



2021 ASPPH/CDC Public Health Fellowship Program Announcement

ASPPH GRADUATE TRAINING PROGRAMS

ASPPH ASSOCIATION OF
SCHOOLS & PROGRAMS
OF PUBLIC HEALTH

2021 Fellowship Opportunities ASPPH/CDC Public Health Fellowship Program

Program Announcement

The **ASPPH/CDC Public Health Fellowship Program** is a collaborative effort between the Association of Schools and Programs of Public Health (ASPPH) and the Centers for Disease Control and Prevention (CDC). As part of the Academic Partners to Improve Health (APIH) alliance, the fellowship program strives to “identify new approaches and opportunities for field experience in which graduate candidates and early career professionals with graduate degrees can practice applying skills and knowledge learned in the classroom and field.”

The Program's purpose is to enable early career professionals with graduate degrees in public health (Masters and Doctoral level) an opportunity to round out their academic training and gain practical public health experience. Fellows will benefit from: exposure to state-of-the-art technology and databases; acquisition of skills and knowledge to enhance their careers; and interaction with technical experts in their chosen fields.

The fellowship program includes a special component for all Atlanta-based fellows, the Community Learning and Social Medicine (CLSM) Program. The CLSM program is a community site experience, through the CDC and APIH fellowship programs, that provides an opportunity for fellows to be immersed in a community setting and serve as a part of a multi-disciplinary team of learners and professionals who are exploring and identifying ways to address the needs of the community. The goals of the CLSM program are to: improve the health of greater Atlanta residents through community engagement; gain an understanding of the benefits of interdisciplinary learning; develop initiatives with fellow learners from a clinical discipline; and refine communication skills to effectively address target populations and other health professionals. Beginning in August of each year and ending the following June, the CLSM experience combines experiential learning with classroom work to help fellows gain, enhance, and exercise important skills essential for future public health leaders.

Ultimately, upon completion of the **ASPPH/CDC Public Health Fellowship Program**, fellows will have made useful contributions to projects of national public health importance that are related to the mission of the CDC, while gaining a significant skillset that will set the foundation for their public health careers.

Eligibility

To be eligible for this program, applicants must have received their Masters or Doctorate degree prior to the beginning of the fellowship (no later than June 2021) or within the last five years (no earlier than June 2016). Graduate degrees must come from an ASPPH member graduate school or program of public health, accredited by the Council on Education for Public Health (CEPH). (For a list of ASPPH members, see www.aspph.org.) All applicants must be U.S. citizens or hold a visa permitting permanent residence (“Green Card”) in the U.S. to be eligible for the fellowship program. CPH preferred.

Period of Performance

Fellowship positions are full-time training opportunities for the duration of **one year** beginning on **July 7, 2021**. Positions may possibly be extended for up to two additional years, pending availability of funds and satisfactory progress by the fellow.

Location

Most fellowship opportunities will be located in Atlanta, Georgia. Project descriptions will note if the position is based outside Atlanta. Selected fellows are required to relocate to the fellowship location; **relocation expenses will not be reimbursed**.

Funds Available

The annual training stipend for the fellowship positions is **\$50,464** for **Masters** level candidates, and **\$55,738** for candidates with **advanced graduate degrees** (MD, PhD, DrPH, JD, etc.). The fellowship stipend is intended to assist with personal living expenses.

In addition to the fellowship stipend, fellows will have access to a \$4,000 health allowance that is intended to help offset the costs of health/dental/vision insurance premiums during the one-year fellowship period. In addition, some positions may offer a “travel/training allowance” that may be used to cover project-related travel, tuition, journal subscriptions, association dues, etc. Not all positions will receive a travel/training allowance. The need for a travel/training allowance is determined by each individual host-office, not by ASPPH.

Fellowship Opportunities Available

There are currently **five (5)** fellowship positions available for the 2021 ASPPH/CDC Public Health Fellowship Program.

The following is a breakdown of fellowship opportunities at each Center/Institute/Program Office (C/I/O) at the CDC:

C/I/O	Number of Positions
Center for Global Health (CGH)	1
National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)	1
National Center for Injury Prevention and Control (NCIPC)	2
National Center for Immunization and Respiratory Diseases (NCIRD)	1

To read full project descriptions for these positions, please see **Fellowship Project Descriptions for 2021** on Page 5, and/or visit the ASPPH Training Programs Online Application System, as noted below.

