PATHFINDER INFOGRIPE PROTOCOL
A MIXED-METHODS ACTION RESEARCH ADD-ON STUDY TO DETERMINE OPTIMUM PROCESSES, STEPS AND MECHANISMS IN HEALTH RESEARCH

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SUMMARY

Health research requires a robust ecosystem to generate safe and effective evidence. However, challenges such as unequal access to data science, methodological barriers, and limitations in extracting results hinder significant progress. This document describes how the Pathfinder study aims to map and document these challenges in the InfoGripe host study, identifying solutions and promoting their implementation. The study will use the Tracker tool to map processes and challenges, with a focus on the categories "Results and Impacts" and "Stakeholder Engagement." The mapping will involve qualitative research using techniques such as document analysis, participant observation, and interviews. The team will be composed of researchers from InfoGripe and Fiocruz/TGHN LAC. The study will take place over a period of 10 months, including activities such as protocol development, Tracker completion, seminars, thematic glossary, methodological article, and dissemination of results, strengthening research capacity and the generation of evidence in public health.

BACKGROUND AND RATIONALE

Every health challenge requires a research ecosystem that can provide safe and effective evidence and responses. For many health challenges, generating this vital evidence requires better data science to be adopted across the world and in all healthcare settings. However, there is significant inequality regarding (i) where data science takes place, (ii) who benefits from the evidence, and (iii) who leads these studies. It is widely recognized that evidence extraction from data is not performed optimally in many settings or by specific groups of health professionals because they consider the process complex or difficult, or because they lack access to methods, training, and understanding of the processes. These difficulties inhibit the development of new research, the formulation of new questions, or lead to failure in obtaining appropriate results from existing datasets.

It is well documented that there are common areas of difficulty in health research, such as data collection, capture, discovery, access, sharing, analysis, and scientific dissemination, but there has been little focus on sharing solutions. The rationale for Pathfinder studies, which are "complementary" to a

host study, is that if multiple research teams in different disease areas and research types conduct methodological studies to track and map the process, then collectively we can identify where common process and methodological bottlenecks exist. When areas of difficulty are identified in these host studies, it is likely that another team working in a different area or in the same disease — but in a different location or organization — has already solved that same step or methodological challenge. Therefore, within this complementary study, called Pathfinder, we will work through The Global Health Network Latin America and the Caribbean (TGHN LAC) and the TGHN regional communities of practice to identify solutions and support research teams in adapting and implementing them in their studies. In cases where solutions do not yet exist, we will work with the teams to resolve that methodological step and report these solutions within this process mapping study.

GOALS AND OBJECTIVES

This add-on study aims to track the steps and processes of the 'host' study InfoGripe to determine the challenges and successes encountered in its interactions with health managers and the media, in addition to fostering dialogue with potential international partners.

Objective 1: To generate a process map of the host study to document the selected steps and their associated metrics.

Objective 2: To determine the tools, methods, approaches, and systems that have been applied to the selected steps.

Objective 3: To describe each challenge encountered and document how they were addressed.

Objective 4: To disseminate the findings to support other studies in addressing similar challenges and overcome research bottlenecks.

METHODOLOGY

1. Host study Selection

The InfoGripe (http://info.gripe.fiocruz.br/) project began in 2014 with the aim of monitoring and disseminating data on cases of Severe Acute Respiratory Infections (SARI) in Brazil, including influenza and other respiratory diseases. The project arose from a partnership among researchers from the Scientific Computing Program (PROCC) of the Oswaldo Cruz Foundation (Fiocruz), the School of Applied Mathematics of the Getúlio Vargas Foundation (FGV, EMAp), in Rio de Janeiro, and the extinct Working Group - Influenza and current General Coordination of Surveillance of Flu-like Syndromes of the Health Surveillance Secretariat of the Ministry of Health (CGGRIPE, SVS, MS).

Based on data from the Influenza Epidemiological Surveillance Information System (SIVEP-Gripe) of the Brazilian Ministry of Health, InfoGripe produces weekly forecasts and analyses on the behavior of respiratory syndromes. Using statistical modeling, it identifies trends of increase or decrease cases across different regions of the country. During the COVID-19 pandemic, the project became a key tool for monitoring the disease's progression and guiding public health policies. Over the years, InfoGripe has contributed to the improvement of epidemiological surveillance in Brazil by providing crucial information for public health decision-making and outbreak prevention.

