almost everyone has personal stories about their siblings,” said Dr. Feinberg. “Some are good and some are not so good. So it’s obviously an important area to study. This program is playing a large role in identifying how to derive the best and longest-lasting benefits from healthy and enjoyable brother and sister relationships.”
The Childhood Obesity Prevention Training Program (COPT) is a pre-doctoral training grant that spans several disciplines and supports nine trainees. It is a collaboration between the departments of Nutritional Sciences and Human Development and Family Studies (HDFS).

The primary goal of the training is to give students the skills to work collaboratively with researchers in multiple disciplines. “COPT integrates social, behavioral, and nutritional approaches to understanding, preventing, and intervening with childhood obesity,” said Dr. Leann Birch, director and professor of Human Development and Family Studies. “Thus, trainees emerging from the program will have an appreciation for the complexity of childhood obesity. They will also be adept at working in an interdisciplinary fashion, which is a much needed skill in this field of study.”

Program participants complete a PhD in either Nutritional Sciences or HDFS, and earn a minor in the other discipline. Students take courses in nutrition, HDFS, prevention and intervention science, research methodology, and statistics. Trainees are also given the opportunity to complete an internship in commerce and industry, education and outreach, medicine, or public policy.

Students, like second-year fellow, Brittany James, are grateful for being able to take part in this unique training opportunity. “The broad, cross-disciplinary training is necessary if we hope to curtail the childhood obesity epidemic,” she said. “The COPT grant provides the unique opportunity to receive that breadth of training.”

The most important factor when training grants are awarded is the quality of the mentors. All of the faculty mentors in COPT are leading scholars in their respective fields.

“Students are learning from faculty members who are conducting some of the most innovative, ground-breaking research in the country, if not the world,” stated Dr. Gordon Jensen, COPT co-director. “One of the reasons they are at the forefront of their disciplines is because they know how to work across disciplines. They really model a refreshing, collaborative approach to doing research.”
COPT is led by Dr. Birch; Dr. Jensen, co-director and professor of Nutrition; Dr. Steven Zalt, co-director and professor of Human Development and Family Studies; and Dr. Lorraine Mulfinger, associate director and research associate professor of Health and Human Development. An external advisory committee—along with other faculty at Penn State—provide guidance and leadership to the trainees.

Given the quality of mentors, trainees are working on a wide variety of cutting-edge research projects, including:

- Prenatal factors that influence infant birth weight and the child’s obesity risk later in life
- The pattern of infant temperament in a low-income sample compared to middle-class samples, and how that distribution maps onto obesity-related child behaviors and parenting practices
- Understanding what determines a child’s portion size susceptibility, or the way in which children respond to an increase in portion sizes of high-grains, legumes) and low-energy density foods
- Determining the neurobiological and appetitive effects of food marketing strategies on children using functional magnetic imaging (fMRI) of the brain
- Family factors, such as parental employment, that can affect childhood obesity
- Infant and parent characteristics that interact to influence infant physical growth
- The use of food to control child behavior

Penn State’s program is one of two childhood obesity prevention training grants awarded by the USDA; the other is the Illinois Transdisciplinary Obesity Prevention Program at the University of Illinois. The program is funded by the USDA’s National Institute for Food and Agriculture.

After a recent site visit, it was clear that COPT is off to a great start. “Overall, we were extremely impressed by everything we saw,” Drs. James Hill and Christine Taylor, two members of the external advisory committee, said. “Both of us believe there is potential to make this the leading training program in childhood obesity in the country.”

At a time when obesity is a major issue among young people across the country, Dr. Michelle Frisco and her co-authors recently reported new discoveries regarding adolescent weight, perceived negative body image, and depression. The research found that girls who saw themselves as overweight—but were not—reported being more depressed than girls who were actually overweight and perceived themselves as such.

“This suggests that educating young women on healthy body maintenance and proper weight expectations could improve mental health as they mature into adulthood,” Dr. Frisco said. Not only does adolescent obesity impact body image and depression, it also correlates with later fertility. Her research found that women who were obese in early adulthood had increased odds of remaining childless or having fewer children than planned.

According to Dr. Frisco, “Obesity appeared to influence both biological and social pathways to fertility. Biologically, obese women are more likely to demonstrate body chemistry that works counter to conception and pregnancy. Socially, obese women appear to be at a disadvantage when competing for suitable mates.” Dr. Frisco’s future research will focus on the early identification of weight problems among children of Mexican immigrants.

Dr. Frisco came to Penn State in 2005 from the University of Wisconsin where she was the Robert Wood Johnson Health & Society Scholar. She received her PhD in Sociology from the University of Texas.
The Clearinghouse for
Military Family Readiness

SSRI’s Newest Research Center

With an initial investment of $100,000 from SSRI and the Office of the Vice President for Research, Penn State launched the Military Personnel and Families Research Initiative in 2009. The initiative funded meetings with leading military family researchers across the country, travel to conferences focused on military family issues, and trips to the Pentagon to meet with Department of Defense (DOD) officials to learn about their strategic priorities. Funds were also used to support pilot studies. From the outset, the initiative was about bringing strong science to understanding the families of the nation’s military men and women.

Shortly after the initiative’s launch, the DOD awarded Penn State with a large grant to start the Clearinghouse for Military Family Readiness.

“The mission of the Clearinghouse is to foster and support interdisciplinary research and evaluation, translational and implementation science, and outreach efforts that advance the health and well-being of military service members and their families,” explained Dr. Daniel Perkins, professor of Family and Youth Resilience and Policy in the College of Agricultural Sciences and director of the Clearinghouse. “In making the award, the DOD noted that Penn State was the right home for the Clearinghouse because of the strengths of its faculty and students in the areas of implementation and dissemination science, evaluation, human development, family studies, child psychology, and prevention.”

Over the next two years, with support through the DOD-USDA partnership, the activities and applied research products of the Clearinghouse became increasingly known in military circles.

“The Clearinghouse has really been a launching pad for the development of new, long-lasting, and trusting relationships with a number of DOD and military service specific groups,” stated Dr. Keith Aronson, associate director of the Clearinghouse. “Because of the professionalism and expertise of Penn State faculty and the Clearinghouse staff, we have developed a great deal of credibility with the military community across the globe.”

These collaborative relationships have resulted in Penn State receiving numerous grants to extend Clearinghouse activities into various research areas. “Studies have been funded to examine the predictors of family resilience after a Marine dies by suicide and the efficacy of evidence-based interventions used by the Air Force to treat PTSD, to develop evidence-based curricula to enhance family resilience across the deployment cycle, and to develop a resource center on the prevention of obesity, among many others,” said Dr. Perkins. “These research projects include faculty from the Prevention Research Center, Psychology, Biobehavioral Health, and Human Development and Family Studies.”

Because of the tremendous growth of research with military partners and the untapped potential for expanding this work, the Clearinghouse applied for, and received, research center status at Penn State.