Application Procedure

Each applicant may apply for up to three (3) fellowship positions. Applications are to be completed online through the ASPPH Training Programs Online Application System at <https://fellowships-internships.aspph.org/>. Incomplete applications, and those that have not been submitted by the deadline, will not be accepted. Please see Section 9 for detailed application instructions. **Application deadline is Thursday, January 28, 2021.**

Evaluation Criteria

The following criteria will be used to assess the applicant's ability to participate in the fellowship program.

<u>Evaluation Criteria</u>	<u>Maximum Points</u>
Quality of Essay	40
Strength of Credentials	25
Previous Experience	25
Recommendations	10

Review & Final Selection

By early-March an Objective Review Committee will complete the review of the applications based on the criteria described above. Candidates receiving a high score in Objective Review will advance to Technical Review at CDC. Mid-March through mid-April, applicants may be contacted by CDC staff and/or ASPPH staff for a telephone interview, additional information, and/or clarification of information relevant to the application. All final selections will be made by mid-May. Those applicants chosen will be immediately notified by phone and email. All other applicants will be notified by email.

Application Instructions

The **ASPPH Fellowship Online Application System** is a centralized application service offering a secure, easy and convenient way for students/graduates of ASPPH member schools and programs of public health to apply to all ASPPH Fellowships and Internships. The online application is also accessible through the ASPPH website at www.aspph.org.

<https://fellowships-internships.aspph.org/>

To begin your online application, please click the "Sign Up" button, below the Login button, to create a password protected account. Signing up is free and easy. If you already have an account, you can log in on this page as well.

Each applicant may apply for up to three fellowship positions, as described in Section 6. Please carefully

read the instructions that appear throughout the online application system. After submission, applicants may edit applications by clicking on the pencil icon () in the “My Status” section at any time prior to the application deadline. The application may be edited as necessary at any time prior to the application deadline. **If you edit your application, you must resubmit it before the deadline or it will not be reviewed.** Applications are reviewed only after the online application deadline has passed. Incomplete applications, and those that have not been submitted by the deadline, will not be accepted.

To complete the online application, you will need to provide the following information and documentation:

- Degree and expected graduation date
- Name, email address, and phone number of your faculty advisor if you are a current student.
Your faculty advisor will be asked to confirm your expected graduation date.
- Resume/CV (saved as a PDF File)
- Graduate transcript from an ASPPH-member school or program of public health
The transcript may be official or unofficial. If you are selected for a fellowship position, you will be required to provide an official transcript.
- Name, email address, and phone number of two recommenders.
Your recommenders will be asked to provide letters of recommendation for you. The recommenders will be emailed directly from the application system, but only after you submit your application for the first time. **Do not submit your application for the first time on the due date; your recommenders will not have time to submit their letters. If you plan to submit your final application on the due date, you should enter your recommenders’ information before then, submit the application in order to prompt the emails to your recommenders to be sent, and then click the edit button to continue working on your application. Remember to resubmit by the deadline.**
- One essay per position (1500 word max saved as a PDF File)
You must submit a separate essay for each position to which you are applying explaining your interests, strengths, and qualifications for that particular position, as well as how it will benefit your long-term career plans in the field of public health.

Applications must be submitted electronically, through the Online Application System,

by 11:59 PM Eastern Time on Thursday, January 28, 2021.

Incomplete applications will not be accepted.

Unsubmitted applications will not be reviewed.

Questions

All questions regarding the application process should be sent to TrainingPrograms@aspph.org

Fellowship Project Descriptions for 2021

NOTE: All positions are for a one-year period beginning July 7, 2021

Position #Y4-21-CGH-01

CIO and Location:

Center for Global Health (CGH), Division of Global HIV & Tuberculosis
Atlanta, GA

Fellowship Title:

Public Health Fellow in Health Systems Strengthening

Purpose and Mission of Sponsoring CIO/program:

HIV and tuberculosis (TB) are the world's two most deadly infectious diseases. Additionally, these two epidemics are tragically interconnected, as TB is the leading cause of death for those living with HIV.