The processes and results generated by InfoGripe, over the years, have been crucial to support health managers and civil society by providing information on the impact of respiratory diseases nationwide. Beyond its national public health relevance, InfoGripe's selection in the Pathfinder initiative is justified by the need to identify and map communication efforts with health managers and the media, as well as to foster dialogue with international partners. The Pathfinder study was proposed to address these needs, mapping actors involved and interested in the project (stakeholders) and analyzing how their engagement influences its outcomes. It also aims to systematize the communication strategies carried out by the host study.

The overarching goal is to generate data, information and indicators on InfoGripe's societal reach and its relationships with partners. This includes identifying potential improvements to the project's weekly reports to broaden reach and impact. The InfoGripe project hopes that its dissemination and communication tools can be improved, in addition to expanding the reach of the knowledge produced to other countries participating in the TGHN and TGHN LAC initiatives.

2. Operational delivery

This Pathfinder project will count on the InfoGripe and TGHN LAC Fiocruz teams, an integration that provides the complementarity of knowledge, enhancing the mapping work to be developed. From the InfoGripe host project, the members are Leonardo Bastos and Marcelo Gomes (principal investigators); Tatiana Portela (epidemiologist) and Daniel Câmara (epidemiologist, data scientist and bridge between the host study and the Pathfinder team); and as researchers are Claudia Codeço, Daniel Villela, Flávio Codeço Coelho, Laís Freitas, Luiz Carvalho, Oswaldo G. Cruz and Raquel Lana. There is a possibility that more people will be formalized as part of the host project over time. As part of the Pathfinder team at TGHN LAC's Brazilian center, we will have Flávia Bueno, Larissa Pruner and Laís Araujo, executive coordinator, data coordinator, and researcher, respectively.

For the InfoGripe, participating in the Pathfinder study offers an opportunity to develop skills and expand the project's activities, both with civil society, partners and other research groups. The support of the Pathfinder team from Brazil and other centres from Latin America and the Caribbean is an opportunity to enrich the dissemination of results, in addition to creating a plural forum of ideas that can generate advances in specific points of InfoGripe.

3. Mapping the process

The mapping of the processes to be addressed within InfoGripe will be carried out using the Tracker tool made available by TGHN. The categories mapped with the Tracker will be, at first, Output and Impact and Stakeholder Engagement. It is also expected that support will be available to help identify solutions that enable connections with other groups from Latin America, the Caribbean, and beyond.

4. Gaining qualitative evidence to understand the steps, processes and challenges

Tools will be used to map how the Pathfinder project can help the InfoGripe host project to achieve the proposed general objective. Initially, a Planning Matrix will be prepared containing essential information for the development of the next steps, containing the following main points of approach: Who is in the host project? Why is the host project starting the Pathfinder protocol? What does the host project want from the Pathfinder project? What does the host project want to deliver from the product(s) from the Pathfinder project? And finally, how will the success of this integration be measured?

The matrix will be filled in by the researcher responsible for the integration between the host project and Pathfinder, after discussion with the host project team, including principal investigators. A presentation will also be made to the general team of the host project about what the Pathfinder project is and the validation of the matrix. The matrix will be used to guide the writing of this Pathfinder protocol and for the definition of the deliverables calendar (Figure 1).

Figure 1. InfoGripe Pathfinder Planning Matrix collectively built, in Portuguese.

Once the matrix has been defined, the next step is to formulate, in writing, these work proposals through the construction of this protocol. Once the protocol has been drawn up, the next step will be to map the "Results and Impacts" and "Stakeholders Engagement" categories of interest in the Tracker tool.

To fill out the Tracker tool, techniques will be used for data production in qualitative research, such as document analysis, participant observation and interviews. The combination of these techniques will help to build a more complete mapping, considering the different stages involved in the construction of the project, as well as different points of view in relation to this construction, broadening the understanding of important points about the continuity and reproducibility of the project.

