

# Experience report of the contributions of telehealth in riverside communities of Amazonas in the pandemic

*Relato de experiência das contribuições da telessaúde em comunidades ribeirinhas do Amazonas na pandemia*  
*Relato de experiencia de las contribuciones de la telesalud en comunidades ribereñas de Amazonas en la pandemia*

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## ABSTRACT

**Objective:** to report on the creation and implementation of telehealth activities developed by the Forest Health Program in communities in conservation areas, in the state of Amazonas, during the COVID-19 pandemic. **Methods:** this is an experience report on the creation and implementation of the program. **Results:** the project began in June 2021 with medical and nursing services and currently has 63 points of connectivity installed. Dermatology was the most requested specialty (30.1%), with dermatitis being the main grievance diagnosed. For nursing, the most requested specialty was obstetrics, followed by pediatrics. Rio Madeira and the Catuá-Ipixema Extractive Reserve requested more than half of all consultations. **Conclusion:** this project showed a differentiated performance of telehealth in riverside communities in Amazonas, especially in the pandemic context, expanding health care in remote areas, such as these.

**Descriptors:** Telemedicine; Rural Health; Primary Health Care; Pandemics; Technology.

## RESUMO

**Objetivo:** Relatar a criação e implementação das atividades de telessaúde desenvolvidas pelo Programa Saúde na Floresta em comunidades de áreas de conservação, no estado do Amazonas, durante a pandemia de COVID-19. **Métodos:** Trata-se de um relato de experiência sobre a criação e implementação do programa. **Resultados:** O projeto teve início em junho de 2021 com atendimentos na área de medicina e enfermagem e atualmente conta com 63 pontos de conectividade instalados. A dermatologia foi a especialidade mais requerida (30,1%), com as dermatites sendo o principal agravo diagnosticado. Para a enfermagem, a especialidade mais solicitada foi na área de obstetrícia, seguida pela pediatria. Rio Madeira e a Reserva extrativista Catuá-Ipixema solicitaram mais da metade de todos os atendimentos. **Conclusão:** Este projeto mostrou uma atuação diferenciada da telessaúde em comunidades ribeirinhas do Amazonas, especialmente no contexto pandêmico, ampliando o cuidado à saúde em áreas remotas, como estas em questão.

**Descritores:** Telemedicina; Saúde da População Rural; Atenção Primária à Saúde; Pandemia; Tecnologia.

## RESUMEN

**Objetivo:** Relatar la creación e implementación de actividades de telesalud desarrolladas por Programa Salud en la Floresta en comunidades de áreas de conservación, en el estado de Amazonas, durante la pandemia de COVID-19. **Métodos:** Relato de experiencia sobre la creación e implementación del programa. **Resultados:** El proyecto tubo inicio en junio de 2021 con atenciones en el área de medicina y enfermería y actualmente cuenta con 63 puntos de conectividad instalados. La dermatología fue la especialidad más requerida (30,1%), con las dermatitis siendo el principal agravo diagnosticado. En enfermería, la especialidad más solicitada fue en el área de obstetrícia, seguida por pediatria. Río Madeira y la Reserva Extractivista Catuá-Ipixema solicitaron más de la mitad de todas las atenciones. **Conclusión:** Este proyecto mostró una actuación diferenciada de telesalud en comunidades ribereñas de Amazonas, especialmente en el contexto pandémico, ampliando el cuidado a salud en áreas remotas, como estas en cuestión.

**Descritores:** Telemedicina; Salud Rural; Atención Primaria de Salud; Pandemias; Tecnología.

## INTRODUCTION

Population health constantly suffers threats and needs innovative strategies to ensure its immunity. In this sense, technology is increasingly becoming a strong ally in the face of the current condition in the world - pandemic of COVID-19 - through the dissemination of telehealth points. Thus, telehealth has gained enormous potential by facilitating access to health services by not needing to travel for consultation, contributing to the social distance<sup>(1)</sup>.

With the increasing use of this technology, there have inevitably been numerous discussions about the ethical and legal issue of its use in health care. Many national and international movements have started a process of ethical-legal re-evaluation of this emerging practice.