With research center status, the Clearinghouse will have greater visibility across the University. “It will be easier to attract new faculty and students into Clearinghouse activities,” Dr. Perkins said.

Dr. Aronson added, “For the most part, our success to date has come with a fairly low level of visibility to faculty and students. As a center, we will be better able to work with academic departments to create courses in military family science, provide independent study options, and develop unique internship opportunities for students to work with military partners at the Pentagon and other DOD sites, as well as military installations across the world.”

www.militaryfamilies.psu.edu
Dr. Daniel Perkins is the director of the Clearinghouse for Military Family Readiness at Penn State. In 2013, the Clearinghouse was named a Penn State research center. The center designation of the Clearinghouse is the culmination of Dr. Perkins’ leadership in spearheading a range of collaborations with military entities, including the Department of Defense, and each of the service branches.

Dr. Perkins provides consultation to faculty on partnering with the military, and oversees the growth of an externally funded portfolio of research on military personnel and families. He also directs more than 35 research scientists, staff, and student interns who are part of the Clearinghouse. Dr. Perkins and his staff conduct high-quality research that leads to innovative evidence-based programming for military families. Projects include the Clearinghouse, which Dr. Perkins refers to as the “Consumer Reports” for professionals looking for evidence-based programs and practices to employ with military children, youth, and families-related initiatives including the Navy Youth Fitness Project, the Impact of Suicide on Marine Families, and the Family Readiness Program Evaluation Plan. “Collaborating across disciplines is vital for solution-focused research that will increase the well-being of families of active duty military personnel and veterans,” said Dr. Perkins.

Dr. Perkins’ research focuses on adolescent and family development, evaluation of prevention and intervention programs, civic engagement in youth, and positive youth development. Dr. Perkins received his PhD in Family and Child Ecology from Michigan State University.
Aiming High to Improve the Well-Being of Airmen

A Partnership with US Air Force Medical Operations Command

In 2011, Lt. Col. Wendy Travis, chief of the Mental Health Division Policy and Program Evaluation at the US Air Force Medical Operations Agency (AFMOA) attended a Military Community and Family Policy briefing. Penn State’s Clearinghouse for Military Family Readiness was discussed at the briefing. Travis, who was working on enhancing the Air Force’s approach to treating Post-Traumatic Stress Disorder (PTSD) and alcohol misuse, was intrigued by the potential for collaboration.

“I was impressed by the idea that Penn State was focused on working with the military,” Travis said. “At the briefing, I heard a lot about the strengths of the University in the areas of prevention and program implementation science. I thought there could be excellent potential for a partnership.”

Travis wanted to learn more regarding the Clearinghouse and evidence-based programs in the area of alcohol misuse, so she engaged with one of the Clearinghouse technical assistance (TA) professionals.

“Another thing that really intrigued me about the Clearinghouse was the availability of TA professionals who were immediately available for consultation,” Travis said. “So often, websites are impersonal and difficult to navigate. At the Clearinghouse, it was great to have a live person to talk to. They were able to answer my questions quickly, and assist me in finding what I was looking for.”

From the initial TA contact, the Clearinghouse determined that Travis required more in-depth technical assistance. Travis then engaged with Dr. Daniel Perkins, director of the Clearinghouse.

“Wendy and I had a number of in-depth discussions around how she wanted to enhance the Air Force approach to intervening with airmen at risk for alcohol misuse,” Dr. Perkins said. “These discussions helped us hone in on a few, small first steps. It also gave her a sense of how the Clearinghouse works, which is to be a partner with the military, with a flexible back-and-forth approach to problem solving. I think she really appreciated this way of doing business.”

The Clearinghouse’s first step included conducting a Rapid Comprehensive Review of the Air Force Alcohol Behavior Counseling Program (ABC). According to the Clearinghouse team led by Dr. Cristin Hall, “When a military entity asks the Clearinghouse for a review of a program they are using, we go into it with a great deal of energy. In the case of ABC, we received a lot of information about the program’s current implementation process, how counselors are trained to deliver the ABC intervention, as well as the program manual which guides counselors through the treatment process.”
This approach allowed the Clearinghouse to conduct a review of the ABC program while considering a comparison of the approach to best practices in program implementation. “It was clear that ABC had both strengths and weaknesses, not unlike any programmatic intervention,” noted Dr. Erica Culler, Clearinghouse research and evaluation scientist. “The program was built on theory and was targeted to an appropriate group who were at risk for alcohol misuse. To strengthen the program, we suggested a few improvements in the program manual and enhanced counselor training.”

Once programmatic enhancements were initiated and additional training provided, ABC should be evaluated for its effectiveness at reducing future alcohol misuse. “The Air Force was definitely interested in evaluating ABC, but it was helpful for the Clearinghouse to recommend solidifying the program approach, materials, and training before undertaking an evaluation,” Travis said. “We felt very comfortable moving on the Clearinghouse recommendations, and really wanted to go forward in tandem with the Clearinghouse.”

At the end of 2011, after discussions that led to a firmer grasp of the parameters of the work required, the Air Force drew on their partnership with the National Institute of Food and Agriculture and awarded the Clearinghouse a grant to enhance the ABC program.

“Our work with AFMOA and Wilford Hall is incredibly satisfying,” said Dr. Keith Aronson, associate director of the Clearinghouse. “This partnership unfolded in exactly the manner we envisioned with the Department of Defense when they initially funded the Clearinghouse.”

Aronson added that, “the Clearinghouse will be a vibrant, proactive, science-based partner for professionals working to improve the health and well-being of military personnel and their families. Our collaboration with the Air Force clearly demonstrates the power of bringing the expertise of the land grant university together with the real world knowledge residing with military professionals to infuse scientific evidence into military social services.”
The Center for Sport Concussion Research and Service

New Virtual Reality Lab Opens the Door to Concussion Research

With financial support from SSRI, the Penn State Center for Sport Concussion Research and Service has developed a virtual reality system that assesses sports-related concussions.

“The center is focused on understanding how being concussed impacts the structure and function of the brain,” said Professor of Kinesiology and Center director Dr. Sam Slobounov. “We are also discerning new ways to diagnose concussions. This is critical because many concussions go undetected. For active people, an undetected concussion can lead to catastrophe. For example, if someone with an undetected concussion sustains another hit to the head, long-lasting and even permanent decrements in brain functioning can occur.”

The cornerstone of the center is a virtual reality facility that examines brain abnormalities in concussed individuals. The virtual reality lab allows researchers to assess balance and neurocognitive functions in student-athletes suffering from concussions without putting them at risk. Although relatively new, the center’s innovative work with virtual reality has led to a number of grants being funded by the National Institutes of Health (NIH), including the National Institute of Neurological Disorders and Stroke, and the National Football League.

“The ultimate goal of the center’s research is to provide tests and measures that complement current diagnostic tools for concussion,” Dr. Slobounov said. “Our virtual reality and EEG work is innovative and advanced in that it provides a much more sensitive testing approach. Without advanced technology, the current clinical tools are not sufficient to diagnose such a complex problem.”

