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INTER-ISLAND HEALTH SERVICE BOAT PROJECT

CONTINENT

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INTER-ISLAND HEALTH SERVICE BOAT PROJECT, PHILIPPINES

An integrated boat referral system that connects remote village health centers to the municipality's main birthing facility.

Authors: Noel R. Juban, Jennie Lyn Reyes, Arturo M. Ongkeko Jr.

This case study forms part of the Social Innovation in Health Initiative Case Collection.

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SIHI Academic Advisory Panel: Lindi van Niekerk and Lenore Manderson

For more information on SIHI and to read other cases in the SIHI Case Collection, visit www.socialinnovationinhealth.org or email info@socialinnovationinhealth.org.

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ABBREVIATIONS

ARMM	Autonomous Region in Muslim Mindanao
BHS	Barangay (Village) Health Station
CHT	Community Health Team
DOH	Department of Health
FBD	Facility-based delivery
GIDA	Geographically isolated and disadvantaged area
LCE	Local Chief Executive
LGU	Local government unit
LMIC	Low- and middle-income countries
MHO	Municipal Health Officer
MMR	Maternal mortality ratio
NCR	National Capital Region
NHIP	National Health Insurance Program
PhilHealth	Philippine Health Insurance Corporation
PHP	Philippine peso
RHU	Rural Health Unit
SDG	Sustainable Development Goals
USD	US dollar



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CASE INTRODUCTION

The Philippines' overall health status has improved dramatically in the last half-century: infant mortality has dropped, the prevalence of communicable diseases has fallen, and life expectancy has increased to almost 70 years. However, the country still has a relatively high maternal mortality ratio (MMR) of 114 deaths per 100,000 live births (World Health Organization, 2016), far exceeding the Sustainable Development Goals' (SDG) health-related target of reducing the global MMR to less than 70 per 100,000 live births. The national priority to reduce maternal deaths is to ensure that every pregnancy is adequately managed throughout its course, and that every delivery is facility-based and managed by skilled birth attendants. The Inter-island Health Referral System Through One Facility, One Health Service Boat (or the Inter-island Health Service Boat Project) is a project initiated by the Rural Health Unit (RHU) of the Municipality of Zumarraga in 2012 to increase the number of pregnant women opting for facility-based deliveries (FBD) and to improve delivery

and access to primary health care services in a geographically isolated and disadvantaged area (GIDA). The project provides high-risk pregnant women with boat services so they can be transported from their remote island villages to the main birthing facility in Zumarraga for safer childbirth. As more pregnant women opt for FBD and qualify to avail of PhilHealth's Maternal and New-born Care Packages, the RHU is reimbursed with PHP 9,550.00 (USD 191) for every eligible pregnant woman who delivered in the RHU. This amount helps fund the honorarium of volunteer health workers, purchase of essential medicines, additional financial subsidies for indigents, and support for other health-related activities.

The Inter-island Health Service Boat Project shows how improving the service delivery network for primary health care services is directly proportional to increasing safer childbirth and reducing the maternal mortality ratio in a geographically isolated and disadvantaged area.



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1. INNOVATION AT A GLANCE

Organisation Details

Organisation name	Zumarraga Rural Health Unit (RHU)
Founding year	2012
Founder name	Dr. Katerina Abiertas
Founder nationality	Filipino
Current head of organization	Dr. Flor Bianca Culata
Organisational structure	Government health facility
Size	Four sea ambulance /boats servicing the rural health unit (RHU) and four barangay (village) health stations servicing the entire Municipality of Zumarraga

Innovation Value

Value proposition	A project initiated by the Rural Health Unit of the Municipality of Zumarraga to increase the number of pregnant women opting for facility-based deliveries (FBD) and to improve the delivery of primary health care services in a geographically isolated and disadvantaged area (GIDA).
Beneficiaries	Pregnant women and other health patients referred to the RHU or higher health facilities in the mainland. Directly benefits 14,220 from four village health stations, 106 village health workers / community health team (BHS/CHT), four boatmen, and 20 RHU staff.
Key components	<ol style="list-style-type: none"> 1. Taps public-private partnerships to augment service delivery for safer childbirth in a GIDA 2. Capitalizes on existing resources to deliver primary health care services 3. Engages and empowers the village health workers as active partners in health service delivery