Norms, such as the Federal Council of Medicine's letter no. 1756/2020 - COJUR and the Law no. 13.989 of 2020, together with the resolutions deliberated for each Brazilian state dispose about medical assistance through telemedicine tools<sup>(2-3)</sup>. These determine, on an exceptional basis and for the duration of the COVID-19 contagion control actions, the regulation of the practice of teleguidance (remote care for guidance and referral of patients in social distance); telemonitoring (remote monitoring or surveillance of health and/or disease parameters); teleinterconsultation (exchange of information and opinions between doctors for diagnostic or therapeutic aid); teleconsultation (patient consultation, which allows prescription, request for tests or other procedures, without direct examination of the patient). The norms for the nursing category are also highlighted through COFEN Resolution nº 634/2020<sup>(4)</sup>; and of psychology through CFP Resolution no. 3, of September 25, 2000<sup>(5)</sup>.

Given this pandemic scenario, it is essential to create technological bridges through social projects. Thus, the Sustainable Amazon Foundation has enabled, through partnerships, the implementation of telehealth points in remote areas in the state of Amazonas, in order to promote the care of these populations in various health specialties and strengthen the local Primary Health Care.

The telehealth activities were carried out in riverside communities located in Conservation Units (CU) in the state of Amazonas, with the support of the associations of residents of the CUs themselves in the operationalization of telehealth points, community health agents (CHA), linked to the municipal health secretariats, and telehealth agents, linked to the Telehealth in the Forest Project. Both agents were responsible for welcoming users and handling the equipment to perform the consultations.

Thus, this successful experience contributed to reduce the shortage of health care in areas of geographic isolation in Amazonas in a safe manner, guaranteeing the social isolation of large urban centers in controlling the spread of SARS CoV-2.

## OBJECTIVE

To report on the creation and implementation of telehealth activities developed by the Forest Health Program in communities in conservation areas in the state of Amazonas during the pandemic of COVID-19.

## METHODS

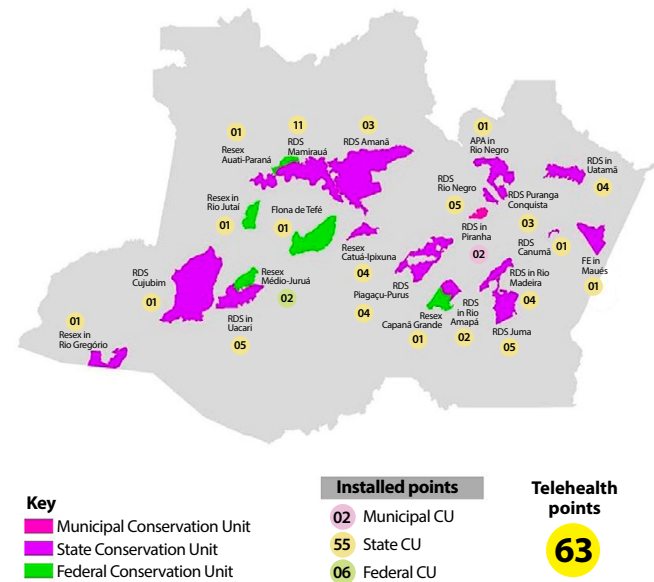
This is an experience report on the expansion of new telehealth points and insertion of expert professionals to the Forest Telehealth Project. It was developed by the *Amazônia Sustentável* Foundation (ASF) in partnership with the University of the State of Amazonas (UEA), represented by teachers and students of Medicine and Nursing courses.

The points are located in Extractive Reserves (Resex) and Sustainable Development Reserves (SDR), models of conservation units. These models had different creation processes. The Resex was based on the conception of the rubber tappers in the Amazon and proposes to solve land tenure problems and guarantee the territories as legitimate to the traditional populations. The SDRs, on the other hand, were created by scientists/environmentalists and, differently, relieve the State of the obligation to solve land tenure problems and conflicts over the use of Amazonian natural resources<sup>(6)</sup>.

The telehealth actions arising from this partnership occurred between June and August 2021, however, these actions will be monitored until 2022 for the sustainability of the project. The service took place from Monday to Friday, in the morning and afternoon periods (8am to 12pm and 1pm to 6pm), in the areas of medicine, nursing, and psychology.