The external funding received by the center enables Penn State’s concussion research team to address some of the limitations of current neuropsychological computer testing practices—specifically ones that could not detect abnormalities beyond 10 days post-concussion. In order to study the abnormalities of one or more conclusive episodes, the team created an advanced virtual reality environment using two (front wall and floor) 3D projection screens. These 3D tests study balance, spatial navigation, reaction time, and memory tasks. To enhance sensitivity and accuracy of virtual reality, faculty and students at the center are developing more realistic computer graphic prototypes.

The center’s most recent research initiatives are focused on the incorporation of virtual reality with advanced EEG and brain imaging tools. One of the major questions to be addressed is related to the very long-term dynamics of behavioral (postural stability), neuropsychological (memory and attention), and neural (EEG and MRI) factors.

Dr. Slobounov’s research team is working toward detecting the impact of concussions over months and possibly even as long as a year post-injury. The long-term effects of concussion, particularly for those with repetitive insults to the brain, are concerning. Accurate diagnosis may play an important role in prevention of cumulative injuries.

One of the impressive innovations at the center is the use of multimodal methods to understand concussions. By collaborating with researchers at the Social, Life, and Engineering Sciences Imaging Center (SLEIC), studies are pinpointing specific regions of the brain that are impacted by concussive injury, as well as how concussions interrupt the ways in which different parts of the brain communicate with each other.

“At Penn State, we can assimilate data from neuropsychological testing, VR, EEG, and structural and functional MRI to get an increasingly clear picture of what concussions do, and in so doing, how to best protect the brains of athletes and non-athletes alike,” said Dr. Rick Gilmore, professor of Psychology and SLEIC director. “These are very exciting collaborations.”

www.concussion.psu.edu
Translating Knowledge into Practice for Improving Health

Institute Focuses on Behavior, Exercise, and Nutrition Influences with BENI Program

To bridge the gap between the lab and the real world, the National Institutes of Health funded 62 universities across the country to create institutes aimed at turning scientific discoveries into advancements in the prevention and treatment of health problems.

With a $27.3 million Clinical and Translational Science Award in 2011, Penn State joined that elite group of institutions. Over the past three years, the University has built an innovative research and education enterprise within the Clinical and Translational Science Institute (CTSI).

Penn State’s CTSI connects researchers from a range of disciplines across the University Park and Hershey campuses. It’s a cross-regional, cross-campus initiative that is designed to provide long term biomedical resources aimed at improving health in central Pennsylvania.

“That’s the key element,” CTSI Director and Professor of Medicine Dr. Larry Sinoway said. “Our CTSI is focused on the people and communities of central Pennsylvania.

That's who the researchers are learning from, and that's who we are providing for.”

CTSI’s community advisory board members and stakeholders chose a theme to guide its research over the next few years. Research teams will build new projects around Behavior, Exercise, and Nutrition Influences (BENI) in health and disease. The CTSI will promote and support Penn State experts to collaborate around innovative research that has the potential to translate into new approaches to treatment.

The Social Science Research Institute, the CTSI, and the College of Information Sciences and Technology agreed to pool $300,000 to fund five new Penn State BENI projects. Proposals for BENI funds were reviewed on five criteria: significance, expertise, innovation, approach, and collaboration.

The five funded projects cover a broad spectrum of research within the targeted areas of BENI. Many share the goal of designing effective preventive and therapeutic programs. Projects include addressing healthy eating in low income families, risk factors to cardiovascular health, a virtual reality simulation of child obesity, health and disease prediction, and health and exercise interventions using smart phones (see below).

CTSI organizers created BENI to take advantage of the broad expertise of Penn State researchers.

“The University is known for its interdisciplinary and collaborative activities,” Dr. Susan McHale, director of SSRI and CTSI co-director, said. “It is vital for our researchers to have opportunities and tools to collaborate toward improving the health of the citizens of Pennsylvania.”

www.ctsi.psu.edu

BENI Projects

Behavior, Exercise, and Nutrition Influences in Health and Disease

Funded by SSRI, the College of Medicine, and the College of Information Sciences and Technology, these five projects are innovative, collaborative, and focus on ways of promoting health for the citizens of central Pennsylvania.

Dr. Lee Giles
Professor of Information Science and Technology and Computer Science
Predictive Modeling of Health and Disease Using Behavioral, Exercise, and Nutrition Time

Dr. Kristin Heron
Research Associate of Biobehavioral Health
Developing a Real-Time, Ecologically Sensitive Physical Activity Intervention Using Smartphones and Bluetooth-Enabled Pedometers

Dr. Duanping Liao
Professor of Health Sciences
Modifiable Risk Factors and Cardiovascular Health

Dr. Erika Poole
Assistant Professor of Information Science and Technology
Development of a Virtual Reality Simulation for Childhood Obesity Prevention

Dr. Chris Sciamanna
Staff Physician, Milton S. Hershey Medical Center
Enhancing the Sustainability of Weight Loss and Healthy Diet of Low Income Pennsylvania Residents through Mobile Phone-Enabled Social Interactions
Analyzing Anxiety

Modifying Attention Biases to Promote Healthy Social-Emotional Development

Anxiety can disrupt lives, relationships, and work. The roots of anxiety are often in childhood, when temperamental (shyness), psychobiological (brain functioning), and environmental (parenting) factors interact. This sets the course for social-emotional development that either leads toward or away from psychological difficulties.

With a five-year National Institutes of Mental Health grant, Professor of Psychology Dr. Koraly Pérez-Edgar is investigating the psychological and neural foundations of temperamental shyness. Despite the role shyness plays in anxiety, no treatments are available for shy children that help limit risk for anxiety.

Dealing with or focusing on certain information—known as an attention bias—can be a barrier to healthy development. The effects can intensify anxiety. “We believe that early attention bias can act as a tether that pulls the development of shy children toward anxiety,” Dr. Pérez-Edgar said. “This research targets children who are at risk for anxiety due to a shy temperament.”

Temperamental shyness is a style of behavior marked by fear of novelty. It resembles clinically diagnosed anxiety in many ways—both psychological (social withdrawal, avoidance) and biological (increased activity of the fear area of the brain). Research shows that children who are temperamentally shy may be at increased risk for anxiety later in life.

Modifying attention biases with a low-cost, computer-based intervention program may reduce the risk of such psychological problems. Shy children tend to have a social threat bias. This means they seek out and are sensitive to any perceived sign that someone else is rejecting them.

“If a person is consistently on the lookout for threat, it is easy to see how they would feel on edge and/or anxious,” Dr. Pérez-Edgar said. “Frequently being on the lookout for threat as a child may send one on the developmental path toward anxiety.”

For example, when a shy child considers engaging socially with peers, he or she may tend to look more at peers with less inviting facial expressions. This can lead to worry and withdrawal from social engagement.

