



# Public Health Alliance for Genomic Epidemiology

## CHARTER

**Adopted by the Steering Committee, (16 September 2020) (v2.0)**

Name of Consortium: Public Health Alliance for Genomic Epidemiology (PHA4GE)

Consortium Lead: Professor Alan Christoffels

Inception Date: November 2019

### **PREAMBLE**

While the development, standardization, deployment and support of new laboratory technologies and bench methods are a reasonably well-understood process in public health, shortfalls in bioinformatic and data analytic capacity remain critical and widespread. As sequencing becomes more routine, access to flexible, sustainable bioinformatics capacity has increasingly become one of the most critical emerging needs for public health laboratories throughout the world. This is especially true in responding to public health needs such as disease outbreaks and pandemics. Establishing sustainable bioinformatics capacity will require significant new investments in laboratory infrastructure, information technology and in developing a skilled laboratory and bioinformatics workforce.

As the Public Health Alliance for Genomic Epidemiology (PHA4GE), we see a tremendous opportunity to advance global public health through the development of an open source, community-supported ecosystem for bioinformatic software development, implementation, validation and support. Current models for public health bioinformatic software development are heavily fragmented and rely heavily on government platforms and academic software development, often to the exclusion of interested contributors. Openness will help reduce many of the current barriers to sustainable bioinformatics capacity in public health by enabling broader participation, defining key gaps and shared priorities, improving modularity, scalability and interoperability of existing software, and developing a mechanism to help fund critical software and development gaps, and ensuring the sustainability of core software, databases and tools.

No organization currently exists to support this goal at a global level. A formal, community-driven effort is desperately needed to help build consensus on technical solutions, the establishment of best practices and reference models, and a forum to debate and develop new standards for data exchange and bioinformatic development. Our model will rely on Working Groups focusing on defined projects to address these challenges.

## **1. PHA4GE VISION AND MISSION STATEMENT**

### **1.1 VISION**

Achieving a rapid global genomic-driven public health response to disease outbreaks and pandemics

### **1.2 MISSION STATEMENT**

PHA4GE is a global consortium working in public health bioinformatics to:

- establish consensus standards
- document and share best practices
- improve the availability of critical bioinformatic tools and resources; and
- advocate for greater openness, interoperability, accessibility and reproducibility of data and standards

## **2. PHA4GE GOALS**

PHA4GE hopes to:

- reduce the barrier to entry for routine sequencing
- promote standardization, portability and reproducibility of assays and workflows
- advance the use of open data and open source in public health
- improve surveillance and outbreak response capabilities
- promote innovation and development from the public and private sectors
- foster the development and resilience of the global public health bioinformatics workforce
- enable global public health to adapt more rapidly to changing priorities and emerging threats; and
- empower more laboratories to analyze and govern their own data, regardless of resource status

## **3. PHA4GE ORGANIZATIONAL STRUCTURE**

At the outset, PHA4GE has a simple and lightweight organizational structure. As the organization evolves, a more complex organizational and reporting structure will likely be required. The basic organization of PHA4GE includes three Support Groups that provide oversight to the Consortium and eight technical Working Groups. Details of membership are described under **Section 5**.



**Fig. 1: PHA4GE Organizational Structure**

## 4. PURPOSE OF PHA4GE GROUPS

To fulfill the Consortium’s mandate, the PHA4GE Working Groups engage in specific projects with the support of the Support Groups. These Support and Working Groups are evolving and the specific purpose for each group is outlined below:.

### 4.1 PHA4GE SUPPORT GROUPS

- The **Steering Committee** gives direction to the Consortium in terms of what the focal areas should be and holding Working Groups accountable to their action plans. Ongoing activities include discussions or briefings that are determined by the current and future.
- The **Advisory Board** functions as an independent group that provides strategic oversight; especially on how the Consortium engages the community.
- The **Secretariat** provides administrative and technical support to the Working Groups; communicate discussions and disseminate any relevant outputs for the Consortium to funders and other stakeholders.

### 4.2 PHA4GE WORKING GROUPS

- The **Data Structures Working Group** focuses on the development, adaptation, standardization and promotion of data models and standards for sequence data, contextual metadata, analytical results, and workflow metrics. Through the adoption of data models, they hope to improve the transparency, interoperability, and reproducibility of public health sequencing workflows. Further activities within the working group can be found [here](#).
- The **Infrastructure Working Group** focuses on computing infrastructure that underlies data analysis in public health genomics. While the majority of the groups within PHA4GE focus on best practices for data handling and analytic workflows, this working group has its eye on the environment that allows data to be stored and workflows executed in the first place. Further activities within the working group can be found [here](#).
- The **Bioinformatics Pipelines and Data Visualizations Working Group** focuses on the establishment of standards and best practices for bioinformatic pipeline development, workflow templating and management, packaging and containerization, code and documentation standards and strategies for support. The Working Group activities overlap with other Working Groups such as Data Structures, Infrastructure and; Ethics and Data sharing in that they have a unified goal of an open, interoperable and

accessible informatics ecosystem. Further activities within the working group can be found [here](#).

