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SCIENTIFIC ARTICLE - CASE REPORT

CHALLENGES AND PERSPECTIVES OF DERMATOLOGICAL CARE FOR RIVERSIDE COMMUNITIES: AN EXPERIENCE REPORT FROM THE AMAZON

MARCELLA VALENTE MARTINS[1], MARIANA MELO SOARES[2]

1. Undergraduate medical student at the Federal University of Goiás, Goiânia/GO, Brazil.
2. Dermatologist (CRM-GO 26.963, RQE: 20.103) at the Federal University of Goiás, Goiânia/GO, Brazil.

ABSTRACT

The Lower Amazon region presents severe barriers to specialized healthcare access for riverside populations due to geographical isolation. This study aims to report the experience of medical students and volunteer professionals in home-based dermatological care for patients with mobility restrictions in the Maranhão community, Parintins (AM), during the Univida Mission in January 2026. Care was based on a teaching-hospital model under specialized preceptorship. In the dermatology clinic, a high prevalence of superficial mycoses and pyodermas associated with chronic contact with river water was observed, alongside actinic photodamage. Five minor outpatient surgical procedures and health education actions on photoprotection and hygiene were conducted. The social relevance of this itinerant practice materialized in a home-based active search for a 74-year-old bedridden patient with advanced dementia. Dermatological examination and clinical dermoscopy revealed a 5 mm hyperpigmented macule on the nasal ala, raising a strong suspicion of lentigo maligna melanoma. Given the high lethality of this neoplasm and local logistical constraints, the patient was referred to the oncology reference service in the state capital. It is concluded that robust medical training in dermatology is crucial for early oncological diagnosis in primary care and that humanitarian university extension enhances clinical learning in resource-limited settings.

Keywords: Amazonian ecosystem, Melanoma, Mycoses, Pyoderma, Rural health services.

INTRODUCTION

The Lower Amazon region, in the portion located within the state of Amazonas, is characterized by a complex hydrographic network and extensive forest cover, where rivers serve as the main routes for transportation and connectivity. For the riverside populations inhabiting the banks of these waterways—such as the Maranhão community, located near the municipality of Parintins, Amazonas—the geographical isolation resulting from the vast distances to urban centers translates into severe barriers to accessing public healthcare services. Given the chronic shortage of continuous and specialized medical care in these isolated locations, organized humanitarian missions and mobile university extension projects have become essential

strategies for mitigating regional inequalities by decentralizing healthcare delivery and addressing gaps in primary care.[1] In this context, the present experience report aims to describe the main challenges and lessons learned through participation in the 6th Univida Mission, held in January 2026.

In the field of dermatology, the importance of these healthcare expeditions becomes even more pressing given the socioenvironmental conditions of the traditional populations of Parintins. Prolonged daily sun exposure, inherent to subsistence activities such as fishing and family farming practiced in the Maranhão community, combined with the high levels of ultraviolet radiation and humidity characteristic of the Amazonian ecosystem, acts as a predisposing factor for a range of skin conditions.[2] Brazilian scientific literature demonstrates a high local prevalence of fungal and bacterial infections, such as mycoses and superficial pyodermas.[3] At the same time, this pattern of chronic, unprotected sun exposure substantially increases the risk of developing severe actinic photodamage and malignant skin neoplasms, including melanoma.[4]

Despite the severity of these conditions, timely diagnosis and appropriate management face a critical obstacle when patients have mobility restrictions or severe motor impairments. Older individuals or those living with residual disabilities in communities such as Maranhão, who are unable to undertake the long and costly river journeys to the urban center of Parintins or the state capital, Manaus, remain largely invisible to the conventional healthcare system. This situation allows tumor lesions to progress silently and drastically reduces the chances of cure. In this context, the incorporation of systematic home visits by volunteer medical teams enables the active identification of complex dermatological cases, allowing specialized medical assessment to reach patients at their bedside and making interventions possible that would otherwise be unavailable.