CDC's Division of Global HIV and TB (DGHT), through the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), is tackling these two epidemics to produce the greatest impact. Experts in Atlanta and in more than 45 countries and regions around the globe are focused on fighting these diseases to ultimately bring an end to HIV and TB worldwide.

Project Description:

The fellow will learn the methodologies and practices necessary to support PEPFAR country teams to improve their (1) workforce planning and deployment, and (2) program quality improvement through the collection and use of workforce data. This fellowship is hosted by the Health Systems and Human Resources Team (HSHRT) within CDC's Center for Global Health, Division of Global HIV and TB, Economics and Health Services Research Branch. HSHRT aims to increase the impact of the global HIV response by improving efficiency, transparency, and accountability of PEPFAR programming through the provision and use of high-quality health workforce data for decision making.

The fellow will collect, analyze and report on data for the development of technical guidance and provision of assistance on program quality improvement initiatives related to Human Resources for Health (HRH) in PEPFAR-funded countries. The position will include using various methodologies and resources to assess and correct the HRH footprint and investments in these countries such as (1) identifying opportunities for program improvement; (2) supporting workforce development and optimization; (3) reviewing national policies to identify opportunities to promote or improve universal access to care for persons living with or at high risk for HIV/AIDS, and (4) translating data, and developing reports and guidance on data analytic findings.

The ideal candidate is a critical thinker able to take concepts to fruition, execute tasks with diplomacy, and demonstrates knowledge of and experience assessing risk and protective factors for achievement of program goals.

Expected Benefits:

- Learn how the essential public health services can support efforts to control the global HIV epidemic including capacitating local health workers and health systems towards sustainability and resiliency.
- Gain practical skills in program quality improvement and data management.
- Gain practical skills in health systems strengthening that can be translated to global or domestic public health practice.
- Understand the value of working with an interdisciplinary team to achieve public health mandates and objectives.

Required and/or Desired Skills and Knowledge:

- Masters Degree from CEPH-accredited, ASPPH-member school/program of public health
- Demonstrated ability to develop and apply systematic methods for planning, conducting and evaluating public health programs (especially but not necessarily HIV or global health workforce.)
- Demonstrated ability to gather and analyze information for program quality improvement (especially but not necessarily to identify health systems challenges, gaps, needs and solutions) to resolve and improve care and treatment.
- Demonstrated ability to assess and interpret policy to support public health decision making
- Demonstrated ability to apply scientific principals and techniques to develop or enrich knowledge of public health practice.
- Use of critical thinking to identify, analyze, and resolve problems or issues.
- Strong and effective communication skills
- Customer service orientation and ability to manage competing priorities
- Good interpersonal skills, i.e., willingness and ability to work effectively and collaboratively as a member of a ethnically, religiously, professionally, and linguistically diverse team.
- A willingness and ability to travel both domestically and internationally

Position #Y4-21-ZID-01

CIO and Location:

National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of High Consequence Pathogens and Pathology
Atlanta, GA

Fellowship Title:

Public Health Fellow in Program Management to Address Bacterial Zoonotic Diseases.

Purpose and Mission of Sponsoring CIO/program:

The Division of High Consequence Pathogens and Pathology (DHCPP) provides technical expertise and laboratory diagnostic support for a host of extremely dangerous pathogens. Staff from DHCPP respond to outbreaks around the world, work with partners to implement effective prevention measures against future outbreaks and conduct public health research to improve diagnostic assays and treatment of these diseases in order to protect Americans and the world's population from infectious disease threats. Bacterial Special Pathogens Branch (BSPB) is one of five branches in DHCPP and focuses on infectious diseases caused by bacterial pathogens such as anthrax, brucellosis, leptospirosis, melioidosis and nocardias.

Project Description:

The participant will gain experience managing project activities including building and maintaining relationships with international partners. Tasks that the fellow will be exposed to may include developing work plans, timelines, and budgets for each project activities; monitoring implementation of activities and identifying delays and challenges with the project team; developing an evaluation plan for project activities and assisting with processing funding mechanisms. The participant may also help develop project proposals for additional funding or phase 2 activities.

BSPB projects include strengthening surveillance systems for a specific disease in human or animal populations, improving laboratory diagnostic capacity including providing appropriate training and supplies and assisting countries to implement effective and culturally appropriate prevention and control plans for targeted diseases.