“When kids are looking for rejecting behaviors from others, they are going to find them even when they are not really present,” Dr. Pérez-Edgar said. “This means shy kids have a low threshold to believe threat is present. Over time, this low threshold to threat can generalize to other life facets.”

From this perspective, if the research can minimize a shy child’s threat bias—or train them to pay attention to neutral or even happy information—their risk for anxiety may be minimized. In order to better understand how to minimize threat bias, researchers are working in Penn State’s Social, Life, and Engineering Imaging Center (SLEIC).
In collaboration with Drs. Frank Hillary, associate professor of psychology, and Peter Molenaar, professor of human development and family studies, Dr. Pérez-Edgar is working to reduce risk for anxiety. The researchers accomplish this through a computer that trains a child’s attention to minimize threat bias.

“Low-cost, computer-based interventions have proven surprisingly effective in treating anxiety in adults and children,” Dr. Pérez-Edgar said. The intervention will examine attention biases and their effects and interviews with parents and teachers about anxiety symptoms and internalizing issues. Researchers will work at the SLEIC to test brain processes that are connected with attention biases and see if they can be modified.

This research is the first to study how the brains of children who are at risk for anxiety are affected by a treatment that minimizes attention bias. Findings will help the researchers understand how the treatment works and how it can be tweaked to improve its effects.

Given that indicators of shyness can often be observed very early in life, Dr. Pérez-Edgar’s future research will examine whether threat bias can be observed at even younger developmental periods with the idea that the earlier habitual threat perceptions can be identified, the earlier treatment and prevention can occur. The insights Dr. Pérez-Edgar and her colleagues are providing advance the understanding of the earliest causes of anxiety.

CO-FUNDED FACULTY MEMBER

Dr. Sy-Miin Chow
Associate Professor of Human Development and Family Studies
www.personal.psu.edu/quc16/
quc16@psu.edu

Much of what we experience on a day-to-day basis changes over time. It’s dynamic. Dr. Sy-Miin Chow’s research focuses on developing and adapting tools to better understand how processes like human emotions change. Different measures of emotions—including self-reports and physiological activities such as blood pressure and facial muscle activity—all have distinct patterns and timing of change. Dr. Chow develops dynamic models to extract the common patterns that emerge from these data. She uses the modeling results to obtain a glimpse into how human emotions build up over time to affect well-being in the long run. Other ongoing research projects include developing dynamic modeling tools to study lifespan development, family life, and alcohol use.

Dr. Chow received her PhD from the University of Virginia in Quantitative Psychology. Before joining Penn State, she was an assistant professor in the Department of Psychology at the University of North Carolina.
Dr. Sheri Berenbaum, professor of Psychology and Pediatrics, received funding from the National Institute of Mental Health to conduct a study on sex hormones, mental illness, and the brain. The project seeks to understand the development of sex differences in psychiatric illness.

Dr. Berenbaum’s past work shows that girls and women with CAH are more male-typed than their sisters without CAH in several aspects of behavior—including interests and abilities. In her new study, Dr. Berenbaum will use neuroimaging to study brain activity in a group of people with congenital adrenal hyperplasia (CAH). They are exposed to high levels of prenatal androgens, but are reared and identify as female,” Dr. Berenbaum said. “They provide the opportunity to separate effects of prenatal androgens (male typical) from those of gendered socialization (female typical).”

Dr. Berenbaum and her research team will study how prenatal exposure to androgens—testosterone and other male sex hormones—affect the brain’s handling of reward and threat. Some psychiatric disorders are a result of uncommon responses to reward or threat—and research shows that males and females respond differently. For example, individuals who experience problems with anxiety typically scan their environments closely for any sign of threat. They persist in this behavior even when no threat exists. Males are more likely than females to have problems expressing reward-related external problems that emerge in childhood, such as attention deficit hyperactivity disorder and conduct disorder. Girls and women are more likely to have internalizing threat-related problems that emerge in adolescence, such as depression and anxiety. Dr. Berenbaum hypothesizes that prenatal androgens influence the brain’s handling of reward and threat.

“We will study women with a condition called congenital adrenal hyperplasia (CAH). They are exposed to high levels of prenatal androgens, but are reared and identify as female,” Dr. Berenbaum said. “They provide the opportunity to separate effects of prenatal androgens (male typical) from those of gendered socialization (female typical).”

Dr. Berenbaum’s past work shows that girls and women with CAH are more male-typed than their sisters without CAH in several aspects of behavior—including interests and abilities. In her new study, Dr. Berenbaum will use neuroimaging to study brain activity in a group of people with congenital adrenal hyperplasia (CAH). They are exposed to high levels of prenatal androgens, but are reared and identify as female,” Dr. Berenbaum said. “They provide the opportunity to separate effects of prenatal androgens (male typical) from those of gendered socialization (female typical).”

Dr. Berenbaum and her research team will study how prenatal exposure to androgens—testosterone and other male sex hormones—affect the brain’s handling of reward and threat. Some psychiatric disorders are a result of uncommon responses to reward or threat—and research shows that males and females respond differently. For example, individuals who experience problems with anxiety typically scan their environments closely for any sign of threat. They persist in this behavior even when no threat exists. Males are more likely than females to have problems expressing reward-related external problems that emerge in childhood, such as attention deficit hyperactivity disorder and conduct disorder. Girls and women are more likely to have internalizing threat-related problems that emerge in adolescence, such as depression and anxiety. Dr. Berenbaum hypothesizes that prenatal androgens influence the brain’s handling of reward and threat.
whose behavior she has been studying over the past 25 years. This work is the first to link prenatal androgens with behavior measured across time from childhood into early adulthood and brain processing of emotion and thought.

“Women with CAH and their sisters without CAH will come to the SLEIC to participate in the study,” Dr. Berenbaum said. “Inside the magnetic resonance imaging scanner, they will complete tasks that indicate their brain responses to reward and threat. Outside the scanner, they will report on behaviors that show sex differences and may increase risk for psychiatric illness.”

Results of the study will inform the basic understanding underlying sex differences in brain function and the development of treatments for psychiatric illness. Dr. Berenbaum plans to follow up this work with studies that take a developmental approach. For example, the research will examine whether the differences in brain processing of reward and threat emerge before or during puberty between females with and without CAH.

Research Team

Dr. Reginald Adams
Associate Professor of Psychology

Dr. Sheri Berenbaum
Professor of Psychology and Pediatrics

Dr. Larry Cahill
Professor of Neurobiology and Behavior, University of California-Irvine

Dr. Susan Resnick
Senior Investigator, National Institute on Aging

Dr. Stephen Wilson
Assistant Professor of Psychology
A leading and avoidable cause of death and disability across many years in industrialized countries, smoking is now an increasing problem throughout the developing world.

Tobacco use results in more than 5 million deaths per year worldwide, and current trends show that by 2030 tobacco use will cause more than 8 million deaths annually. Creating effective prevention and intervention programs to reduce the morbidity and mortality associated with smoking requires an interdisciplinary understanding of the psychological, biological, and social mechanisms associated with this behavior.