Operational Details

Main income streams	Government budget allotted to RHU, PhilHealth reimbursements, grants awarded
Source of initial funding	Public and private grants (boats via DOH Health Facility Enhancement Project and Luke Foundation, CS Foundation, Unilab Foundation and Japan-Philippine Friendship Association), PhilHealth capitation and LGU counterpart.
Annual expenditure	PHP 360, 000 (USD 7,200)
Cost per person served	PHP 700-1,000 (USD 14-20) for fuel per boat for every referral

Scale and Transferability

Scope of operations	Covers the entire Municipality of Zumarraga servicing one RHU and four village health stations
Local engagement	The project engages the local public health providers (i.e., staff of the RHU, BHS/CHT), PhilHealth, and the LGUs (municipal and village levels)



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Scalability	<ol style="list-style-type: none"> 1. Local public health providers operating in a geographically isolated and depressed area with high incidence of morbidity or mortality 2. A social insurance scheme that provides capitation or reimbursement for primary health care services 3. Local government or private partners to provide project counterparts 4. Available modes of transportation for referral system
Sustainability	Building the capacity of the health workers regarding the inter-island referral protocol (i.e., birthing facility staff, boat drivers, health providers); forging institutional partnerships with public and private stakeholders (i.e., donors, PhilHealth and the LGU); and ensuring transparency and accountability in utilizing the revenues from PhilHealth.

2. CHALLENGES

The Philippines is a lower middle-income country (LMIC) in Southeast Asia. With a population nearing 101 million, it is the 13th most populous country in world. A population growth rate of 1.72 annually is linked to a high average fertility rate of 2.7 children per woman of childbearing age,¹ with the highest population growth rates observed in some of the most economically challenged areas of the country, such as Bicol and Eastern Visayas (Romualdez Jr., et al., 2011). The urban population has steadily increased from 31.8% in 1970 to 45.3% in 2010; the rest of the population remains in rural, often geographically isolated areas (Philippine Statistics Authority, 2013).

Indicators of overall health status have dramatically improved over the past half century; infant mortality has dropped,² the prevalence of communicable diseases has fallen but requires continuous attention,

and life expectancy has reached an average of 69.3 years for both sexes (World Health Organization, 2016). However, there is a slowing trend of reduction in child mortality, maternal mortality, and other health indicators and outcomes (World Health Organization and Department of Health, 2012). This may reflect high inequities between socio-economic classes and disparities between geographical regions that translate to highly developed areas³ with relatively good health status, while the less developed regions including Bicol, Eastern Visayas and the Autonomous Region in Muslim Mindanao (ARMM) are lagging behind (Romualdez Jr., et al., 2011).

An ominous indicator of grave national and international concern is the Philippines' relatively high maternal mortality ratio (MMR) of 114 deaths per

¹ This average masks considerable inequalities between income groups, with women in the lowest income group having on average almost six children, and the highest with less than two.

² From 67 deaths per thousand births in the 1960s to 12.6 deaths per thousand live births in 2016

³ National Capital Region and adjacent regions in Central and Southern Luzon



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100,000 live births (World Health Organization, 2016; Romualdez Jr., et al., 2011), which is still 1.6 times higher than the Sustainable Development Goals' (SDG) health-related target of reducing the global MMR to less than 70 per 100,000 live births by 2030.⁴ Complications related to pregnancy occurring in the course of labour, delivery and puerperium⁵ are the main causes of maternal deaths in the country (Department of Health, 2013).

In 2008, the DOH issued an administrative order (DOH AO 2008-0029) outlining a national strategy for the rapid reduction of maternal and neonatal mortality under its Safe Motherhood Program. This sets the national targets that include ensuring every pregnancy is adequately managed throughout its course, and that every delivery is facility-based (at least 90%) and managed by skilled birth attendants (Department of Health, 2011).

According to the Rural Health Unit (RHU) of Zumarraga, the following are common barriers for pregnant women not to opt for facility-based delivery (FBD):

1. Physical and financial barriers such as poor access to a local health provider/ birthing facility due to distance or unavailability and the lack of capacity to pay for transportation and other related fees that prevent pregnant women from accessing quality health care.
2. Lack of awareness about services and available benefits for pregnant women including pre- and post-natal care, and facility-based delivery (FBD) packages (such as Maternal and New-born Care Packages) covered under the National Health Insurance Program through PhilHealth, which could also translate to lack of awareness about how PhilHealth works in general.
3. Cultural roles of traditional birth attendants or *hilots* in rural communities who serve as alternatives for pregnant women instead of seeking skilled health professionals and delivering in a health facility.