In BSPB, each project has a team of people including epidemiologists, laboratory scientists, public health analysts and senior leadership that work together to ensure projects are successfully implemented. The participant will be a member of 2-3 project teams and will work with and learn from the other members of the team regarding all aspects of program management. The participant will also build skills in surveillance, survey development and health communications.

Expected Benefits:

The participant will expand and strengthen their skill set in public health management. Specifically, the participant will gain experience in all aspects of project management, understand CDC processes and mechanisms for funding partners through contracts and cooperative agreements and will strengthen their diplomacy skills to work with a wide range of partners to implement activities. While working on the project team the participant will also have the opportunity to develop or strengthen skills related to surveillance, survey development and health communications.

This fellowship will also benefit BSPB's domestic and international partners as there will be another person on the project management team to review and monitor activities which will help ensure smooth implementation and stronger surveillance and laboratory diagnostic systems for high-threat pathogens around the world.

Required and/or Desired Skills and Knowledge:

- Masters Degree from CEPH-accredited, ASPPH-member school/program of public health
- Experience in Program Management and Planning
- Experience in Program Monitoring and Evaluation
- Experience in Budget Execution
- Experience in Proposal Development
- Strong writing skills
- Arabic or French language preferred

Position #Y4-21-IPC-01

CIO and Location:

National Center for Injury Prevention and Control (NCIPC), Division of Violence Prevention
Atlanta, GA

Fellowship Title:

Violence Prevention Social Norms Research Fellowship

Purpose and Mission of Sponsoring CIO/program:

The Division of Violence Prevention (DVP) supports extramural and intramural violence prevention research projects. Efforts include the prevention of youth violence, child maltreatment, Adverse Childhood Experiences (ACEs), sexual violence, intimate partner violence, firearm injury and other emerging topics. DVP is committed to stopping violence before it begins (i.e., primary prevention). The division's work involves:

- Monitoring violence-related injuries
- Conducting research on the factors that put people at risk or protect them from violence
- Creating and evaluating the effectiveness of violence prevention programs
- Helping state and local partners plan, implement, and evaluate prevention programs
- Conducting research on the effective adoption and dissemination of prevention strategies

The objective of the fellowship program is to provide public health graduate and post-doctoral students and early career professionals the opportunity to gain hands-on public health and prevention experience in the area of violence prevention. The Fellow will assist with research, analyses, and programmatic activities as they relate to violence prevention work in DVP's Research and Evaluation Branch (REB), and more specifically, those activities that pertain to the sexual violence and intimate partner violence team.

Project Description:

DVP is seeking a skilled fellow to assist us with research and evaluation activities related to research on the potential for social norms and messaging to change attitudes and behaviors related to violence. The proposed fellowship will leverage prior and ongoing social norms work (e.g., social norms related to corporal punishment among black, Latino and white parents, see Klevens, Kollar et al. 2019; sexual violence in the media, see Egen et al., 2020; masculinity and gender norms research). Specifically, REB seeks to use a social norms approach to change norms around violence. This includes using descriptive and injunctive norms to influence message development, testing and selecting messages for use in social norms approaches to promote violence prevention. REB emphasizes shared risk and protective factors for violence prevention, and these must also inform social norms research and messaging.

The fellow will support the growing social norms portfolio and help DVP understand and provide strategic direction for social norms research in the primary prevention of violence. This fellow will (1) analyze national datasets in relation to social norms and violence behaviors particularly in relation to populations at disproportionate risk for violence, (2) continue work on an environmental scan identifying and describing past social norms work in DVP, (3) collaborate with other scientists and teams to further social norms work within the division through research and evaluation, and (4) develop and lead a project in collaboration with mentors that align specifically with fellow's skillset and interests in social norms related to violence.

Duties may include, but are not limited to: (1) reviewing literature and past research on sexual and intimate partner violence especially as it relates to social norms, message development, and communication campaigns and interventions, (2) contributing to current research including extending current research, analyzing past research with qualitative and/or quantitative data (based on fellow's skillset), and leading or co-authoring scholarly manuscripts and/or conference submissions, (3) communicating, building and maintaining relationships with scientists and communication experts within CDC and outside of CDC, and (4) contributing toward recommendations for future work in social norms within DVP.