Qualitative research is an effective methodological approach for mapping Pathfinder studies, as it allows for a better understanding of the processes and challenges faced by host studies. By focusing

on meanings, contexts, and experiences, it makes it possible to identify obstacles and specific solutions for each stage of the study. The triangulation of techniques, such as participant observation, document analysis and semi-structured interviews, enriches data collection by incorporating multiple perspectives. This combination strengthens the validity and reliability of the results, providing a more comprehensive and detailed view of the host studies mapped by Pathfinder. Learn more about using qualitative research for Pathfinder studies at: https://lac.tghn.org/toolkits-pt/qualitativa-pathfinder/pesquisa-qualitativa/.

5. Documentation of tools, processes, methods, and training

The results obtained from InfoGripe are made available to the public to ensure transparency and access to information. These results are hosted at Fiocruz via GitLab. At the root directory, there is a section called "InfoGripe Bulletins", which contains all the bulletins and summaries already published, starting with the one referring to the 8th epidemiological week of 2020 to the most current. In this same directory, it is possible to access the technical notes produced by the project, and a directory called "Images", which brings together all the maps and graphs produced by the project.

In addition, at the root directory, it is possible to access the "Data" directory, which contains different tables with the data produced and used by the project. There are aggregated data by age groups, epidemiological weeks, Federative Units, as well as disaggregated data.

The progress of the production of Pathfinder InfoGripe results will be stored in a shared online directory on Fiocruz's own Onedrive platform.

Links to these repositories are below:

- InfoGripe's GitLab: https://gitlab.fiocruz.br/marcelo.gomes/infogripe
- InfoGripe's website: https://info.gripe.fiocruz.br/

6. Solving challenges and connecting excellence

Among the objectives of the action-research, the Pathfinder team can act to find solutions to the challenges encountered by the host study during mapping, which may involve the search for specialized training, models, software, data science infrastructure, as well as documents and guidelines related to data sharing agreements, among others. Solutions can be found within the Pathfinder team itself, in the TGHN community, or through other strategic partners.

DATA ANALYSIS

1. Generation of InfoGripe-specific process map diagram with metrics

The mapping of the processes will be carried out using the Tracker v2.0 tool, according to the Pathfinder methodology. The Tracker is able to map the different aspects of the processes that InfoGripe performs, including resources employed or produced, production of results, lessons learned and challenges encountered at each stage.

2. Qualitative analysis

The mapping of the processes will be conducted with the support of qualitative research tools. This approach stands out for its ability to reveal contextual and complex aspects of the challenges faced,

as well as to identify solutions and lessons learned throughout the different stages of Pathfinder studies. By prioritizing meanings and experiences, qualitative research offers valuable resources to understand barriers and propose solutions aligned with the specific needs of each context. Through the integration of techniques such as participant observation, document analysis, semi-structured interviews, and conversation circles, it is possible to capture a variety of perspectives. This strategy, known as triangulation, not only strengthens the reliability of the information, but also provides a more comprehensive analysis, enriching the results and amplifying their impact.

The qualitative research will focus on the interpretation and understanding of the Tracker's activity axes (Output and Impact and Stakeholder Engagement) from document analysis and interviews, seeking meanings, motives, contexts, perspectives and experiences. The fieldwork will involve data collection through individual interviews and document analysis, among others. The interviews will be transcribed, to work on their interpretation and categorization as a way to supply the Tracker. Document analysis consists of the collection and interpretation of data that focuses on documents produced by InfoGripe, such as reports, technical notes, etc. The interview will follow a model using open and semi-structured questions to explore the experiences of the interviewees and points of view on the different topics that appear in the Tracker. Moreover, interviews will be key to filling gaps left by documents and observation. They are essential tools for retrieving information that is often concentrated in individuals, but which are crucial for understanding the processes and contexts of the collective.

The process of analysis and treatment of the material produced during the qualitative research will take place through a systematic and interactive approach. After data collection, they will be organized based on the transcription of the interviews and ordering of the information obtained. Finally, the data will be sorted and categorized, identifying relevant patterns, themes, and categories that emerge from the content and respond to Tracker gaps.