- The **Public Sequence Repositories Working Group** focuses on working with major repositories to establish and improve community-driven standards for sequence submission, query and retrieval, and provide coordinated feedback on the development of new resources for public health infectious diseases users. Further activities within the working group can be found [here](#).
- The **Reference, Quality Control and Validation Working Group** support the collation, dissemination and, where required, creation of best practice and advice relating to bioinformatics in public health laboratories. Specifically, the Working Group areas of work include reference and benchmark datasets; wet/dry lab protocol standardization, automation and auditing; application test sets; documentation standards for sequencing and bioinformatic workflows; resource validation; and regulatory. Further activities within the working group can be found [here](#).
- The **Training and Workforce Development Working Group**...Further activities within the working group can be found [here](#).
- The **Users and Applications Working Group**...Further activities within the working group can be found [here](#).
- The **Ethics and Data Sharing Working Group**...Further activities within the working group can be found [here](#).

## 5. PHA4GE MEMBERSHIP

PHA4GE membership continues to evolve and currently consists of three types of membership that fall into two categories- support groups and technical Working Groups. Support group members form the Steering Committee, Advisory Board and the PHA4GE Secretariat and these three groups have closed membership. The eight technical Working Groups have open membership and they include: Data Structures; Infrastructure; Bioinformatics Pipelines and Data Visualizations; Public Sequence Repositories; Reference, Quality Control and Validation; Training and Workforce Development; Users and Applications; and Ethics and Data Sharing. All members of the technical Working Groups will be required to sign a Memorandum of Understanding.

### 5.1 TYPES OF MEMBERSHIP

On expressing interest to join a PHA4GE Working Group, the applicant chooses the type of membership that they are willing to take. Membership varies within PHA4GE and the different types of membership and their privileges, roles and responsibilities are defined below. Further guidelines on how membership relates to publication; and vice versa; is explained in **Section 4.1** of the [Publication Policy](#). For all members, at any point during PHA4GE membership, changes of membership, including resignation from the Consortium, must be applied through the Working Group Chair. In the case of Working Group Chairs and Vice Chairs, any request for changes in membership may be done through the Steering Committee. On resigning from the Consortium, all privileges are forfeited.

### 5.1.1 Defining membership

- *Active member:* participates directly and substantively on the outputs of one or more Working Groups. Active members contribute to and have full access (read, edit and share) to PHA4GE's communication platforms such as shared drives, Github, Slack Channels, PHA4GE website, PHA4GE newsletters, Twitter and Facebook; listed as authors in their Working Group(s) publications and any publications that encompass the wider Consortium. The Secretariat has administrative roles for these platforms. From the time a group commences their activities, the active members are required to attend at least seventy-five percent of the meetings held annually (exceptions to this rule must be discussed with the Steering Committee); attend or contribute to at least fifty-percent of other events such as conferences, webinars, workshops and hackathons; nominate and or be a nominee for elections, and can add their PHA4GE membership and duration thereof to their Curricula Vitae. In cases of absenteeism and/or suboptimal participation, Working Group Chairs and Vice Chairs have the discretion to change an individual's active membership to an affiliated member. Such reviews may be done bi-annually and a transparent consultative process is encouraged between the Working Group Chair and Vice Chair, and the member in finalizing this decision.
- *Affiliated member:* associated with PHA4GE but not contributing directly and substantively on the outputs of one or more Working Groups. Affiliated members have limited access to PHA4GE's communication platforms. For shared drives they may not access work-in-progress files and have read/view only roles to finalized group documents. For Github, Slack Channels, Twitter and Facebook; they can add constructive comments; read/view finalized group documents; and can read/view the PHA4GE website and newsletters. Any other suggestions or comments may be done via the PHA4GE Helpdesk at [help@pha4ge.org](mailto:help@pha4ge.org). From the time a group commences their activities, affiliated members are acknowledged in their Working Group(s) publications; attend at least fifty percent of the meetings held annually (exceptions to this rule must be discussed with the Steering Committee). They are required to attend or contribute to at least twenty-five percent of other events such as conferences, webinars, workshops and hackathons; and can add their PHA4GE membership and duration thereof to their Curricula Vitae.
- *Consulting member:* participates on an ad-hoc basis in contributing directly and substantively towards the outputs of one or more Working Groups. During each term, the consulting member has similar privileges to active members. This includes full access to PHA4GE's communication platforms such as shared drives, Github, Slack Channels, PHA4GE website, PHA4GE newsletter, Twitter and Facebook. Except for Advisory Board members, consulting members can be listed as authors in any publications that encompass the wider Consortium. From the time a group commences their activities, consulting members are required to attend at least seventy-five percent of the meetings held annually (exceptions to this rule must be discussed with the Steering Committee); and can add their PHA4GE membership and duration thereof to their Curricula Vitae.

