GARC

DATA PLATFORM

TECHNICAL INFORMATION

GARC

RABIES ALLIANCE

Ending Rabies. Empowering Communities.

Version 9

GARC Data Platform

Technical information

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What is the GARC Data Platform?

The GARC Data Platform is a comprehensive Platform created to assist users in collecting, analyzing, and visualizing rabies-related data across every aspect of the disease.

Within the Platform, a suite of specialized tools has been designed to collect key rabies data at the community-level. The GARC Data Tools – **that are accessed online or through the GARC App –** have been designed in such a way that they can be implemented independently to address specific needs. However, each tool can also be integrated seamlessly with any other as they are all hosted on the same overarching Platform. Therefore, users can choose whether to use one tool (with the ability to integrate additional tools in the future as the need arises), multiple tools, or all of them. In addition, due to the flexibility of the GARC Data Platform, there is no obligation to start implementation on a large-scale, as additional programmatic areas (e.g., provinces, districts) can easily be added into the Platform as capacity increases. Thus, the entire Platform remains flexible to the needs and capacity of your program.

- The GARC Data Platform has NOT been designed to be a data reporting platform that shares data with any external partners. While the Platform can be used to compile the data that is needed for external reports, its main function is to empower stakeholders to make data-driven decisions.
- **The GARC Data Platform has NOT been designed to replace any existing government surveillance systems. Instead, the Platform and its tools have been designed to integrate seamlessly into the surveillance framework of any country – complementing the data that is routinely collected with high-resolution data specific to rabies.**

What are the different GARC Data Tools?

Vaccination tools

Rabies Vaccination Tracker (RVT) tool

The Rabies Vaccination Tracker (RVT) is a tool that enables you to rapidly track and monitor a rabies vaccination campaign in real time. The tool captures vaccination data from the field and immediately generates outputs that allows you to monitor and direct the campaign in real-time. Because the RVT has been developed for rapid data collection, data entry for each vaccinated animal should take no longer than 10 seconds.

Data collected when using the RVT tool:

- Date of rabies vaccination.
- GPS coordinates of the vaccinated animal.
- Species of vaccinated animal (Dog/Cat).
- Sex of vaccinated animal (Male/Female).

- Age of vaccinated animal (Adult/Juvenile).

Benefits of using the RVT tool:

It will help you to:

- Track rabies vaccination campaigns in real-time.
- Plan strategic and effective targeted vaccination campaigns.
- Identify unvaccinated areas.

Vaccination and Sterilization (VST) tool

The Vaccination and Sterilization Tracker (VST) tool enables users that implement rabies vaccination and sterilization (spay/neuter) initiatives to monitor their progress and impact in real-time. The tool focuses on users who are implementing community-level interventions and need to collect more detailed information regarding their vaccination and/or sterilizations programs.

Data collected when using the VST tool:

- Date of rabies vaccination/sterilization.
- GPS coordinates of the animal.
- Species of animal (Dog/Cat/Livestock).
- Sex of animal (Male/Female).
- Age of animal (Adult/Juvenile).
- Rabies vaccine given (Yes/No).
- Animal Sterilized (Yes/No).
- Reason animal was not sterilized (Already sterilized previously, Owner declined, No capacity, but owner interested, Too young, Medical, Other).
- Ownership status of the animal (Owned (Confined), Owned (Roaming), Community owned, Feral, and Unknown).
- Body condition score (Too thin/Ideal/Overweight).
- Unique identifier for the animal (e.g., microchip number, name, description) (optional).
- Owner details **(optional).**
    - First Name.
    - Last Name.
    - ID number.
    - Street address.

Benefits of using the VST tool:

It will help you to:

- Manage your rabies vaccination and sterilization data.
- Monitor the progress of rabies vaccination and sterilization initiatives in communities.
- Identify specific communities that require rabies vaccination and sterilization interventions..

Catch Neuter Vaccinate Return (CNVR) tracker

The Catch Neuter Vaccinate Return (CNVR) tracker is relevant to organizations that implement sterilization (spay/neuter) activities on a large scale. The CNVR tracker allows users to collect detailed information on sterilizations, potential post-operative complications, and post-operative markings. This enables users to monitor their implementation, progress and impact in real-time.