INTERPRETATION AND USE OF FINDINGS

The interpretation and use of the findings generated during the mapping and developments of the Pathfinder project are critical to ensure that the results are applied effectively and can benefit both the host study and other projects. From the data produced, interpreted and analyzed from the qualitative research carried out for the mapping of the stages listed in the host study, the intention is to identify bottlenecks, obstacles and challenges, as well as solutions, lessons and learning obtained throughout the research process.

The findings of the mapping will allow the elaboration of shared maps and the use of collaborative tools, fundamental to foster joint work between different Pathfinders. In addition to strengthening the exchange of information and resources, these practices allow for a more integrated visualization of the data collected. The results generated by these actions will feed into a more comprehensive analysis of the research process of the host study itself, whose purpose is to offer valuable and replicable guidance for other projects, promoting a more efficient and collaborative approach in future initiatives.

By interpreting the findings with qualitative research, the aim is to develop and share results of a process that permeates:

- Sharing the Pathfinder InfoGripe planning matrix;

- Sharing of the Pathfinder InfoGripe protocol;

- Mapping via the Tracker tool;

- Mapping of stakeholders involved in the host study;

- Presentation of results to participants of Pathfinder projects from other countries;

- Publication of a methodological article;

- Webinars with the dissemination of the results produced by InfoGripe and Pathfinder;

- Pathfinder brief with challenges and learnings;

- InfoGripe Pathfinder Hotsite;

- Thematic glossary;

- Among others that unfold during the mapping process.

InfoGripe produces weekly data, which is spread via video and in writing, which leads different civil society actors to seek the project for interviews and clarification of doubts. Through the project, the opportunity was glimpsed to systematize this process and obtain data and performance indicators, as well as the opportunity to discuss the results and verify the need for better adaptation of its language to the partners. A dashboard for quick communication of results will also be built, to reach stakeholders, the press and the project members themselves more quickly. Stakeholder mapping will be an important part of the preparation of a planning and organization of material produced/communicated.

Some of the solutions expected by the InfoGripe team from Pathfinder are also the organization of communication material, to understand how this material impacts the study's stakeholders; help in the organization of dissemination materials on the methodologies used, which may also result in a workshop to identify and initiate communication with possible international partners. Another expected result is the establishment of communication with other research groups in Latin America, the Caribbean and other regions.

ETHICAL CONSIDERATIONS

Pathfinder mapping can be understood as a methodological and procedural self-analysis, with the aim of reporting the activities and offering insights into the conduct of the host study. No participant-identifying information will be shared between study teams, and datasets will be maintained locally by host study staff.

Before the start of the activities, a presentation of the Pathfinder project and the Tracker tool will be held, aiming to contextualize the scope of the mapping, ensuring that all participants understand the tools and objectives, also respecting the option of not participating in the mapping of the host study.

COMMUNICATION AND DISSEMINATION OF FINDINGS

The mapping, as well as the content produced by the team during the project, will be shared among the members of the host study, researchers from PROCC and Fiocruz, but also with the other knowledge hubs of TGHN and other TGHN LAC partner groups. This strategy aims to stimulate the exchange of experiences with other research institutions, especially those involved in the Pathfinder projects,

promoting a collaborative and mutual learning environment, in addition to the internationalization of the InfoGripe project.

One aim is to disseminate the results and learnings in scientific events related to the theme, expanding the reach and impact of the experience to other peers. It should be noted that, as new suggestions and improvements are absorbed, the contents may be updated, ensuring relevance and adequacy to the identified needs.

The entire production of Pathfinder InfoGripe will be gathered and made available free of charge on the TGHN LAC website (https://lac.tghn.org/proyectos-pathfinder/pathfinder-brasil/infogripe/). Depending on the profile of each resource, they will be made available in at least two or three languages (Portuguese, Spanish and/or English), hosted on the TGHN LAC platform, and on Fiocruz institutional platforms, such as educational resources on Educare, course on the Fiocruz Virtual Campus and materials on Arca. The retrospective systematization and synthesis of the host study and the Pathfinder can be viewed in the infographic (Figure 2).