## **5.2 SUPPORT GROUP MEMBERSHIP**

### **5.2.1 Steering Committee**

All Steering Committee Members are active members. The Steering Committee offers direction to the Consortium in terms of what the focal areas should be and holding Working Groups accountable to their action plans.

The Steering Committee consists of the Chair, Vice Chair and Steering Committee Members. Candidates for the Steering Committee Chair and Vice Chair shall be selected from the Working Group Chairs and Vice Chairs. The Chair and the Vice Chair will be elected by a majority vote (the candidate that receives most of the votes). Voting will be conducted on an agreed date and will be open to all members of the Steering Committee. Where votes are equal between the candidates, the vote of the Chair shall be the tiebreaker. The Chair and Vice Chair will serve two-year terms and may be re-elected for one more term only. The Steering Committee Chair and Vice-Chair may not hold the same primary institutional or organizational affiliation.

At the Steering Group Chair's discretion, Steering Committee members may invite members from any Working Group to participate in Steering Group meetings or discussions/briefings on specific issues or projects.

### **5.2.2 Advisory Board**

All Advisory Board Members are consulting members. The Advisory Board recommends how the Consortium's focal areas could be managed; especially on how the Consortium engages the community. The Steering Committee may nominate members for the Advisory Board as required. Depending on their expertise, availability and commitment towards defined roles; advisory boards can have consistent ad-hoc members or dissolved, and new members assigned when new roles are defined.

The Advisory Board should have a minimum of three but not more than eight consulting members. This would include the Advisory Board Chair, Vice Chair and Advisory Board Members.

### **5.2.3 Secretariat**

All Secretariat Members are active members. The Secretariat provides administrative and technical support, communicates discussions and disseminates any relevant outputs for the Consortium.

The Secretariat is made up of the Chair, Technical Manager, Communications Specialist, Communications Officer and an Administrative Assistant. The Secretariat members are full-time employees. The seed funding provided by the Bill & Melinda Gates Foundation supports the Secretariat functions within PHA4GE and implementation of tools or methods at identified public health institutions.

### **5.3 WORKING GROUPS MEMBERSHIP**

Working Groups consists of active, affiliated and consulting members; all from the wider public health community. The Working Groups' activities are broken down into projects that have set deliverables. Each of the Working Groups benefit from collaborative work among its members – membership represents an in-kind contribution.

Working Groups consist of the Chair, Vice Chair and Working Group members. The Working Group Chairs and Vice Chairs are active members. They are elected for a one-year term by a majority vote by all active members of their respective Working Groups. Voting is conducted on an agreed date. Where votes are equal between the candidates, the vote of the Chair shall be the tiebreaker. The Working Group Chairs or Vice Chairs may be re-elected for one more term only. Within a tenure in office, the Working Group Chair and the Vice Chair of each Working Group may not hold the same primary institutional or organizational affiliation. Working Group Chairs and Vice Chairs must be members in good standing of the workgroup.

Working Group members either have an active, affiliated or consulting role. Applications to join a PHA4GE Working Group are done on the PHA4GE website. Applicants that do not comply with the application process or meet the criteria for the Working Group will be rejected by the Working Group Chair. Working Groups should be kept to a manageable size. Working Group Chairs and Vice Chairs must approve the addition or withdrawal of any active members of the Working Group. Working Groups may form subgroups to focus on specific tasks or objectives, or to organize activities internally.

### **5.4 CONDUCT DURING GROUP MEETINGS**

PHA4GE meetings for the respective groups shall be scheduled by either the Administrative Assistant, Steering Committee Chair or Vice Chair, Advisory Board Chair or Vice Chair, Working Group Chair or Vice Chair; or their designate. Meetings are held at an agreed date and time and every member must make a concerted effort to attend most of the virtual or face-to-face meetings. Missing meetings will hamper the collaborative process. If unable to attend, members should notify the Chair, Vice-chair or the appropriate designate; prior to the meeting.