## RESULTS

The Telehealth in the Forest Project has partners for the development of activities to support the Primary Health Care strategy, being ASF the executing institution; and the Amazonas State University, Nilton Lins University and Open University of the Third Age Foundation (FUnATI), collaborators in the telehealth care actions. Figure 1 shows the distribution of the 63 points installed in the state with their respective funding partners: *Todos Pela Saúde* (35), Embassy of France (9), L ASA, Arapyaú Institute and Embassy of Ireland (8), JBS (6), Childfund (1), Empowered by Light (1), Setubal Family (1), Welight (1) and Dell/Computer Aid (solar laboratory) (1).



Source: ASF, 2021.

Figure 1 - Points installed by the Forest Telehealth Project

The installed telehealth points have a minimum structure (reserved room with antenna, computer and camera) and count on the contribution of the Associations of Residents of the Conservation Units, community health agents (CHAs) and telehealth agents, essential for its operationalization.

The work routine of the CHAs had to be modified due to the use of telehealth for telecalls demanded by the residents of the communities themselves to medical, nursing and psychology professionals, in addition to teleguidance / teleeducation between the CHAs and health professionals specialized in telehealth. With the beginning of the project, there was an increase in the supply of consultations with medical specialists, since the riverside dwellers no longer need to travel to the capital, Manaus, to receive care, as they began to occur near their homes.

A growing interest in teleorientation/telelearning was also observed in view of the constant demand for updating public health protocols. Therefore, there was a need for the contribution of health course professors and their respective academics in the practice of telehealth in this context.

### Training: updating the riverside family health team

By means of an electronic form, made available via WhatsApp, the needs and desires of the CHAs and telehealth agents regarding the themes of teleeducation/teleorientation were collected.

Among the actions of the medical teachers/nursing specialists of UEA and the academics of the respective areas, the productions of video classes in web lecture modality were carried out, as well as pedagogical support including themes such as: Remedy and home garden; Strengthening the articulation between telehealth and municipal PHC; Leprosy in PHC; Health promotion of children in primary care; Diabetes mellitus and healthy lifestyle; Health council; Stroke: we need to prevent; Insulin therapy and education in diabetes mellitus; Classification and choice of wound treatment; Vaccination: frequent doubts of the population; What should I do to control high blood pressure. By the end of the project period, it was observed the increasing interest of the CHAs themselves for the web lectures due to the easy access in the telehealth points and the availability of online certificates.

### Telecare: specialized care for the riverside community

Aiming at a qualified and unified clinical approach, a Standard Operating Procedure (SOP) was prepared in order to systematize a service protocol to be followed by teams in telehealth points. This protocol establishes/indicates the service lines of the telehealth points, flows, period/frequency, instruments for triage and indicators, to guide the performance of municipal health teams, which, at the end of the project, will be able to use the tool of the telehealth point in an aggregative way to their work process.

The teleconsultations occurred in virtual rooms, with the coordination of a nurse regulator who managed the consultations between the specialist professionals and the CHAs/telehealth agents. Table 1 presents the distribution of teleconsultations performed by specialist physicians and nurses to the riverside communities by the Forest Telehealth Project. Dermatology was the most requested specialty (30.1%), with dermatitis being the main

grievance diagnosed. For nursing, the most requested specialty was obstetrics, followed by pediatrics.

**Table 1** – Distribution of care by UEA's specialist professionals to the telehealth points

Specialties	n (136)	%
Doctor		
Dermatology	41	30.1
Cardiology	14	10.3
Geriatrics	14	10.3
Endocrinology	13	9.6
Pediatrics	13	9.6
General Practice	8	5.9
Gynecology	7	5.1
Total	110	80.9
Nursing		
Obstetrician	13	9.6
Pediatrics	8	5.9
Family health	5	3.7
Total	26	19.1
TOTAL	136	100%

Source: UEA, 2021.

Table 2, presents the distribution by community regarding the services provided by the UEA specialist professionals. It was observed that the Madeira River RDS and Catuá-Ipixema Resex were the territories that requested more than half of all consultations and the incompleteness of the registration of the territory in six consultations.

Despite the positive evaluation by the riverside dwellers regarding the use of the telehealth point, the difficulty of access to other professionals, in case there was a need for referral, was mentioned as a gap in the line of care.