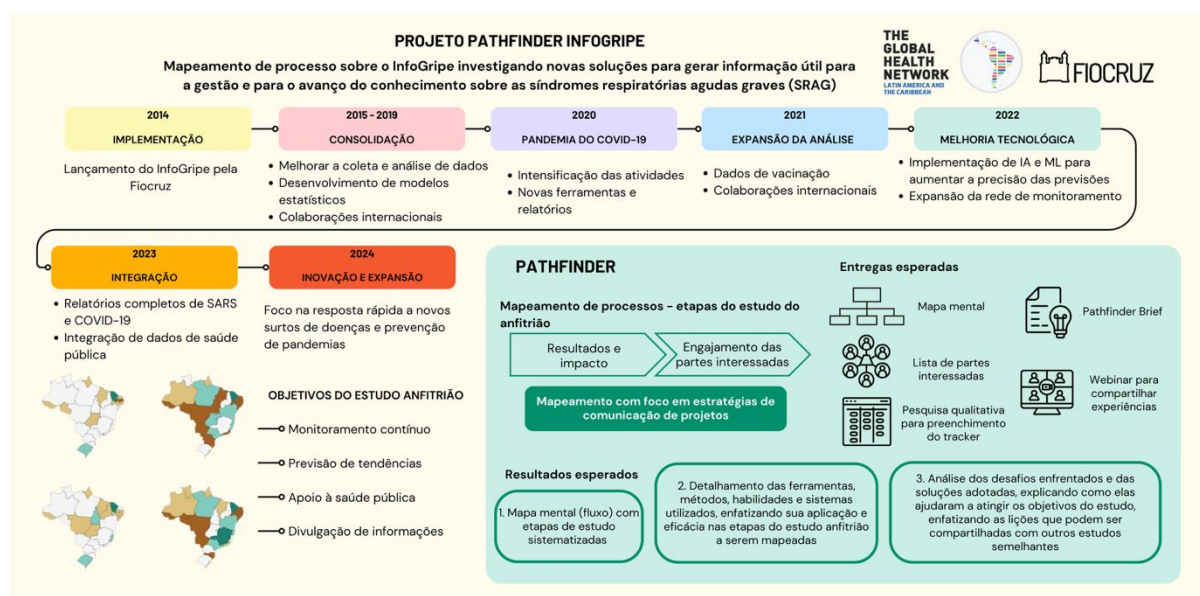Figure 2. Infographic synthesis of the InfoGripe and Pathfinder.

PROJECT TIMELINE

The initial Pathfinder schedule was structured for a period of 10 months, and it can be reevaluated as needed (Chart 1).

Table 1. Initial proposed timeline for Pathfinder InfoGripe.

Activity	sep/24	oct/24	nov/24	dec/24	jan/25	feb/25	mar/25	apr/25	may/25	jun/25
Pathfinder InfoDengue + Pathfinder InfoGripe Workshop	▓									

Activity										
Preparation and validation of the Planning Matrix	X	X								
Pathfinder protocol and tracker organization, review of the list of interviewees			X	X	X					
1st presentation InfoDengue and InfoGripe (Pathfinder Clinics TGHN LAC)			X							
Conducting conversation circles and/or interviews for the Tracker				X	X	X	X			
Publication of new InfoGripe dashboard				X						
Interview transcription + qualitative data analysis + Tracker completion					X	X	X	X		
Presentations and discussion with Pathfinder participants from other countries					X	X	X		X	X
Hotsite							X			
Thematic glossary								X		
Webinar with the dissemination of the results of InfoGripe and Pathfinder								X	X	X
Pathfinder brief with challenges and learnings									X	
Pathfinder impact-related testimonial by host project member										X
Deliverables to the host study team										X
Methodological article submission										X

FINAL REMARKS

A protocol serves to guide and standardize all stages of the study, ensuring that the proposed objectives are achieved in a systematic and consistent manner. In the context of this study, the protocol was produced based on the mapping interests of the host study, making it possible to accurately identify

obstacles in the research and health data cycle. The results of Pathfinder InfoGripe will be shared as they become available, contributing to the improvement and resolution of challenges in the field of public health.