To promote these efforts, Penn State created a specialized laboratory at its University Park campus. The Smoking Research Laboratory (SRL)—funded by the College of Health and Human Development, the College of Liberal Arts, and the Social Science Research Institute—is the University’s facility for research on cigarette smoking.

Key faculty members involved in the lab include Drs. Charles Geier, assistant professor of Human Development and Family Studies; Steven Branstetter, assistant professor of biobehavioral health; and Stephen Wilson, assistant professor of psychology. Their research interests range from understanding the decision to first try smoking in adolescence to the process of quitting for addicted smokers. A number of collaborators are located at the medical school in Hershey, including Jonathan Foulds, professor of Public Health Sciences and Psychiatry, Joshua Muscat, professor of Public Health Sciences, and Michael Reed, associate professor of Surgery, College of Medicine.

Dr. Geier said that the “SRL allows Penn State researchers to conduct innovative studies. The space, which was previously a chemistry lab, is ideal because it has a ventilation system to the outside of the building. Researchers are able to conduct studies in which participants can mimic how they smoke in the real world.”
Studies on the immediate and delayed effects of nicotine exposure, the dynamics of smoking satisfaction, and identifying cues that stimulate the desire to smoke are currently underway. To further spur innovative collaborations, the SRL is housed in the same building as the Social, Life, and Engineering Sciences Imaging Center.

“Being situated so close to brain imaging facilities provides our researchers with the opportunity to understand the biological bases of a wide range of smoking related phenomena,” Dr. Wilson said. “For example, I am conducting neurobiological studies in which we examine brain activity prior to, during, and after smoking to help determine what causes people to relapse when they try to quit smoking.”

Ultimately, Dr. Wilson wants to understand why some people do a better job resisting the temptation to smoke than others, and use that knowledge to identify quitting strategies tailored to specific individuals.

“The SRL provides investigators with a broad range of interests and perspectives a common space in which to collaborate,” Dr. Branstetter said. “Several projects housed in the lab focus on understanding genetic influences on nicotine dependence and identifying factors that predict quitting.”

Dr. Branstetter is looking at how differences in nicotine metabolism may be related to psychological and physiological symptoms of nicotine withdrawal while someone is trying to quit.

“The lab is also focused on understanding why adolescents engage in risky behaviors—such as smoking. Early research from the lab suggests that the brains of smokers may be less sensitive to non-smoking related rewards (such as money) than the brains of non-smokers,” Dr. Geier said.

There is also evidence that adolescents demonstrate limitations in cognitive control. In other words, they do not always think things through fully, nor consider potential consequences of their behavior. As a result they are at risk to experiment with smoking and other substances, which in turn can lead to problems with abuse and dependence.

The lab opens the door to interdisciplinary research that will build a better understanding of the complex mechanisms of smoking. It provides a resource for investigators who are dedicated to enhancing intervention and prevention programs to decrease smoking and prevent its associated health problems and risks.

bbh.hhd.psu.edu/lab/smoking-health-behavior
Social and Demographic Change

Critical human problems are evident around the globe in the context of dramatic demographic and social change. Fertility continues to decline in industrialized nations even as the global population grows. Low fertility rates coupled with increases in longevity produce an aging population. Emerging patterns of population migration mean that the ethnic composition of communities in the US and around the world is changing. At Penn State, researchers in the Population Research Institute examine what this changing landscape means for human behavior, health and development, and identify ways for families and communities to best support the well-being of their members in a context of rapid social change.

Revisiting Africa

Book Challenges Common Misconceptions of Religion and AIDS in Malawi

The book *Religion and AIDS in Africa* (Oxford University Press) addresses perceptions about the AIDS epidemic. Specifically, it provides an analysis of the ways religion shapes how communities view, learn about, respond to, and are affected by the AIDS virus.

Authors, Drs. Jenny Trinitapoli, assistant professor of Sociology, Religious Studies, and Demography at Penn State and Alexander Weinreb, assistant professor of sociology at the University of Texas, analyzed and synthesized a variety of data from Malawi (one of the least developed countries in the world with a high incidence of HIV and AIDS), along with survey data from across sub-Saharan Africa to uncover important insights into the AIDS epidemic. The book dissects the role that religion plays in the AIDS epidemic and, in turn, how religion has been affected by the disease.

“The complex relations between religion and AIDS are full of nuances not often acknowledged,” Dr. Trinitapoli said. “We correct these misconceptions, and draw new conclusions that change the common perception of sub-Saharan Africa, religion, and the epidemic.”

A common perception is that religion is a detrimental force in the fight against AIDS in Africa. The researchers found this is not true. Using a combination of survey data and in-depth interviews, they focused on the effects of religion on AIDS education and awareness.

“AIDS is a relative problem in sub-Saharan Africa,” Dr. Weinreb said. “For some, it is central to their day-to-day lives. For many others, however, AIDS is distant, dwarfed by more immediate concerns like poverty, work, family conflict, and other daily struggles.”

The authors’ findings further defy conventional beliefs when the discussion shifts to an analysis of HIV prevention strategies and how they vary across and
within religious groups. Many religious leaders actually support condom use. For example, congregations frequently convey the ABC (Abstinence, Be faithful, use Condoms) message, which introduces the benefits of abstinence, but also teaches safe sex and birth control methods as well. Interestingly, ABC has been interpreted and implemented in different ways in different congregations. For example, congregations may stress one method over others. This allows for the tailored application of common prevention strategies and the implementation of prevention strategies that may fit better with some religious traditions than others.

The authors discuss the response to the AIDS crisis, suggesting how it can be more efficient and better focused. In particular, the authors consider the role of family and community members in the lives of those afflicted by AIDS, and the stigma they face. They suggest that such local responses are largely disregarded in the popular narrative of the AIDS epidemic, but are important in understanding exactly where communities need help, and how assistance should be delivered.

“With millions dead and tens of millions infected, AIDS demands that we give people, including those in Africa, more autonomy to manage AIDS with their own conceptual and practical tools,” Dr. Trinitapoli said. “In Africa, religion is one of those tools.”

The book ends with a discussion of the effects of AIDS on religion itself, and how religions are changing to accommodate and assist populations fraught by the disease. It becomes apparent that religious leaders in sub-Saharan Africa are too often painted with a broad brush as “road blocks” to the resolution of the AIDS crisis.

“Dr. Trinitapoli and I take innovative approaches to the prevention and treatment of the disease, and regularly assist congregation members in their plight by providing evidence-based preventions and information,” Dr. Weinreb said. “Based on our research, and contrary to popular belief, religion matters and has often been a positive change agent in responding to the AIDS epidemic.”
The Census Research Data Center

Coming to Penn State in 2014

With funding from a National Science Foundation grant and internal support from many University departments, Penn State will soon be home to one of fewer than 20 Census Research Data Centers (RDCs) in the United States. These RDCs provide approved researchers access to a range of data, including economic, health, and census data, that are currently restricted and difficult to obtain.