Data collected when using the CNVR tracker:

- Date of rabies sterilization.
- GPS coordinates of the animal.
- Species of animal (Dog/Cat).
- Sex of animal (Male/Female).
- Age of animal (Adult/Juvenile).
- Pregnancy status of female dogs (Yes/No)
- Rabies vaccine given (Yes/No).
- Animal Sterilized (Yes/No).
- Surgical complications (No complication, Bleeding, Cryptorchidism, Pyometra, Enlarged Spleen, Other surgical complications).
- Post-operative identification or marking status (Ear notch, Ear tattoo, Ear notch and tattoo, Not marked).
- Reason animal was not sterilized (Already sterilized previously, Owner declined, No capacity, but owner interested, Too young, Medical, Other).
- Ownership status of the animal (Owned (Confined), Owned (Roaming), Community owned, Feral, and Unknown).
- Body condition score (Too thin/Ideal/Overweight).
- The skin condition of the animal (Severe, Moderate, Mild, No skin condition)
- Unique identifier for the animal (e.g., microchip number, name, description) (optional).

- Owner details **(optional).**
    - First Name.
    - Last Name.
    - ID number.
    - Street address.

Benefits of using the CNVR tracker:

It will help you to:

- Manage your sterilization data at a clinic level.
- Monitor the health and outcomes in individual surgeries.
- Monitor the progress of sterilization initiatives in communities.
- Identify specific communities that require sterilization interventions.

Vaccination Coverage Estimator (VCE) tool

The Vaccination Coverage Estimator (VCE) is a tool that enables you calculate a vaccination campaign's coverage in real time. The tool uses sight-resight data from the field to quickly and automatically estimate the dog population and calculate the vaccination coverage if you use either the Rabies Vaccination Tracker (RVT) or Vaccination and Sterilization Tracker (VST) tools in combination with it.

Data collected when using the VCE tool:

- Date of survey.
- GPS coordinates of the animal.
- Observed markings indicating vaccination.

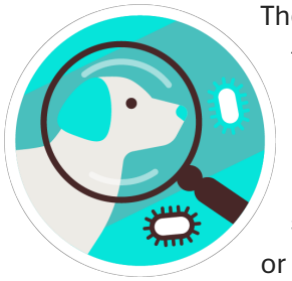
Benefits of using the VCE tool:

It will help you to:

- Monitor your post vaccination survey throughout the community.
- Calculate a community's estimated dog population.
- Determine the vaccination coverage in communities (if you also use the RVT or VST tools).

Surveillance tools

Rabies Case Surveillance (RCS) tool



The Rabies Case Surveillance (RCS) is a data visualization and mapping tool for rabies case data in both animals and humans. The RCS works with data generated through rabies diagnosis (whether clinical, in-field or laboratory diagnosis) to deliver real-time outputs for immediate action. By using the RCS in areas where laboratory diagnosis is not possible, the system can automatically determine whether the clinical cases in animals or humans are "Probable" or "Suspect" cases of rabies, resulting in community-level case detection and reporting. In areas where laboratory capacity is available, positive and negative results can be entered directly into the system. Probable and suspect cases can also be updated when diagnosed in the laboratory, meaning that in-field screening can be done with laboratory confirmation later.

Data collected when using the RCS tool:

- Date of clinical/laboratory diagnosis.
- GPS coordinate of clinical observation / sample origin.
- Species subjected to clinical/laboratory diagnosis (Dog/Cat/Livestock/Wildlife/Unknown species/Human).
- Sample number for records keeping (Field and Laboratory sample numbers).
- Diagnostic result (Positive/Negative) **AND/OR** observed clinical signs (animals) / symptoms (humans).

Benefits of using the RCS tool:

It will help you to:

- Capture clinical case information and automatically classify it as suspect or probable where laboratory diagnosis is not possible.
- Quickly and easily visualize your animal and human rabies surveillance data.
- Identify rabies hotspots, outbreaks, and high-risk areas.
- Plan strategic and effective targeted dog vaccination campaigns.
- Manage rabies sample data in your laboratory.
- Implement a national rabies database across all laboratories in the country.

Bite Case Tracker (BCT) tool

The Bite Case Tracker (BCT) is a tool that enables you to track and monitor animal (and snake) bites at a community level in real time. The tool quickly and easily captures a comprehensive set of data for each bite victim and immediately generates outputs that allows you to monitor where bite cases are occurring. The BCT tool supplements existing health data reporting systems by collecting vital bite case data (that align with WHO indicators) directly from the communities.

Data collected when using the BCT tool:

- Date of investigation.
- GPS coordinates of the exposed individual.
- Animal involved in exposure (Dog/Cat/Livestock/Wildlife/Unknown species/Snake).
- Age of exposed individual (Less than 5 years, 5-14 years, 15 years and older).
- Sex of the exposed individual (Male/Female).
- Category of the exposure (Category I, Category II, Category III, Unknown).
- Nature of the exposure (Provoked/Unprovoked).
- Vaccination status of the biting animal (Vaccinated/Unvaccinated).
- Personal details of exposed individual **(optional).**
    - First Name.
    - Last Name.
    - Telephone number.
    - Street address.