Expected Benefits:

The fellow will gain experience and professional development so that the fields of public health and violence prevention in the U.S. are strengthened. Upon completion of a fellowship, the fellow will have:

- 1) Received training in all aspects of research (e.g., data analyses, scholarly writing) especially related to social norms and evidence-based methods to prevent violence;
- 2) Gained first-hand knowledge of the field of sexual and intimate partner violence prevention;
- 3) Become well-versed in the program and policy issues affecting public health;
- 4) Contributed to research of national importance related to the mission of the CDC and DVP; and
- 5) Provided evaluation and technical assistance support internally to other DVP social norms-related projects.

The fellow will benefit from high quality mentorship from CDC subject matter experts in the field of violence prevention and communication experts resulting in professional connections. The fellow will be encouraged to publish and present scientific findings that could strengthen his/her career opportunities. The research and findings produced from this experience will provide a greater understanding of how we can prevent violence and mitigate the impact of violence after it has occurred.

Required and/or Desired Skills and Knowledge:

- Masters Degree from CEPH-accredited, ASPPH-member school/program of public health
- Experience or knowledge regarding violence research and evaluation, including sexual and intimate partner violence;
- Experience or knowledge of communications and social norms approaches to changing behavior;
- Experience with qualitative and/or quantitative data analysis;
- A track record of scientific productivity exemplified by scientific publications, presentations and other evidence of effective written and verbal communication skills;
- Experience using R; and
- Ability to work independently and collaborate with interdisciplinary scientific and professional staff on health-related research.

Position #Y4-21-IPC-02

CIO and Location:

National Center for Injury Prevention and Control (NCIPC), Division of Violence Prevention
Atlanta, GA

Fellowship Title:

Communication and Health Education Fellowship

Purpose and Mission of Sponsoring CIO/program:

The Division of Violence Prevention (DVP) supports extramural and intramural violence prevention research projects. Efforts include the prevention of youth violence, child maltreatment, sexual violence, intimate partner violence, and suicide. DVP is committed to stopping violence before it begins (i.e., primary prevention). The division's work involves:

- Monitoring violence-related injuries
- Conducting research on the factors that put people at risk or protect them from violence
- Creating and evaluating the effectiveness of violence prevention programs
- Helping state and local partners plan, implement, and evaluate prevention programs
- Conducting research on the effective adoption and dissemination of prevention strategies

The objective of the fellowship program is to provide public health graduate and post-doctoral students, and early career professionals the opportunity to gain hands-on public health and prevention experience in the area of violence prevention. The Fellow will assist with research, analyses, and programmatic activities as they relate to violence prevention work in DVP's Research and Evaluation Branch (REB), and more specifically, those activities that pertain to the child maltreatment and sexual violence team.

Project Description:

DVP is seeking a skilled fellow to assist us with research and evaluation activities related to research on the potential for social norms and messaging to change attitudes and behaviors related to child abuse and neglect. The proposed fellowship will leverage prior social norms work (e.g., social norms related to corporal punishment among black, Latino and white parents; Klevens, Kollar et al. 2019) to support building out DVP's Essentials for Parenting Toddlers and Preschoolers (EfP) online tool (see: <https://www.cdc.gov/parents/essentials/index.html>). EfP was developed as a free, self-directed/self-paced universal online parenting intervention that addresses common parenting challenges (e.g., discipline), and harnesses the capacity of parents, as agents of change, to build safe, stable, and nurturing relationships with their children. EfP follows evidence-based behavioral parent management training interventions (e.g., Incredible Years; Triple P) and incorporates text (e.g., short "articles"), demonstrations (videos and vignettes), and interactive activities (e.g., skill-building). EfP is nationally and internationally disseminated on CDC's website. The online tool has the potential to demonstrate population-based impact by increasing positive parenting, including norms around nonviolent discipline, to prevent adverse childhood experiences. Recent web metrics indicate that EfP is popular and well-utilized with an average of 30,000 monthly visitors.

The fellow will support the advancement of ACEs prevention, a DVP and Center priority; help DVP understand and provide strategic direction for social norms and parenting skills research in the primary prevention of violence; and lay the groundwork for future investments by updating and expanding the EfP online tool for teens and adolescents. The ASPPH fellow will produce scientific manuscripts, conduct literature reviews and an environmental scan of extant research on parenting programs to

prevent violence, and support social norms research and evaluation projects in collaboration with REB scientists and DVP's Health Communications Team.