The Penn State facility will provide a secure connection to data collected by the U.S. Census Bureau and the National Center for Health Statistics. The RDC at Penn State will be a crucial resource for faculty members and graduate students in disciplines including economics, demography, statistics, political science, sociology, and the health sciences.

“Today, researchers need to travel to Washington, D.C. for restricted versions of data sets,” said Dr. Jenny Van Hook, director of the Population Research Institute and professor of Sociology and Demography, who is the project’s principal investigator. “It’s like you’re stepping into a virtual part of the Census Bureau.”

The College of the Liberal Arts, College of Agricultural Sciences, College of Health and Human Development, Eberly College of Science, Penn State Libraries, Population Research Institute, Social Science Research Institute and the Office of the Vice President for Research funded the project. The National Science Foundation also provided three years of funding support.
To protect privacy and confidentiality, researchers must go through several security steps to use the RDC and access data sets. Penn State will work with the Census Bureau to provide training and resources needed for researchers to use the facility. A bureau employee will oversee the center’s day-to-day operations in Paterno Library. Center organizers will host a grand opening early in Spring, 2014.

“For economics faculty members, this means everything,” said Dr. Mark Roberts, co-principal investigator and professor of Economics. “Every five years, the bureau conducts a census on retail, wholesale and manufacturing. Those data are never released publicly, but the RDC will provide this useful data. It will be extremely valuable for research projects.” Roberts will serve as the Center’s first director.

The RDC enhances research that covers topics including immigrant populations, housing markets, employment, voting behavior, and health disparities. It also builds opportunities for cross-university collaboration. The other RDCs are located in mostly major cities and financial hubs across the country.

Dr. Roberts said cities and major research universities with RDCs have access to all the same research data. Penn State will have that, too, and open doors to a wide network of collaboration.

“Whether you are working with someone in Atlanta or in Seattle, it’s extremely valuable that we can access the same information simultaneously,” Dr. Roberts said. “As the network grows, it becomes even more valuable.”

Also working on this project are Drs. Marianne Hillemeier, professor of Health Policy Administration; John Iceland, professor of Sociology and Demography; and Leif Jensen, distinguished professor of Rural Sociology and Demography.

www.psurdc.psu.edu
The Association of Religion Data Archives

Providing Accessible Data to Social Scientists

In an age when information is widely disseminated over the Internet, researchers and the public alike often encounter misinformation from unreliable sources, and databases containing factual information remain inaccessible.

Fortunately, Penn State houses the Association of Religion Data Archives (ARDA), which provides high-quality data free of charge. The archive benefits social scientists, religion scholars, religious congregations, educators, and journalists alike.

The ARDA website provides access to an archive of more than 700 data files, including the General Social Survey, the American National Election Studies, and 42 Pew Research Center surveys. It also includes international religion data, like the recently released Religion and State Dataset.

Dr. Roger Finke, professor of Sociology and Religious Studies, launched the ARDA in 1996, and continues to serve as the director. The ARDA is housed in the Population Research Institute and is supported by the Lilly Endowment, the John Templeton Foundation, Chapman University, and Penn State.

“The foremost research centers and religion scholars submit their data to the ARDA, where it is processed for public use,” Dr. Finke said. “A team of graduate and undergraduate students prepares a database that includes both the data and the full wording of each survey question. This allows the ARDA to become an archive of questions and data with easy public accessibility.”

Last year, the ARDA accumulated more than 24 million page views and 57,936 dataset downloads. A division of the American Library Association named the ARDA website one of the Best Free Reference Websites in the world. It is currently included in Thomson Reuter’s Web of Knowledge Data Citation Index, and has been cited in nearly 200 refereed journals.

Users can explore the codebooks, save questions to a “question bank,” and cross-tabulate the questions with socio-demographic characteristics of the samples. Characteristics include sex, race, income, and education. Virtually all of the files can be downloaded in multiple formats. The simplicity of the online codebook and absence of account sign-ups make the researcher’s work easy and efficient.
The ARDA also provides a suite of online tools and resources. Relying on surveys such as the 2010 General Social Survey and 2007 Baylor Religion Survey, a feature called QuickStats offers instant information on attitudes toward topics like government, war, abortion, homosexuality, science, and religion.

The website’s “International” section provides national and regional profiles that include general demographics, history, and level of government regulation on religion. Users interested in recent religious events can click on the “Press Room” section to access David Briggs’ biweekly column entitled “Ahead of the Curve,” which is featured in many major publication outlets.

In the future, the ARDA will release a sophisticated online tool known as the Measurement Wizard. It will allow users to compare and evaluate questions across surveys. There will also be improvements to the Learning Center and the Religion Dictionary. As the ARDA becomes more popular, the site’s features will continue to expand to meet the varied needs of its broad audience.

www.theARDA.com
Training Students for Global Connections

Universities Collaborate to Slow Brain Drain in Ghana

An idea born out of scholarly ingenuity and circumstance now serves as a model for capacity building in the developing world.

“What was becoming clear was that students who were coming to the United States from developing countries were not returning to those countries,” Dr. Francis Dodoo, professor of Sociology, said. “We needed to figure out a way to change this pattern of brain drain. Essentially, we ended up turning the process on its head and entirely re-thought how global doctoral level training should get done.”

In 2006, with the support of College of the Liberal Arts Dean, Dr. Susan Welch, Dr. Dodoo relocated to Ghana to lead the Regional Institute for Population Science (RIPS) for a two-year term. Collaborating with faculty at RIPS, Dr. Dodoo reformed the structure of the graduate program. In the new model, students in their third year of study travel to Penn State for one academic year with the aim of refining their dissertation research to meet the standards of a top research university.

While on the Penn State campus, students forge professional relationships and collaborations with faculty and graduate students, attend colloquia, and audit courses on specialized topics (e.g., spatial demography, family studies, and statistical methods for social research). Students also attend professional conferences such as the annual meetings of the Population Association of America and the American Sociological Association.

In these ways, RIPS students benefit from Penn State’s wealth of scholarly resources and return to Ghana to complete their educations. “The new training model enables RIPS students to acquire a degree of academic professionalization not easily attainable in Ghana,” Dr. Dodoo said. “However, these newly acquired skills return to Ghana with the students, and continue to further develop in the form of transcontinental academic collaborations and attendance at professional conferences.”

With a rich history of providing American universities like Penn State with stipends to support graduate students from the developing world, the Hewlett Foundation revised its vision in the mid-2000s to offer more direct financial support for training in these countries. Impressed with Dr. Dodoo’s new approach to doctoral training, the Hewlett Foundation awarded him and his colleagues, Drs. Gordon De Jong, professor of Sociology and Demography; Dr. Leif Jensen, professor of Rural
Sociology and Demography; and Dr. John Casterline, professor of Population Studies (now at Ohio State) a $1 million grant to strengthen and consolidate the partnership between the University of Ghana’s RIPS and Penn State’s Population Research Institute (PRI) and Department of Sociology. The funding supports Penn State’s central involvement in a novel approach to building doctoral-level capacity in population science and demography in the developing world.

