

DESIGNED IN CANADA, DEPLOYED IN MOZAMBIQUE

How a Mozambican expat in Saskatchewan designed a motorcycle ambulance to help improve maternal health in his homeland

POSTED BY BRIAN OWENS ON MAY 15, 2019

It's a problem that plagues Mozambique. The southern African nation has one of the world's highest maternal mortality rates, at 489 deaths per 100,000 live births (compared to seven deaths per 100,000 live births in Canada), and in places such as Nampula province in the country's north, it's not uncommon for women to die simply because they can't get to the hospital in time to deliver their babies.

Local communities in Nampula went looking for solutions to this access-to-care problem, eventually deciding to focus on community-owned motorcycle ambulances that could quickly transport women to hospitals from remote locations over poor roads.

A few companies in the United Kingdom and South Africa manufacture motorcycle ambulances, but that raised the question of who would be responsible for the machines maintenance, says Sue Godt, a program specialist with IDRC, which with Global Affairs Canada and the Canadian Institutes of Health Research funded the [project](#) as part of the [Innovating for Maternal and Child Health in Africa](#) initiative. Designing and building their own was a more sustainable solution, says Godt.

With that in mind, in 2017 [Dr. Ron Siemens](#), an associate professor in the division of pediatric emergency medicine at the University of Saskatchewan who is involved in the project, recruited Antonio Nhampossa, a Mozambican artist and welder who has lived in Saskatoon since 2013, to design and build the prototype. "When Ron approached me," says Nhampossa, "I said, 'I think I can,' even though I felt like it was my own version of Mission: Impossible!"

A few months later, though, after building and testing the prototype in Saskatchewan, Nhampossa returned to Mozambique to manufacture six ambulances for communities in Nampula.

The ambulance he designed is a lightweight aluminum-and-steel cart pulled behind the motorcycle, and features several elements that make it ideal for use in rural Africa. For one thing, it's small — just large enough for a woman to lie down on a single stretcher, with a jump chair for one passenger. These features discourage extra riders in an area where poor transportation links mean any vehicle can be quickly overwhelmed with hitchhikers. The cart's hitch can either be attached directly behind the motorcycle when on decent roads, or offset to allow the bike to travel in one of the wheel ruts of a dirt track. And it has good suspension to keep passengers comfortable. "When we were testing it at 50 miles per hour across the Prairies, it felt like I was in my living room," says Siemens.

People in Nampula chose members of their community to be the drivers, who were then trained how to maintain the machines and use the logbook and call system, and taught basic first aid and care for pregnant women and newborns. The training and licensing of the drivers was the most time-consuming part of the project, but the first ambulances were delivered and ready for use in January 2019.



A pregnant woman and a traditional birth attendant ride in a motorcycle ambulance during a simulation of how the vehicle will be used to take women in labour to hospital in Mozambique's Nampula province. (Photo: EA-HPRO Consortium-IMCHA Initiative)

Having access to a quality motorcycle could prove to be tempting for people without access to other transportation, so to ensure that the ambulances are always available for their intended purpose, each has been entrusted to a local woman, who keeps it at her house. When the drivers get a call, they pick it up from her. "She's in charge," says Siemens. "You have to have one person responsible for the machine."

For now, the ambulances are reserved for pregnant women, not other medical needs, but Siemens notes the vehicles will be able to respond to major trauma calls if needed. "We're trying not to have it used for everything," he says.

While IDRC paid for the initial cost of the motorcycles and trailers and will continue funding the project through July 2020, Godt says it's vital that the communities find a way to make it sustainable in the long term. Mozambique's Ministry of Health isn't able to provide funding, so IDRC is looking for more local solutions. The project has linked with other development efforts, such as one promoting chicken farming, which will provide money to run the ambulance service while also improving local diets.

"There's a really strong commitment by the community to make this work," says Godt. "There are the elements in place to make it more likely that this will be sustainable in the long run, and it certainly addresses a major barrier to maternal health in the community."

Nhampossa, meanwhile, is just happy that his creation is now actually helping people. "It makes me feel very good to know that a simple machine like that can change lives in Mozambique."

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READING AS THINKING

1. What is the main issue discussed in the article?

2. List and explain four environmental and/or social factors that contribute to the ongoing nature of this issue:

a.

b.

c.

d.

3. Why was a motorcycle ambulance identified as a good solution to this issue? What are the benefits of this invention?

4. What expertise did Dr. Ron Siemens, a professor, and Antonio Nhampossa, a Mozambican artist and welder, likely bring to this project? What aspects of their professions likely helped them in the development of the motorcycle ambulance?

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5. Consider that Nhampossa was able to manufacture six ambulances. Do you think this will have an impact on the maternal mortality rate in Mozambique? Do you think six ambulances are enough? Why or why not?

6. Describe the strategy that was decided upon for the use and protection of the ambulances. Who is responsible for the ambulances? Who gets to use them? Why do you think that is?