**Table 2** – Distribution of telehealth services by territory covered by the riverside communities

Territory	n (130)	%
Municipal CU		
RDS in Rio Negro Piangaçu	2	1.5
State CU		
RDS in Rio Madeira	41	31.5
Resex Catuá-Ipixema	37	28.5
RDS Puranga Conquista	18	13.8
RDS Uacari	6	4.6
RDS in Rio Amapá	3	2.3
RDS Mamirauá	1	0.8
RDS Uatumã	6	4.6
RDS Piangaçu Purus	1	0.8
Federal CU		
Resex Capanã Grande	9	6.9
Resex in Rio Jutai	5	3.8
Resex Auati-Paraná	1	0.8

Source: UEA, 2021.

UC - Conservation Unit; RDS - Sustainable Development Reserve; Resex - Extractive Reserve.

## DISCUSSION

Amazonas has, in its territory, singularities that challenge the guarantee of access to health services to the most remote population. Thus, the expansion of telehealth services has contributed not only to expedite care, but also to improve the quality of care, since it has positively transformed the professional qualification

and the care provided to users. Besides this tool, other strategies, such as the river mobile basic unit and Speedboat Ambulance, help to mitigate this inequity<sup>(7)</sup>.

Given this geographical peculiarity, telehealth projects are changing the paradigms in relation to health care and education, but they must be used within ethical guidelines. It is pointed out as an important challenge to expand the use of the tool "telehealth", the need for joint commitment of managers and executors of public health policies<sup>(8)</sup>.

The lack of support from managers to adopt telemedicine as a tool to improve the quality of care, the lack of strategies to incorporate the services in the care processes and the high turnover of professionals in health services have a strong impact on the number of professionals who do not use the tools offered by telehealth<sup>(9)</sup>. This finding is consistent with the reality of some municipalities in the interior of Amazonas state, which underuse the signal available for teleconsultations and orientations, making it difficult to meet the health care needs that would be easily solved with the support of technology.

However, when used assiduously, the "telehealth" tool has contributed to the reduction of inappropriate referrals to medical specialties and to a better guidance to health professionals on how to proceed in this regard. This is valid both for the care itself and for the flow of the public health system itself, impacting Primary Care services, making them more solvable and integrating teaching and research institutions<sup>(8)</sup>.

The dermatology specialty was the most requested by the riverside dwellers. In these consultations, the CHAs sent the photograph of the lesion via WhatsApp to perform telediagnosis by the specialist doctor during teleconsultation. The application of telediagnostic resources is very appropriate to the field of dermatology, because it is possible to perform remote examinations, such as macroscopy and dermoscopy, used to capture and transmit digital photographs<sup>(10)</sup>. Therefore, the activities related to teledermatology have had a satisfactory influence on the diagnostic process, on the regulation of access to specialized care, and as a training element in the continuing education of professionals.

### Limitations of the study

The factors that challenge the expansion of telehealth include patient and physician buy-in, workflow, access to telehealth technology, and infrastructure with respect to human and technological resources<sup>(11)</sup>. Regarding the adherence of patients to teleconsultations, the reports were always positive; and the demand increased as the project progressed. As in the aforementioned

case study, the infrastructure conditions of the health units, the quality of the internet connection, and the presence of an intuitive system are aspects frequently addressed as determinants of the failure or success of a program.

### Contributions to the Area

Thus, the experience with this project enables the development of ideas for improvements and solutions in the use of telehealth in remote areas, in order to explore the full potential of the tool for the effective promotion of health care, as well as ensuring equity and universal access to health services during the pandemic.

### CONCLUSIONS

The Telehealth in the Forest Project showed that the teaching-service partnership was positive for the general and specialized care to the riverside communities of the Amazon, in order to prevent the contamination by COVID-19 in these communities. This is because medical and nursing consultations were offered through the technology, reducing distances and optimizing the municipality's financial expenses with the displacement to reference services.

However, it is essential to involve Primary Health Care professionals from the municipal health departments in order to draw possible ways of providing telehealth care based on the specific needs of riverine communities.

The Telehealth in the Forest Project is believed to form the telehealth network in riverside communities and thus ensure the right to access health in a comprehensive manner, with strong interaction between family health professionals in rural areas. Such actions reduced the circulation of these populations in large urban centers, which promoted extra immunity due to the social isolation facilitated by the use of the telehealth tool.

### SUPPLEMENTARY MATERIAL

The manuscript has research data available at: doi: <https://doi.org/10.48331/scielodata.C9U0XD> .

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