

The Floating Primary Health Center Model in the Amazon Rainforest

Sileno de Queiroz Fortes-Filho, MD, PhD

Juliana de Araújo Melo-Fortes, MD, PhD

Márlon Juliano Romero Aliberti, MD, PhD

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THE INNOVATION

Riverine communities in the vast Amazon rainforest primarily engage in fishing, cultivation, and herding. These communities face significant challenges, however, in health care access due to long distances to the nearest health centers. To address this issue, floating primary health centers (PHCs), staffed by multidisciplinary health care teams, were created to ensure universal health care access in the Amazon (**Supplemental Figure**).

All the innovative vessels are 22 meters long with 3 floors. The ground floor serves as a bustling hub of activity, featuring 3 consulting rooms for dental, medical, and nursing care. It also houses a pharmacy catering to both acute and chronic conditions, and a vaccine room focused on childhood vaccinations and, more recently, COVID-19 vaccines for all age groups. Additionally, the ground floor includes a procedure room and a waiting area, while also offering accommodations, bathrooms, and a kitchen/cafeteria. On the first floor, a laboratory performs basic tests like blood counts and urinalysis, and additional rooms include a health education area, a command cabin, and 2 bathrooms. The first floor also provides 4 cabins that can accommodate up to 18 health care team members. The top floor provides a canvas-covered social area with tables, chairs, and hammock supports, offering a relaxing space for the team to unwind after a long day.

WHO & WHERE

The floating PHCs are staffed with family health teams, including physicians, nurses, dentists, pharmacists, and support staff. Most vessels serve Amazonas, Brazil's largest state, an area as large as France, Germany, and Spain combined. The region's low population density (around 2.63 inhabitants/km²) and extensive network of waterways make health care access challenging for these communities. These communities are often located far from the nearest health care centers, which usually concentrate health care services in the municipal headquarters. Over 35 out of

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Corresponding author

Sileno de Queiroz Fortes-Filho
Escola Superior de Ciências da Saúde
Rua Carvalho Leal 1777
1° Andar, Cachoeirinha, 69065-001
Manaus, Brazil
sffilho@uea.edu.br

61 municipalities in Amazonas have adopted floating PHCs. These PHCs, costing around \$400,000 to construct and \$20,000 monthly to operate (ie, health team and staff members, fuel, and food and other expenses) are funded by municipal, state, and federal resources.¹

HOW

Floating PHCs operate 20 days a month, which includes the time spent on both fluvial travel to remote locations and providing direct medical services to local communities upon arrival. The vessel docks in larger communities, while in smaller communities located on tributaries that cannot accommodate the large boat, smaller community boats ferry the residents to the floating PHC. Boats stay in each community for 1-3 days, serve up to 100 people daily, and return every 3 months. For the remaining 10 days, boats anchor at the municipal headquarters for planning and time off.

LEARNING

Endorsed by Brazil's Ministry of Health, Floating PHCs are a targeted initiative designed to specifically increase health care equity among the often-neglected rural, riverbank communities in the Amazon. In recent years, this model has been adopted by many municipalities in the region, thereby providing regular and ongoing health care services, a departure from the occasional and temporary services offered by non-governmental organizations.

A challenge that has been identified with the floating PHC model, however, is the difficulty in providing specialized care. This service is scarce in municipalities far from the capital, where there are also problems with the supply of inputs and medications. Additionally, these units face logistical challenges, compounded by the remote locations, including consistent water and electricity supplies, and vessel maintenance. Keeping health teams engaged and prepared in a mobile and isolated environment presents additional challenges, including the need for continuous training and preparation to deal with emergencies in a riverine setting.

Despite limitations, floating PHCs are a groundbreaking and scalable approach, representing a crucial step toward health equity for Amazon's rural, riverbank communities. By offering consistent, targeted health care, this approach significantly improves primary care access and addresses the unique, often neglected, health needs of this population.

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 [Supplemental materials, author affiliations, and references](#)