“To date, five cohorts of RIPS students have come to Penn State. Students have studied a wide range of topics, including non-communicable diseases, climate change, and sexual behavior,” Dr. Dodoo said. “Researchers acting as mentors nurture the students in their professional and intellectual development.”

RIPS students frequently publish their work in leading, peer-reviewed, international journals. At 2013’s Population Association of America’s meeting, five papers authored by RIPS students were presented. The first graduate of the Hewlett generation of students, Dr. Naa Dodua Adjokatcher, is now being recruited onto the RIPS faculty.

“Working with faculty at RIPS and Penn State was the best of both worlds, literally,” Dr. Adjokatcher said. “Being able to go to Penn State for a year and receive instruction from so many leading professors in the field, and then return to Ghana to apply all that I have learned was perfect for me.”

The benefits of the Penn State and RIPS partnership extend beyond the training of visiting RIPS graduate students. More than 20 Penn State faculty members and graduate students from departments including Sociology, Geography, Economics, and Rural Sociology have traveled to RIPS as collaborators on research projects—or to collect their own data.

This mutually beneficial global relationship between RIPS and Penn State was recently rewarded when The Hewlett Foundation renewed Dr. Dodoo’s collaboration grant through 2015.
Innovative Methods

Advances in the social and behavioral sciences rest on novel approaches to research design, measurement, data collection, and analysis. Novel methodologies will allow investigators to address the complexities of human and social systems. At Penn State, collaborations with methods experts provide for new directions in the development of data collection and computational approaches for data modeling, mining, simulation, and analysis.

Preserving Privacy in Human Subjects Research

Developing Approaches to Increase Data Access and Research Accuracy

Sharing data advances science by promoting openness and integrity in research, and enhancing collaboration opportunities. However, many data sets—especially those collected for social science research—contain sensitive information and cannot be freely shared.

Confidential data can be protected, but the processes traditionally have shortfalls. Information is often stored with limited access for reasons of security. Approved individuals can see the data by going through administrative processes. This conventional approach is costly to both researchers and data facilities.

Another possibility is providing “sanitized” data using this approved information which is scanned prior to access and confidential information is removed. Privacy is guaranteed, but researchers are left with altered, also known as “noisy,” data. The concern is that sanitized data can be biased, misleading, and ripe for drawing invalid conclusions.

For example, where a test subject lives is confidential information and cannot be shared. That information can be valuable to a population study, and the data is helpful for future research. It would be ideal if shared data were not altered or otherwise limited.

Dr. Tse-Chuan Yang and his colleagues are developing a procedure to address this issue and apply it to social science and demographic research. With help from the Penn State Computer Science Department, the team developed an innovative method that “turns down the noise” in data without sacrificing privacy.

The procedure uses population information to fill in the gaps that sanitized data may have, while maintaining privacy. The new program is being developed based on a geocoded dataset. Geocoding creates new sets of longitudes and latitudes that can be used in statistical analyses. The data will include location information that cannot be shared publicly. The geocoded data will be split into two subsets, one analyzed with actual longitudes and latitudes and the other analyzed with the created coordinates. Using this method, researchers will be able to find answers to their research questions.

By identifying trends and associations—such as between body mass index and place of residence—in one half of the sample, researchers can assume it pertains to the other half as well. The altered information is tested, and if it passes the test, it can be shared without the typical privacy concerns that have long hampered data sharing.

“The data generated with this recently proposed framework will be useful for social scientists because the statistical
utilities are not compromised,” Dr. Yang said. “We will also evaluate results using social science datasets that already exist.” The research team will ensure that inferences are based on statistical trends/associations rather than “noise” or other effects injected by the sanitation process.

Yang said that commercial statistical software programs today do not account for the distortions in sanitized data. Researchers may not realize the effects of privacy-inducing procedures on their data, and that their results will be tainted with “noise.” Dr. Yang’s research group strives to connect with graduate students and other researchers and educate them on what can be lost in some data sanitation processes.

“The literature provides examples for social scientists on ways of sanitizing their data,” Dr. Yang said. “We are developing tools so researchers can draw valid conclusions through analysis of sanitized data.”

This new process eliminates much of the expensive, time-consuming processes that can often limit the validity of social science research. This innovative program expands the possibilities of sharing data, while ensuring that participant’s private information stays confidential.

Yang said that commercial statistical software programs today do not account for the distortions in sanitized data. Researchers may not realize the effects of privacy-inducing procedures on their data, and that their results will be tainted with “noise.” Dr. Yang’s research group strives to connect with graduate students and other researchers and educate them on what can be lost in some data sanitation processes.

“The literature provides examples for social scientists on ways of sanitizing their data,” Dr. Yang said. “We are developing tools so researchers can draw valid conclusions through analysis of sanitized data.”

This new process eliminates much of the expensive, time-consuming processes that can often limit the validity of social science research. This innovative program expands the possibilities of sharing data, while ensuring that participant’s private information stays confidential.

Yang said that commercial statistical software programs today do not account for the distortions in sanitized data. Researchers may not realize the effects of privacy-inducing procedures on their data, and that their results will be tainted with “noise.” Dr. Yang’s research group strives to connect with graduate students and other researchers and educate them on what can be lost in some data sanitation processes.

“The literature provides examples for social scientists on ways of sanitizing their data,” Dr. Yang said. “We are developing tools so researchers can draw valid conclusions through analysis of sanitized data.”

This new process eliminates much of the expensive, time-consuming processes that can often limit the validity of social science research. This innovative program expands the possibilities of sharing data, while ensuring that participant’s private information stays confidential.

Yang said that commercial statistical software programs today do not account for the distortions in sanitized data. Researchers may not realize the effects of privacy-inducing procedures on their data, and that their results will be tainted with “noise.” Dr. Yang’s research group strives to connect with graduate students and other researchers and educate them on what can be lost in some data sanitation processes.

“The literature provides examples for social scientists on ways of sanitizing their data,” Dr. Yang said. “We are developing tools so researchers can draw valid conclusions through analysis of sanitized data.”

This new process eliminates much of the expensive, time-consuming processes that can often limit the validity of social science research. This innovative program expands the possibilities of sharing data, while ensuring that participant’s private information stays confidential.

Yang said that commercial statistical software programs today do not account for the distortions in sanitized data. Researchers may not realize the effects of privacy-inducing procedures on their data, and that their results will be tainted with “noise.” Dr. Yang’s research group strives to connect with graduate students and other researchers and educate them on what can be lost in some data sanitation processes.

“The literature provides examples for social scientists on ways of sanitizing their data,” Dr. Yang said. “We are developing tools so researchers can draw valid conclusions through analysis of sanitized data.”