⁴ A subsequent global target based on the 5th UN Millennium Development Goal (MDG) for maternal health to reduce maternal mortality ratio to 52 maternal deaths per 100,000 live births by 2015

⁵ The period of about six weeks after childbirth during which the mother's reproductive organs return to their original nonpregnant condition



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3. INNOVATION IN INTERVENTION

The Inter-island Health Referral System Through One Facility, One Health Service Boat is a project initiated by the Rural Health Unit of the Municipality of Zumarraga in 2012 to increase the number of pregnant women opting for facility-based deliveries (FBD) and to improve access to primary health care in remote and economically challenged villages.⁶ Zumarraga is classified as a “fifth class” island municipality⁷ composed of 25 coastal villages and classified as a geographically isolated and disadvantaged area (GIDA) in the Eastern Visayas region. Access to the mainland province of Samar is only possible through a one-hour ride via public or privately-owned. Zumarraga has only one main health facility (i.e., the RHU) and four barangay or village health stations (BHS), each accommodating three to six catchment coastal villages. The lack of any circumferential road to link the Poblacion [*where the main barangay in the municipality, the political seat of power and most government services are located*] to other villages makes it particularly challenging to transport pregnant women to the PhilHealth-accredited birthing facility in the RHU.

3.1. AUGMENTING THE SERVICE DELIVERY NETWORK FOR SAFER CHILDBIRTH

The One Facility, One Health Service Boat project fills the gap in the delivery of

primary health care services. After government services were decentralized following national devolution in 1991, the main providers of primary health care services became the local government units (LGU) as mandated under the Local Government Code. City and municipal governments were put in charge with providing primary health care including maternal and childcare. The village health stations and the rural health units serve as the patients’ first place of contact with health workers. The Inter-island Health Service Boat Project establishes an efficient mechanism for a boat referral system that connects remote village health stations to the main birthing facility in the RHU, or to the mainland for more complex health emergencies. This ensures that a sea ambulance or a boat with fuel and designated driver is always accessible and available for the timely referral of patients, especially high-risk pregnant women, as there are no regular passenger boats to shuttle patients from the villages to the Poblacion and vice versa. With the system in place, it takes as few as 15 minutes to deploy the boat with a patient, compared to 1-1.5 hours waiting time or longer to secure a rented boat, which is also costlier.

⁶ Or barangay, the smallest administrative division in the Philippines

⁷ Average annual income of PHP 15,000,000 to PHP 24,999,999 or USD 300,000 to USD 499,999 at USD 1= PHP 50



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3.2. MOBILIZING RESOURCES TO DELIVER PRIMARY HEALTH CARE SERVICES

All pregnant women who are transported to deliver in the birthing facility can use the boat free of charge. Non-pregnant patients who are referred from the village health stations to other health facilities (either in the RHU or to the mainland) will shoulder the cost of fuel, while indigent patients are fully subsidized. As more pregnant women are availing of facility-based delivery (FBD) and qualifying to avail of PhilHealth's Maternal and New-born Care Packages as a member or dependent, the rural health unit is reimbursed with PHP 9,550.00⁸ (USD 191) for PhilHealth capitation in every eligible FBD. A portion of this amount goes to honorarium and incentives of RHU personnel, mainly the volunteer health workers, and a larger percentage is kept in a trust fund for the purchase of essential medicines, the payment of additional financial subsidies for indigents, and support for other health-related activities.

When not transporting patients, the midwives use the boats to administer different health services for residents in remote coastal villages. These include pre- and post-natal check-ups, health and nutrition education, and vaccination and immunization programs, tasks that would have been physically daunting and costly without the boat service.