Benefits of using the BCT tool:

It will help you to:

- Map the location of each bite at the community-level.
- Identify high-risk areas for rabies based on bite data.
- Gain valuable insight into the causes of bite cases at the community-level.
- Allocate resources (personnel, vaccine, education materials) to at-risk communities.
- Collect data that directly aligns with the WHO indicators required for international reporting.

Biting Animal Quarantine (BAQ) tool

The Biting Animal Quarantine (BAQ) Tracker is a tool that enables animals that have bitten people or other animals to be tracked and monitored throughout their 10-14 day quarantine. The tool quickly and easily captures a comprehensive set of data for each biting animal placed in quarantine, allowing animal health officials to keep track of animals during the quarantine period, and update the GARC App at the end of the quarantine period.

Data collected when using the BAQ tool:

- Investigation date.
- GPS coordinates of event.
- Species being quarantined (Dog, Cat, Livestock, Wildlife, Other).
- Possible human exposures.
- Possible animal exposures.
- Animal ownership and owner details (if applicable).
- Quarantine location.
- Start and end date of the quarantine.
- Quarantine outcome.

Benefits of using the BAQ tool:

It will help you to:

- Map the location of each animal in quarantine at the community-level.
- Gain insight into the number of human and animal exposures as a result of the biting animal.
- Keep track of all animals in quarantine and the eventual quarantine outcome after the 10-14 day quarantine period.

Support tools

Education Initiative Tracker (EIT) tool

The Education Initiative Tracker (EIT) tool enables any person that undertakes rabies-related education initiatives (e.g., speaking to school children, educating professionals, distributing resources like flyers or posters, etc.) to track their efforts based on the target audience, the key messages and how the message is disseminated. The tool is designed to help make a case for the impact of the education and sensitization work that is being done in a community.

Data collected when using the EIT tool:

- Date of event.
- GPS coordinates of the event.
- Main target audience educated (Animal health professionals, Human health professionals, Environmental health professionals, Students, Community (Adults), Community (Children)).
- Main focus of the education initiative (Bite prevention, Rabies prevention in humans, Rabies prevention in animals, Animal welfare (including responsible ownership)).
- Education approach used (Oral communication, Resource distribution).
- Estimated number of people reached with oral communication.
- Numbers of resources distributed.

Benefits of using the EIT tool:

It will help you to:

- Showcase the reach, audience and messages used to benefit communities.
- Highlight the impact that education and sensitization have had on rabies elimination (when used with our other surveillance tools).
- Make a case for continued donor support for education and sensitization initiatives.

Rabies Treatment Tracker (RTT) tool

The Rabies Treatment Tracker (RTT) is a rabies bite patient management system that tracks exposed individuals through the entire post-exposure prophylaxis (PEP) treatment process. The RTT is a comprehensive rabies bite patient management system that easily integrates into current healthcare systems. It is easy to use and does not delay patient treatment, while also allowing you to cluster data from the healthcare facility-level to the national-level.

Data collected when using the RTT tool:

- General patient information.
- Rabies exposure data (e.g. animal species, WHO wound categories, etc.).
- General treatment information (e.g. wound washing, tetanus vaccination, etc.).
- Rabies-specific treatment information (e.g. Rabies vaccination, RIG administration).
- Information on PEP usage and available stocks at healthcare facilities.

Benefits of using the RTT tool:

Patient benefits: Patients receive automated reminders for follow-up visits to the healthcare facility, improving PEP compliance.

Facility benefits: The RTT addresses the needs of tracking individual bite victims and people who have been potentially exposed to rabies through their PEP regimen, whilst also enabling health personnel to plot the location of bite incidents, and the vaccine needs and requirements, focusing on ensuring that stock can meet demand.

It will help you to:

- Map the location of each exposure at the community-level.
- Identify high-risk areas for rabies based on bite data
- Improve patient compliance for rabies PEP.
- Track and manage PEP usage.
- Guide health personnel in providing adequate rabies PEP.
- Collect data that directly aligns with the WHO indicators required for international reporting.

Server information

The GARC Data Platform was developed in 2016 using the DHIS2 software platform. Since its development, GARC's DHIS2 instance (called the GARC Data Platform) has been running on a cloud-based server that is hosted by a professional company, namely "BAO Systems".

BAO Systems – who is an industry leader in digital data solutions for health and development – is paid an annual hosting fee by GARC to host the cloud-based server and offer technical support to the server. Their support team comprises public health and development practitioners, information system experts, software engineers, system engineers, monitoring and evaluation advisors, and data scientists.