Against this background, the present study is justified by the need to document and critically analyze models of medical care delivery in settings characterized by geographical exclusion. The social relevance of this investigation lies in highlighting the ongoing vulnerability of traditional communities facing social disadvantage, whose social determinants of health perpetuate cycles of delayed diagnosis of highly lethal diseases that are nevertheless treatable in their early stages. From a clinical and academic perspective, the study emphasizes the importance of documenting the specific characteristics of the regional profile of skin diseases under the guidance of medical specialists, providing evidence to support the improvement of mobile healthcare public policies adapted to the Amazon region. Furthermore, it highlights the transformative role of university extension activities in fostering medical training characterized by technical rigor, effective problem-solving, and humanitarian commitment.

OBJECTIVES

The objective of this article is to report the experience of medical students and volunteer professionals in providing home-based dermatological care to patients with mobility restrictions in the Maranhão community, Parintins, Amazonas. The study aims to discuss the logistical challenges of itinerant healthcare delivery, describe the main skin conditions identified under specialized supervision, and highlight the social and clinical impact of the early diagnosis of serious diseases, such as melanoma, in biologically vulnerable areas.

EXPERIENCE REPORT

ThisGeneral Organization and Outpatient Care Logistics

The Univida Mission is a nonprofit organization founded in 2018 by Father Eduardo Lima, with the aim of providing healthcare services to indigenous and riverside populations through the participation of students in health-related fields. The project is structured around a teaching-

hospital model: students perform the initial screening and refer patients to specialty clinics. The outpatient clinics are staffed by medical specialists and general practitioners, as well as medical students in their clinical internship years, who conduct consultations independently and subsequently discuss each clinical case and its management with a supervising physician.

The Lower Amazon region covered by the January 2026 mission encompassed the Uaicurapá River basin, a tributary of the Amazon River, and prioritized healthcare delivery to riverside communities within the municipality of Parintins, Amazonas. This river basin comprises more than 14 communities, each with a population ranging from 100 to 700 inhabitants. The team of more than 90 volunteers established its base in the Maranhão community, supported by a floating Basic Health Unit (BHU) boat and a local BHU, as well as additional boats providing accommodation. The medical team consisted of nine physicians, including general practitioners and specialists (Figure 1)—among them two pediatricians, one obstetrician-gynecologist, one neurologist, one intensivist, and one dermatologist.



Figure 1: Multidisciplinary team of volunteer medical students and healthcare professionals during the river expedition.
Source: Research collection, 2026.

To provide healthcare services to all communities within the river basin, the schedule was organized to cover two or three locations each day. The patient care process began with screening at 9:00 a.m., followed by medical consultations from 10:00 a.m. to 5:00 p.m. Screening took place in an outdoor grassy area near the boats, with patients seen on a walk-in basis and prioritized according to severity criteria and order of arrival. At this stage, blood pressure was measured, the chief complaint was recorded, and a general physical examination was performed. Consultations were conducted either aboard the floating Basic Health Unit (BHU) (Figure 2) or at the land-based BHU in the Maranhão community. Due to structural limitations, with only one consultation room equipped with an ultrasound machine, this space was allocated exclusively to the mission's gynecology and obstetrics service.



Figure 2: Structure of the floating Basic Health Unit (BHU) in the Maranhão community, Parintins, Amazonas.
Source: Research collection, 2026.

Practical Experience in Dermatology

The dermatology outpatient clinic stood out for its high effectiveness in both clinical and surgical management, operating under the direct supervision of a dermatologist preceptor. The epidemiological profile observed revealed a high prevalence of conditions associated with the region's social and environmental determinants. A high incidence of superficial pyodermas and superficial mycoses[5] was observed, predominantly affecting the feet and nails, resulting from the population's chronic, unprotected contact with river water and moist soil. In parallel, complaints related to chronic actinic photodamage were frequent among older, fair-skinned individuals exposed to sunlight during rural work and fishing activities.[4]