The frequency and duration of meetings are dependent upon each group's needs. Frequency of meetings may be increased to discuss urgent priorities and/or open discussion for deliverables requiring more group engagement. Agenda items may be limited to enable focused meetings that run for an hour or two and encourage increased participation from all participants. At minimum, meetings shall occur virtually or in person once a month, except for the Advisory Board meetings that will occur on an ad-hoc basis. To constitute a quorum, fifty percent of active members are required at each meeting. Group Chairs, Vice-Chairs or their designates coordinate and preside over the meetings. Over time, Steering Committee meetings shall occur virtually or in person on a quarterly basis, with a required quorum of eighty percent of Working Group Chairs, Vice Chairs and all members of the Secretariat.

During each meeting, Working Group Chairs will be expected to provide a detailed summary of current activities, progress, deliverables and issues, and a candid assessment of progress. An

action log shall be maintained and reviewed at all meetings. Key decisions and next steps for meetings shall be distributed to the members for comment and revised accordingly, prior to becoming records. High-level meeting minutes, including (at a minimum), all critical decision points, discussion items and action items, should be recorded into a shared PHA4GE document repository and linked to appropriate Slack workspace channels. Group Chairs must assign a member or members who will be responsible for the arrangement of meetings, pre-meeting materials, meeting facilitation, and post-meeting documentation.

## **5.5 DECISION-MAKING**

Consensus is a core value of PHA4GE groups, which will require the Chair and/or Vice-Chair to ensure that each group considers all legitimate views/objections and endeavors to reconcile them. Expressions of issues and concerns should also include a proposed resolution. Issues that may arise, include but are not limited to disruptive members and technical issues. Examples of disruptive behavior and how to address this is described in the *PHA4GE Code of Ethics and Professional Conduct*.

For complicated technical issues within a Working Group, different interventions may be applied in an effort to reach consensus. For instance, in the case of software where multiple design decisions, architectures or data models are under consideration, a tiered Request for Comment (RFC) process shall be followed (eg: <https://www.ietf.org/standards/rfcs/>). In this decision model, competing proposals or draft standards shall be drafted in a standardized manner, and assessed by Working Group members. Candidate solutions will be subject to a period of public review and commentary. Alternatively, Working Groups may establish multiple task groups to explore different solutions to technical challenges, or to focus on specific challenges or work packages.

For complicated issues regarding leadership within the Working Groups, any member from the specific Working Group may send an email to the Secretariat explaining clearly the issue/s at hand. The Secretariat will respond to the complaint as necessary, which may lead to actions such as but not limited to; an investigation, meetings with the concerned parties and finalizing on the corrective action.

Occasionally there may be instances where a consensus decision is not possible within a group. In such an instance, a majority vote by all active group members will be utilized. Minority viewpoints will be presented as part of any formal recommendations. PHA4GE groups may reach decisions by face-to-face meeting, tele or videoconference, electronic communication, or any combination of the above.

## **5.6 OPENNESS AND CONFIDENTIALITY AMONG PHA4GE MEMBERS**

Group documents include text files, images, recordings and videos. For instance, minutes for meetings, recordings of meetings and webinars, presentations, metadata, recommendation papers, policy documents, consultation briefs, etc. Openness and community participation are core principles of PHA4GE and should be reflected in group reporting and other activities.



Groups have varying timelines to complete tasks that are shared openly. This may range from a few hours for smaller tasks to days, weeks or months for larger tasks. The details of each task will be communicated within the group via communication channels such as meetings, emails and Slack. All group documents shall be archived on the group's shared drive as appropriate. Group Chairs and members shall endeavor to ensure the accuracy of group documents. All recommendations, decisions, and consultation briefs shall be posted on Slack and archived in the shared drive.

All finalized group documents will be made public within the group and may be publicized to the wider public health community. Active members may not divulge work-in-progress documents to affiliated members or any other stakeholder in the wider public health community; including sharing links on Slack and other social media channels. Additional ethical and confidentiality issues pertaining to data must comply with the ethical requirements of the necessary Ethical Code/s.

As most meetings and completion of group tasks are done via the internet, all members are encouraged to have a stable and secure WiFi or bandwidth connection. Preferences around what platform to host meetings are agreed upon within the group and the common options are Zoom, GoogleMeet and Skype. Group members must declare potential and existing conflict of interests at any stage of PHA4GE Working Group membership. Working Group Chairs will assess these, case by case, and may approach the Steering Committee to resolve complex cases.

#### **5.7 CHARTER REVIEW**

The Charter is subject to review annually, or as deemed necessary by the Steering Committee.

**Signed: (Steering Committee)**

**Date:**