3.3. ENGAGING AND EMPOWERING VILLAGE HEALTH WORKERS AS ACTIVE PARTNERS

The boats are allocated and assigned to a midwife in each of the village health stations. Giving them a boat that they can use at their own disposal improves health workers' mobility, productivity and their morale to render different health services in their communities. The availability of the boat allows the midwives and their partner nurses and village health workers to conduct more frequent visits and to interact more with the community; this is a precursor to earning the community's trust. As health workers establish their presence in the village and are empowered to deliver more services, it becomes easier to interact with more patients and to refer and convince more pregnant women to be present for facility-based delivery in the RHU. Additionally, the opportunity of visiting the remote villages allows them to extend reproductive health counseling and family planning services, especially for young mothers and mothers with multiple children, and to address underlying factors contributing to high maternal mortality rate.

"Addressing access to health services in Zumarraga actually changed... the way services are being delivered and even the attitudes of the health workers giving the services. The health workers became more concerned about the health situation of their community." (Dr. Katerina Abiertas, Founder/ Innovator)

⁸ PHP 8,000 or USD 160 for maternal package and PHP 1,550 or USD 31 for new-born package at USD 1 = PHP 50



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4. IMPLEMENTATION

4.1. INNOVATION IN IMPLEMENTATION

Addressing the physical and socio-economic barriers to health service delivery

The Inter-island Health Service Boat Project addresses the low rate of facility-based delivery (FBD) leading to high maternal deaths and inadequate health service delivery in remote coastal villages in Zumarraga. Beginning with a wooden motorized boat acquired through a Department of Health (DOH) grant for geographically isolated and disadvantaged areas, the RHU through the former Municipal Health Officer (MHO) and innovator, observed how a single boat significantly improved the referral of patients and increased the number of pregnant women from remote villages who were referred for facility-based delivery in the RHU. This also enabled the RHU to maintain its accreditation from PhilHealth and generate an income from capitation for every pregnant woman who is a PhilHealth member or dependent and who avails of the Maternal and New-born Care packages. These reimbursements are more than enough to cover the health workers and boat driver's honoraria, fuel, and maintenance of the boat and the birthing facility.

"Whenever we get a patient referral, it gets really stressful... We wake up in the middle of the night looking for a boat, and we have to actually go to everyone to look for one.

Sometimes there's a boat but there's no one to drive it. Or sometimes there is no fuel. So you have to knock on people's houses, disturb the Mayor, their staff, or anyone we can tap just to refer a patient. There's got to be a better option than this." (Dr. Katerina Abiertas, Founder/ Innovator)

However, a single sea ambulance is not sufficient to cater to all village health stations for promptly referral; a dispatch from the RHU will take 1-1.5 hours to reach other health stations and double the amount of time and fuel consumed to travel back to the RHU. The MHO took advantage of several opportunities to forge partnerships with several private institutions and foundations (i.e., Luke Foundation, CS Foundation, Unilab Foundation and Japan-Philippine Friendship Association) to obtain four additional boats for use by each of the village health stations. At the same time, the RHU engaged the support of the LGUs (at municipal and village levels) to earmark funds for fuel and assign designated drivers for each of the boats as counterpart, ensuring sustainability of the project.



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Creating opportunities for the community

The project also sourced local knowledge, materials, and craftsmanship to build and maintain the boats. The assembly of four boats by local builders from the Municipality of Basey in Samar benefitted families, devastated by Typhoon Haiyan, to recover their livelihood. The boat operation also created jobs for the boat drivers who now have a steady source of income. *“I used to ferry passengers or fish on the sideline before I became a driver of the village health station boat. I like this job better because it provides a steadier source of income for my family. It is exhausting but more fulfilling.”* (Boat driver)

Unlike typical sea ambulances from the national government that are bigger, consume more fuel and cost millions to procure and maintain, the local boat design resembles fishing boats used in the area and is made of light wood materials; this makes it easier for a single boat driver to navigate and maneuver the boat even in bad weather conditions. The boat's smaller frame is also designed to optimize fuel consumption and makes for easier maintenance by local boat builders in the area, ultimately reducing the overhead cost for operation and maintenance.