Regarding superficial pyodermas, impetigo is the most significant bacterial skin infection in tropical environments and isolated communities. Scientific literature demonstrates that, in endemic regions, the etiological dynamics of these infections are strongly driven by **Streptococcus pyogenes** (group A streptococcus), which acts either independently or in coinfection with **Staphylococcus aureus**.[5] The development of these purulent and crusted lesions is frequently exacerbated by secondary infestations, such as scabies, and chronic nasal colonization by these pathogens, establishing a cycle of community transmission facilitated by close interpersonal contact and the scarcity of adequate sanitation infrastructure.[5]

Similarly, the profile of superficial mycoses in the Amazon region is shaped by the combination of high relative humidity and elevated temperatures, factors that favor the overgrowth of phytopathogenic fungi and commensal yeasts. Of particular importance is the prevalence of conditions caused by yeasts of the genus **Malassezia**, the etiological agents of pityriasis versicolor

and seborrheic dermatitis, which exhibit varying susceptibility profiles to azole antifungals commonly used in primary care.[6] Additionally, the Amazon region faces the epidemiological spread of zoonotic implantation mycoses, such as human and animal sporotrichosis (predominantly associated with feline transmission), which has expanded significantly throughout the region and manifests as chronic nodular and ulcerocutaneous lesions, requiring accurate differential diagnosis by mobile healthcare teams.[7]

In response to this disease profile, medical care was structured around two fundamental areas: outpatient surgical intervention and health education. In the surgical component, five dermatological procedures were performed using elliptical excision techniques (Figures 3), comprising the removal of one lipoma, one epidermal cyst, one common wart, and two melanocytic nevi. Regarding prevention, patients received guidance on the importance of maintaining skin barrier hydration and, particularly, thorough hygiene and drying of the feet after contact with river environments, aiming to reduce rates of recurrent fungal and bacterial infections within the community.

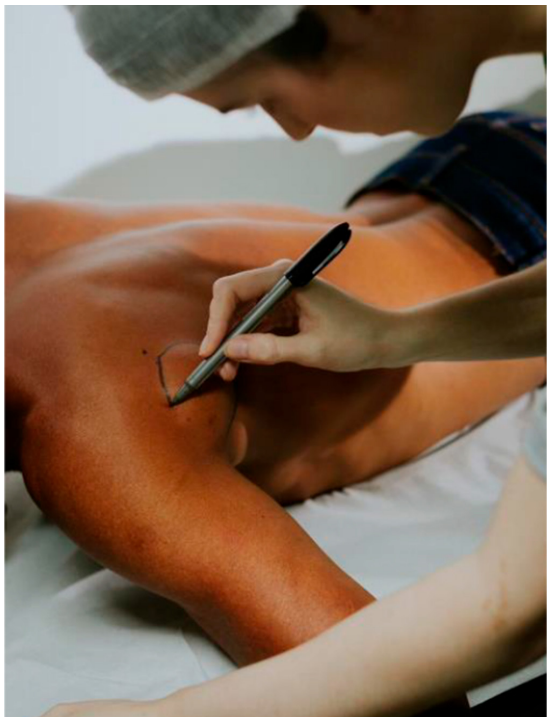


Figure 2: Surgical marking for lipoma excision performed on the UBS boat.
Source: Research collection, 2026.

Multidisciplinary Home-Based Approach to Lentigo Maligna Melanoma

The social and humanitarian relevance of itinerant healthcare delivery became evident through the need for active home-based case finding among patients with severe mobility restrictions. In this context, a multidisciplinary team—comprising a dermatologist, a neurologist, and two female medical students—visited the home of a 74-year-old male patient whose cognitive and motor impairments prevented him from attending the floating Basic Health Unit (BHU) (Figure 4). During the bedside neurological

examination, the specialist identified advanced dementia associated with Wernicke's aphasia, which completely prevented direct history-taking and the patient's ability to communicate his symptoms.



Figure 2: Dermatological and neurological assessments conducted at the patient's bedside during an active home-based case-finding visit.
Source: Research collection, 2026.