Included in BAO Systems' support to GARC is the following:

- **System Monitoring:** BAO Systems offers 24 / 7 monitoring and support, meaning that if the DHIS2 instance goes down or if there is a problem, they are there to help. They also ensure that the system is available, well-performing, and that users experience no unnecessary downtime. Since the inception of the GARC Data Platform in 2016, the Platform has never experienced any significant down-time impacting users.
- **Data Management:** BAO Systems produces and keeps copies of database backups. In addition, GARC maintains two independent monthly data backups on separate local drives, located in different countries, to prevent data loss for any reason, including *Force Majeure*. Since the inception of the GARC Data Platform in 2016, the Platform has never experienced any data loss.
- **SSL and Disk Encryption:** BAO Systems utilizes A-rated SSL certificates to ensure the highest level of encryption and security for modern web browsers. They also provide disk encryption, keeping data safe while being synced with the GARC Data Platform and while being stored on the Platform. Since the inception of the GARC Data Platform in 2016, the Platform has never experienced any security breaches.

Data Security, ownership, and confidentiality

Data ownership

All data remains the property of the user and data ownership does NOT transfer to GARC when the data is entered into or stored on the GARC Data Platform. GARC (or any other party) cannot use the data entered into the Platform in any way without the written permission of the data owner (data capturer).

Data security and access

Data security and access to the GARC Data Platform is maintained through strict user account privileges. The user accounts (and their associated access rights) for the Platform will be created by four (4) GARC employees that act as system administrators with "Super admin" access. These four Super admin accounts ensure that the integrity of the Platform is maintained while facilitating the programmatic implementation of the GARC Data Tools.

- Authorized users – accounts created upon explicit request of the organization owner (primary contact) – will be able to capture data and/or view data on the Platform.
- In terms of registered users with authorized access to the data, user rights can be restricted to viewing data – ensuring that authorized users cannot download and distribute the data without explicit permission.
- No unauthorized users will be able to access any of the data collected and stored on the Platform.
- No external access to the data is possible. This means that all data will remain confidential to those users with authorized access.
- No other user or external person will be able to view your data unless explicit permission has been granted by the data owner for the data to be displayed on a public forum (e.g., the GARC website) through a secured API. This publicly viewable data will not be modifiable and will never display sensitive information (e.g., names, addresses, etc.).

Confidentiality of personal details

The personal information used to create the user accounts (name, surname, email, and telephone number of each individual) are kept secure on the Platform and are not used for any purposes other than the account creation. Users have full access to edit or remove any user information that they wish not to disclose, at any point (e.g., a user can delete their mobile phone number from the Platform through their profile at any time).

Therefore, both the data collected (e.g., bite victims, rabies cases, etc.) and the user data remain entirely confidential and can be deleted from the Platform by the appropriate authorities (with the appropriate permissions) at any time.

What are the costs associated with using the GARC Data Platform and its tools?

All the GARC Data Tools, and access to the accompanying GARC Data Platform and the associated mobile phone application (the GARC App), are offered **free of charge**. GARC also provides technical assistance and continued technical support free of charge as part of the organization's global effort to enhance rabies surveillance to achieve rabies elimination.

There are no limits to the scope or expanse of the use of the GARC Data Platform. As such, there are no restrictions in terms of the number of user accounts, scale of work, etc. In addition, there are no additional charges for large-scale programs.

In summary, there are no financial implications associated with the use of the Platform and no user needs to make any payment to the GARC.

Technical requirements for the use of the GARC Data Platform and its tools.

GARC Data Platform

The GARC Data Platform is a website-based rabies data monitoring and analysis platform and users only need a device with an internet browser (preferably Google Chrome) and a stable internet connection to access the platform. Users can enter data (online) and also view the dashboards (outputs) in this manner.

GARC App

The GARC App brings the GARC Data Tools straight to your smartphone, enabling you to capture data anytime, anywhere – even in places without internet connectivity. The GARC App is thus ideal for users that want to use the different tools when working in communities where accurate project tracking and immediate reporting is vital.

Device requirements for in-field data entry (Offline)

The GARC App can only be used on a mobile device (smartphone or tablet) with an Android operating system.

Mobile data / internet requirements

The GARC Data Tools can be used to collect data both offline and online, so mobile data is not required to collect field data (when using the GARC app). The data collected in the field (offline) can be uploaded to the GARC Data Platform when a stable internet connection (for example, WIFI network) is available at the office or by using mobile data on the device. The data requirements, however, are low as the Platform uses text-based data (approximately 1mb for one thousand records).

Way forward

You can read more about the GARC Data Platform on GARCs website: https://rabiesalliance.org/tools/garc-data-platform.

Please contact GARC on support@rabiesalliance.org if you wish to use the GARC Data Platform so that one of our team members can arrange a live demonstration of the system.