This new process eliminates much of the expensive, time-consuming processes that can often limit the validity of social science research. This innovative program expands the possibilities of sharing data, while ensuring that participant’s private information stays confidential.

Geographic Information Analysis

Dr. Stephen Matthews
Academic Director,
Geographic Information Analysis Core

Dr. Tse-Chuan Yang
Director, Geographic Information Analysis Core

Co-supported by SSRI and PRI, the GIA Core provides services in support of the effective use of geospatial data to extend the reach of social scientists at Penn State. Its services encompass techniques and customized GIS/spatial analysis programming. GIA also supports the collection of intensive longitudinal geospatial data and the building of contextual and ecological databases.

Confidential Education

For Dr. Yang and his colleagues, educating people on the importance of privacy is a key initiative—no matter how old they are. Members of the team visited The Discovery Space children’s workshop in downtown State College to share their knowledge with the students. The researchers make a concerted effort to reach out beyond the University and raise awareness about population research, as well as issues of privacy.
Survey Research Center
www.survey.psu.edu

Dr. Kurt Johnson
Director, Survey Research Center

Dr. Eric Plutzer
Academic Director, Survey Research Center

The Survey Research Center serves the University’s research community by providing high quality survey research services to faculty, graduate students, and institutional investigators. The Center’s mission is to provide survey services, promote and contribute to the science of survey research methodology, and help faculty and student investigators prepare proposals for external funding.

Do the Locomotion
Identifying How a Brain’s Optic Flow Changes Over Time

Whether walking through a crowd or taking a leisurely stroll in a park, locomotion—moving under one’s own power—is a large part of daily life. But how do we steer through complex environments without colliding into others or into objects in our paths?

Associate Professor of Psychology, Dr. Rick Gilmore, is academic director of the Human Imaging at the Social, Life, and Engineering Sciences Imaging Center (SLEIC). He recently received $385,000 from the National Science Foundation for a set of studies that will provide some of the answers. The three-year program of research will examine behavior and brain responses to a form of visual motion called “optic flow.” Different types of locomotion create different types of optic flow.

The ability to register an object approaching the eyes, known as optic flow sensitivity, changes as humans develop, but how exactly it changes is not well understood. Dr. Gilmore’s studies will collect electroencephalographic (EEG) recordings and behavioral data from infants, children, and adults. EEG measures electrical activity through sensors along a subject’s scalp. The data collected through this procedure is analyzed in a model that simulates the motion-sensitive circuits of the visual brain and how they develop.

The first study will collect EEG data while participants experience different types of optic flow. The flow patterns will turn on and off at regular intervals. Then, the research team will look for signals in the EEG data that change with the same frequency as the flow.

“This is the first study of its kind to obtain data using the same EEG measures and optic flow displays with infant, child,
Innovative Methods

and adult participants,” Dr. Gilmore said. EEG data will be collected at the Human Electrophysiology Facility at SLEIC. Understanding optic flow across developmental periods is important because the human brain undergoes its most rapid period of development in the first two years of life—and little is known about early brain development.

Gilmore’s team will also measure optic flow processing using behavioral measures. Pairs of optic flow displays will be shown to participants and an experimenter will judge the individual’s “preference” for one display or the other. One flow display will show changing flow, the other will show constant flow. Based on prior research with infants, the team predicts that most participants will prefer the changing flow—if they can see the change.

There are specific brain regions that respond robustly to optic flow. Because these brain areas mature at different rates, the team predicts that EEG and behavioral data will show patterns that reflect development in motion-sensitive brain areas.

A second set of studies will explore brain responses and perceptual sensitivity to moving figures. Participants will view dot displays in which figures “pop out” and disappear at regular intervals. How will infants, children, and adults differ?

“Babies start detecting and tracking shapes early on, but don’t move independently for several months after birth,” Dr. Gilmore said. “We predict that the ability to identify figures will emerge earlier than locomotion-related responses.”

Much of what scientists know about visual perception and the brain’s visual circuitry comes from research on static, non-moving patterns. The results of this research will increase understanding about the human motion processing system.

www.imaging.psu.edu
# SSRI Committees

## OVERSIGHT COMMITTEE

<table>
<thead>
<tr>
<th>Barbara Christ</th>
<th>Mukund Kulkarni</th>
<th>Neil Sharkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dean, College of Agricultural Sciences</td>
<td>Chancellor, Penn State Harrisburg</td>
<td>Interim Vice President for Research</td>
</tr>
<tr>
<td>Ann Crouter</td>
<td>David Monk</td>
<td>Susan Welch</td>
</tr>
<tr>
<td>Dean, College of Health and Human Development</td>
<td>Dean, College of Education</td>
<td>Dean, College of the Liberal Arts</td>
</tr>
<tr>
<td>Daniel Notterman</td>
<td>Associate Vice President for Research, College of Medicine</td>
<td></td>
</tr>
</tbody>
</table>

## STEERING COMMITTEE

<table>
<thead>
<tr>
<th>Karen Bierman</th>
<th>Jennifer McCall-Hosenfeld</th>
<th>Rachel Smith</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinguished Professor of Psychology</td>
<td>Assistant Professor of Medicine and Public Health Sciences</td>
<td>Associate Professor of Communication Arts &amp; Sciences and Human Development &amp; Family Studies</td>
</tr>
<tr>
<td>Director, Child Study Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kathleen Bieschke</td>
<td>Scott McDonald</td>
<td>Joshua Smyth</td>
</tr>
<tr>
<td>Department Head, Educational Psychology, Counseling, and Special Education</td>
<td>Associate Professor of Education</td>
<td>Academic Director, Dynamic Real-Time Ecological Ambulatory Methodologies (DREAM) Initiative</td>
</tr>
<tr>
<td></td>
<td>Claudia Mincemoyer</td>
<td>Professor of Biobehavioral Health and Medicine</td>
</tr>
<tr>
<td></td>
<td>Professor of Agricultural Economics, Sociology, and Education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Director, Penn State Better Kid Care Program</td>
<td>Professor of Biobehavioral Health and Medicine</td>
</tr>
<tr>
<td></td>
<td>Paul Morgan</td>
<td>Catherine Surra</td>
</tr>
<tr>
<td></td>
<td>Associate Professor of Education</td>
<td>Director, Behavioral Sciences and Education</td>
</tr>
<tr>
<td></td>
<td>Director, Educational Risk Initiative</td>
<td>Penn State Harrisburg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Daniel Perkins</td>
<td>Krista Wilkinson</td>
</tr>
<tr>
<td></td>
<td>Director, Penn State Clearinghouse for Military Family Readiness</td>
<td>Professor of Communication Sciences and Disorders</td>
</tr>
<tr>
<td></td>
<td>Professor of Family and Youth Resiliency and Policy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stephen Wilson</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assistant Professor of Psychology</td>
</tr>
</tbody>
</table>