During the dermatological physical examination, a hyperpigmented macule was identified, measuring 5 mm in diameter, located on the left nasal ala, with asymmetric features and irregular borders (Figures 5 and 6). Dermatoscopic evaluation allowed the identification of classic criteria for melanocytic malignancy, establishing a strong clinical suspicion of lentigo maligna melanoma.



Figure 5 and 6: Suspicious macule visible to the naked eye and dermatoscopic view of the asymmetric, hyperpigmented macule with irregular borders, measuring 5 mm, on the left nasal ala.
Source: Research collection, 2026.

Melanoma is the most aggressive skin malignancy due to its high potential for invasion and metastatic spread, accounting for approximately 80% of skin cancer-related deaths, although it represents only a minority of all cases.[8] Given its lethality, early clinical recognition based on the ABCD rule (Asymmetry, Border, Color, and Diameter) and the identification of suspicious lesions should be an established competency among general practitioners, since early diagnosis in primary care is the determining factor in improving prognosis and preventing progression to clinically occult metastatic disease.[9]

Due to the anatomically sensitive location of the lesion on the nasal ala and the logistical limitations of the mission setting, an incisional and/or excisional biopsy was not immediately performed on site. It was explained to the family that, according to the guidelines of the Sociedade Brasileira de Patologia, definitive staging and prognosis depend critically on histopathological analysis to determine Breslow thickness, which guides the required surgical margins and the criteria for sentinel lymph node assessment.[8] Immediate management consisted of providing support to the family and coordinating a priority referral with the mission's leadership and the local healthcare system to a specialized cutaneous oncology service in the state capital, enabling timely definitive surgical treatment.[9]

CONCLUSION

The experience gained during this outpatient healthcare expedition reinforces the premise that comprehensive medical training in dermatology is essential for primary care practice, particularly in isolated settings. Mastery of essential clinical competencies and the appropriate use of diagnostic screening tools enable general practitioners to identify highly lethal skin malignancies at an early stage, allowing timely interventions before progression to unfavorable outcomes.[10] Furthermore, this technical training equips healthcare professionals to develop health education strategies tailored to local vulnerabilities, providing the community with guidance on the prevention of transmissible fungal infections and general skin care—including warnings against excessive soap use and inadequate skin barrier hydration, habits that exacerbate chronic inflammatory skin conditions in biologically susceptible environments.[11]

From an academic and humanitarian training perspective, the involvement of medical students in remote and underserved regions of Brazil serves as a powerful catalyst for developing critical thinking and professional empathy. Encountering structural realities profoundly different from those experienced in major urban centers allows students to consolidate in practice the theoretical knowledge acquired in the classroom, giving new meaning to the concept of social determinants of health.[12] This immersion requires the development of exceptional cognitive flexibility, challenging future physicians to manage resource scarcity, refine their clinical reasoning, and devise safe, highly effective healthcare solutions using the limited technological resources available at the bedside.[13]

Finally, the experience documented in the Maranhão community, Parintins, Amazonas, demonstrates that the itinerant healthcare model addresses longstanding gaps in healthcare delivery and transforms the epidemiological landscape of traditional riverside populations. Active home-based case finding, exemplified by the multidisciplinary assessment of a patient with severe mobility restrictions and suspected melanoma, highlights the need for medicine to be adaptable and decentralized in order to reach individuals within their own living environments. Therefore, it is concluded that the integration of university extension activities and healthcare volunteerism plays a dual and inseparable role: restoring dignity and equity in healthcare for geographically isolated minority populations while strengthening the training of physicians equipped with technical expertise, clinical problem-solving skills, and an ethical and humanitarian commitment.[14]

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MAILING ADDRESS

MARCELLA VALENTE MARTINS
Av Marconi, Jardim Planalto, n° 39, Goiânia - Goiás, Brasil, Goiânia/GO, Brasil.
E-mail: marcellavalente@discente.ufg.br

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Authors:
Marcella Valente Martins - http://lattes.cnpq.br/9834150244194958 - https://orcid.org/0009-0001-7531-1140

Mariana Melo Soares - http://lattes.cnpq.br/4307266864126906 - https://orcid.org/0000-0001-9226-9514

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