4.2. ORGANISATION AND PEOPLE

Since devolution, LGUs have provided public primary and secondary levels of

health care through their local health facilities. The RHU and the four village health stations are the main providers of primary health care in Zumarraga. The RHU is composed of 20 staff including a

doctor (also the Municipal Health Officer), nurses, midwives, a medical technologist, sanitary inspector, nutritionist and volunteer health workers. The village health stations have one midwife each, a number of volunteer community workers, and contractual nurses. The RHU and the village health stations' annual budgets are appropriated by the LGU from its internal revenue allotment. For a 5th class municipality like Zumarraga, the budget for social services like health competes for a meager share of the already limited government resource. Appointing the MHO is a political discretion of the LGU (i.e., municipal mayor) and the duration of appointment is typically served at the pleasure of the local chief executive (LCE). Following the national elections in 2016, Dr. Katerina Abiertas moved as MHO and head of the rural health unit in Motiong, Samar Province, but she continues to provide advice to the project team in Zumarraga.

4.3. COST CONSIDERATION

The Inter-island Health Service Boat Project is funded through public and private grants. The one-time cost of the constructing the boats was PHP 400,000 (USD 8,000); LGU annual counterpart for salary of boat drivers at PHP 96,000 (USD 1,920) and fuel at PHP 60,000 (USD 1,200); and annual maintenance cost at PHP 120,000 (USD 2,400) is charged against PhilHealth reimbursements.

The rural health unit earned around PHP 2 million (USD 40,000) from PhilHealth capitation payment in 2015 alone. Some of the village leaders served by the boats have pledged counterpart funding for repairs and maintenance.



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5. OUTPUTS AND OUTCOMES

5.1. IMPACT ON HEALTH CARE DELIVERY

Inter-island health referral system for safer childbirth

With the implementation of the Inter-Island Health Service Boat project, significant health indicators have improved including achieving zero maternal mortality in Zumarraga. From only 30% facility-based delivery for the entire RHU in 2012, it rose to 93.4% by the end of 2016.

Improved delivery of primary health care services

Other indicators related to health access and utilisation have also fared better in the municipality. The rate of fully immunized children has increased (from 30% to 54%), contraceptive use has increased (from 29% to 37.7%), tuberculosis case detection has increased (from 64% to 87.5%), and exclusive breast-feeding has increased (from 49% to 74%) from 2012 to 2016.

“From zero income in 2011, the RHU now earns between PHP 2-3 million annually from PhilHealth revenues. This additional budget allows the health facility to provide essential medicines, increase number of working staff, provide staff incentive, support other health programs and also to maintain the boats.”
(Public Health Nurse)

Motivated health human resource

Perhaps one of the most important impacts of the project is the way it helped increase the motivation and productivity of the health workers in both the RHU and the village health stations. Before the project was implemented, there was a general sense of hopelessness because of the poor performance of the health facilities and the limited means of health workers to address the needs of the

community. With the boats in operation, the health workers are empowered to respond during health referrals and emergencies; they are mobile and flexible enough to reach even the remotest villages. Additionally, a portion of the PhilHealth reimbursements for facility-based deliveries is used to augment the health workers' honoraria and to provide performance incentives for volunteer health workers. All these resulted to high-performing village health stations in terms of delivery of vaccination, health education and pre-post-natal checkups.

“Before the boat arrived, we used to have to walk to the villages for vaccinations and other programs. We cover four villages and even if you walk all day, you will not be able to cover all of them because they are too far and the ground is not easy for walking. There are days when you'll just have to give up from exhaustion. Now we're grateful we have a vehicle because we can do a lot for the community.” (Village health worker)



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5.2 ORGANISATIONAL MILESTONES

In November 2016, the Rural Health Unit of Zumarraga was awarded by the Department of Health Regional Office in Eastern Visayas as a regional achiever for its exemplary accomplishments and performance in implementing Maternal, Newborn and Child Health and Nutrition (MNCHN) programs for 2015. This recognition attests to the significant impact the project has brought to address a specific problem in the community.

5.3 COMMUNITY PERCEPTIONS

The different stakeholders engaged in the Inter-island Health Service Boat Project have expressed their appreciation for the project's services and impact:

"I've only been assigned here for three months but I can see how the boat referral system is working to serve the people especially in the remote villages of Zumarraga. Honestly, I don't know how we can reach them on time especially the emergency cases if we don't the boats... We already have good numbers in FBD now and increasing PhilHealth revenues. What Dr. Abiertas initiated was a big help for the community, and of course with the support of the LGU and the entire health sector." (Dr. Flor Bianca Culata, new MHO Zumarraga)

"I had my third child delivered in the RHU, it was my first child to be delivered here because there's already a boat service and we did not have to think about other fees. Life in the island is hard, we were not able to save money for the baby" (Beneficiary)

6. SUSTAINABILITY AND SCALABILITY

Even without the presence of the founder, the mechanisms that will keep the project operational have been thoroughly inculcated among the project team. Dr. Abiertas has safeguarded the project's sustainability by building the capacity of the RHU and village health stations' staff regarding the inter-island referral protocol, forging institutional partnerships with public and private stakeholders, including donors, PhilHealth and the LGU, and ensuring transparency and accountability in utilising revenues from PhilHealth.