Expected Benefits:

The Fellow will gain experience and professional development so that the fields of public health and violence prevention in the U.S. are strengthened. Upon completion of a fellowship, the applicant will have:

- 1) Received training in all aspects of research (e.g., data analyses, scholarly writing) especially related to evidence-based methods to prevent violence;
- 2) Gained first-hand knowledge of the field of child abuse and neglect;
- 3) Contributed to research of national importance related to the mission of the CDC and DVP;
- 4) Produced at least 1 scientific manuscript to expand the current social norms research portfolio using available data sources;
- 5) Conducted at least 1 systematic review of best parenting practices to update EfP and 1 systematic review on parenting adolescents to provide up-to-date evidence-based information;
- 6) Conducted 1 environmental scan of programs for parenting adolescents and compiled parenting results internally and produce 1 translational document compiling recommendations for EfP expansion; and
- 7) Provide evaluation and technical assistance support internally to other DVP projects.

The fellow will benefit from high-quality mentorship from CDC subject matter experts in the field of violence prevention and communication experts resulting in professional connections. The fellow will be encouraged to publish and present scientific findings that could strengthen his/her career opportunities. The research and findings produced from this experience will provide a greater understanding of how we can prevent violence and mitigate the impact of violence after it has occurred.

Required and/or Desired Skills and Knowledge:

- Masters Degree from CEPH-accredited, ASPPH-member school/program of public health
- Experience or knowledge regarding violence research and evaluation, including child maltreatment and sexual violence;
- Experience or knowledge of communications and social norms approaches to changing behavior;
- Experience or knowledge of parenting interventions/programs;
- Experience with qualitative and/or quantitative data analysis;
- A track record of scientific productivity exemplified by scientific publications, presentations and other evidence of effective written and verbal communication skills;
- Experience using qualitative, quantitative, or social network software;
- Ability to work independently and collaborate with interdisciplinary scientific and professional staff on health-related research; and,
- Strong communication and inter-personal skills are highly desirable as this position requires frequent communication regarding highly technical matters with CDC scientists.

Position #Y4-21-IRD-01

CIO and Location:

National Center for Immunization and Respiratory Diseases (NCIRD), Immunization Services Division
Atlanta, GA

Fellowship Title:

Fellowship in assessing vaccination status of school-age children in the United States

Purpose and Mission of Sponsoring CIO/program:

The Immunization Services Division protects individuals and communities from vaccine preventable diseases through the provision of federal funds and contracts to purchase vaccine, the provision of technical and financial support of immunization programs, provider and public education, evaluation, and research. The Assessment Branch provides scientific leadership on measurement of vaccination coverage across the lifespan to collect, analyze and disseminate accurate vaccination coverage data, and promote use of these data for evaluation of immunization programs and policies at the national, state and local levels.

Project Description:

The fellow will join the school vaccination coverage assessment group in the Immunization Services Division. The fellow will have the opportunity to participate in vaccination coverage surveillance activities, work directly with state health departments to facilitate the collection of vaccination data and reporting to CDC, develop projects to use vaccination coverage data to better understand factors related to under vaccination and programmatic activities that could increase vaccination uptake, and develop reports and other innovative ways for presenting data to state immunization programs and other stakeholders so they can use the data to inform policy and decision-making. The fellow will also have the opportunity to author conference abstracts and articles for peer-reviewed publications, and present at internal CDC meetings and seminars and national conferences.

Expected Benefits:

This fellowship will provide the opportunity for the candidate to utilize academic training and gain practical public health experience. Candidates will also have the ability to train under subject matter experts to develop skills in surveillance and data analysis, interact with state and local health departments, and understand CDC processes and mechanisms. Fellows will have the opportunity to develop a topic, analyze data, and write a paper for publication, and will gain experience in scientific writing and public speaking.

Required and/or Desired Skills and Knowledge:

- Masters Degree from CEPH-accredited, ASPPH-member school/program of public health
- Ability to effectively multi-task and prioritize.
- Ability to work on projects independently and as a team player.
- Strong analytical and technical writing skills.
- Effective oral and written communication skills.
- Demonstrated knowledge of epidemiology or biostatistics.
- Ability to manage and analyze data using SAS or like software.