The LGU, apart from its annual fuel and maintenance counterparts, has provided additional resources to upgrade the engine of the service boat detailed in the rural health unit to increase the response time and reducing travel from 1-1.5 hours

to 30-45 minutes. At present, a proposed ordinance mandating the local government units in the villages to appropriate funds for fuel and maintenance costs for the four service boats is also under the municipal council's deliberation, with a majority of village leaders expressing support for the legislation. The new Municipal Health Officer plans to continue implementing the project, to find new ways to improve service delivery and to maximize utilization of revenues to serve the community.



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“First, maybe in terms of the boat itself, there are things still lacking. For example, the lifesaver or rescue buoys. I also want to put emergency kits in them, like lights for night trips because they also need blinkers. I also want the boats to have phones so that we can contact them immediately. There are cases that they are needed and then they don’t have cellphones. At least this way we have instant communication with them.” (Dr. Flor Bianca Culata, new MHO Zumarraga)

The project can be scaled in other municipalities as a Department of Health mandate on establishing service delivery network, especially in geographically isolated and disadvantaged areas, and requires:

1. A high fertility and high maternal mortality endemic area
2. Local public health providers or facilities for assisted delivery and referral
3. PhilHealth-accredited health providers/facilities to generate revenue for capitation or reimbursements
4. Local government and private partners to provide counterparts
5. Available modes of transportation to service the area.

7. KEY LESSONS

A key success factor of the Inter-island Health Service Boat Project is the genuine understanding and commitment of the founder and the project team to address a very tangible problem in their island municipality. The solution they have found was not only feasible but has proven to be sustainable in the long-term without dependence on grants.

“I saw how deprived the health system is in the island, how poorly we did, and how common it was to give the excuse that we were just an island, just a GIDA. As long as there are no bridges, there will always be a need. And until then, the problem will perpetuate... We really prioritised pregnant women, if you were pregnant, the boat can fetch you. But from one island to another, you double the travel time, you double the fuel. So I also thought it would be good if every facility had a boat. I personally wanted to test that boats would solve the problem because even the midwives always said it’s because there’s no transportation. So, I thought, if we provided the boats and the mechanism, will they really go?”

(Dr. Katerina Abiertas, Founder/Innovator)

Transport mobility and affordability is a real challenge in geographically isolated and disadvantaged areas and contributes to poor health seeking behaviours of clients and poor performance of health workers. The provision of a service boat as a supportive mechanism to decrease transportation costs increased the number of pregnant women giving birth in the main birthing facility; improved the participation of village health workers in



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municipal-wide health programs and activities and boosted their morale; and contributed to reaching national health indicators and targets for Zumarraga.

Dr. Katerina Abiertas continues to publicly serve in another geographically isolated and disadvantaged area. She imparts the importance of empowering people and project ownership to continue with the project's success: *"I believe that when it comes to these things, it's the people that are the most important factors. I looked for champions that would continue the work. For example, we did a team building. I didn't tell them I was leaving soon, but what happened was they were slowly being prepared for it."*

That's when I saw that they have truly bought in to the project, because when you talk to them they say the boat is "ours", there's ownership. It's good to have an ordinance but in real life, if nobody forces its implementation, it's useless. So, for me, I think I built on the people." (Dr. Katerina Abiertas, Founder/ Innovator)

8. KEY INSIGHTS

1. Social, economic, and geographic barriers result in inequity in health access and health outcomes. The availability of transportation modes and its supporting mechanisms (such as a dedicated driver, local fuel suppliers, and boat builders) can increase contact between patients and health service facility/providers, leading to better health indicators and health outcomes.
2. Securing the ownership and commitment of health workers, especially midwives and village health workers, is important. As the patients' first contact in the health referral system, they are at the forefront of providing services and access to public health facilities.



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