7. Chicken farming has been proposed as a potential means of funding the ambulance project in the future. Propose two additional initiatives that could help fund this project – one local and one international:

- a. Local funding initiative:

- b. International funding initiative

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Think-Pair-Share

Think

8. Have students examine the image in the article and write what they see. Ask them to describe how this scene is different from an ambulance taking someone to a hospital in their hometown
9. Put students in groups of two and ask them to discuss their answers to the previous question. Ask the pairs to discuss how they would feel if they were living in a remote location and needed to take a motorcycle ambulance to get access to professional care. Would they be comfortable with this? Would they have any worries or concerns.

Next, remind students that the motorcycle ambulance has only been in use in Mozambique since January 2019. As a result, many pregnant women may be unaware of this service or confused about how it works. Using markers and poster paper or design software available on school computers, have each pair of students design a poster aimed at raising awareness about this new program and explaining the advantages to expectant mothers and their families. Encourage students to use imagery, text and colour to create an eye-catching and effective poster.

Share

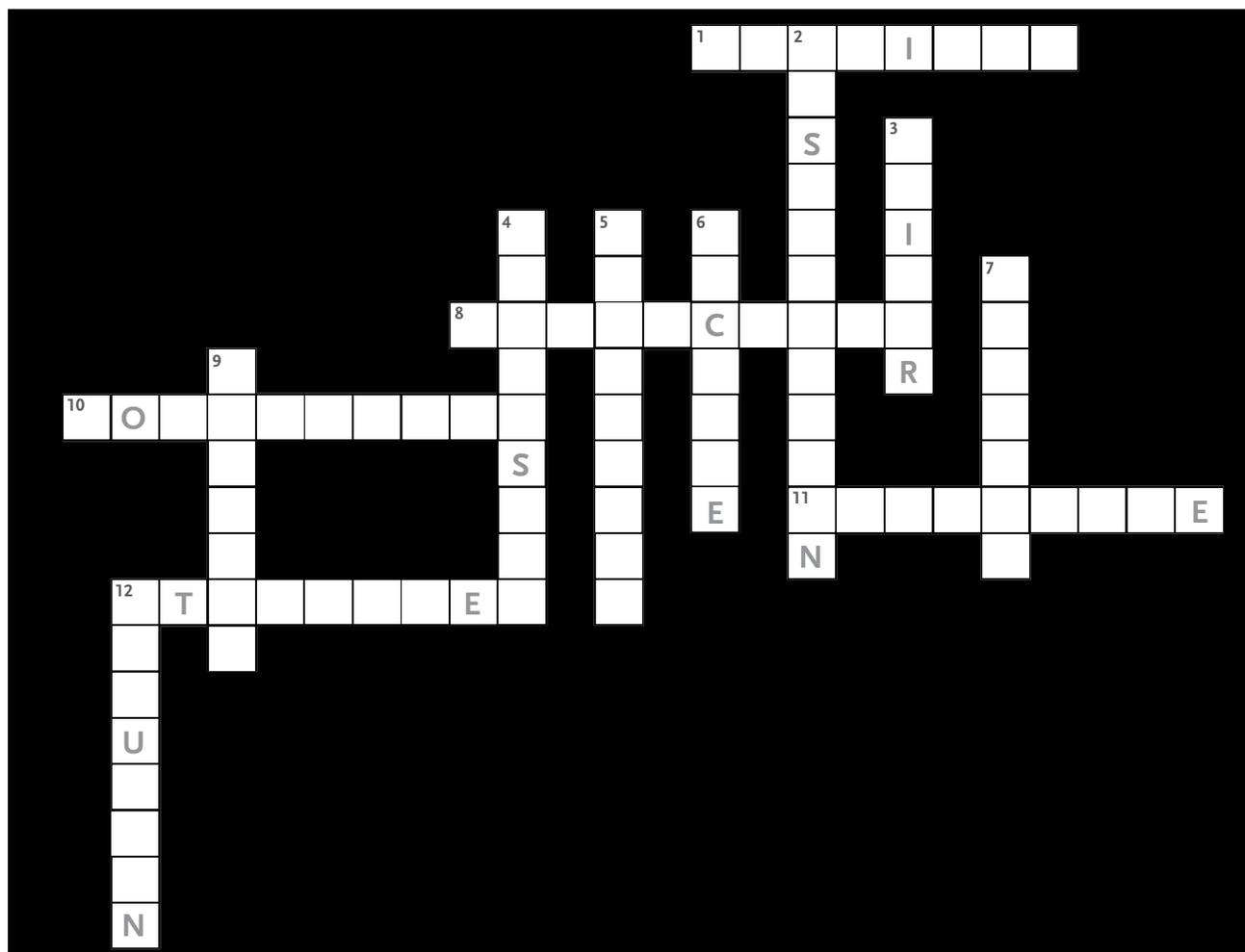
10. Invite students to share their posters with the class. Consider putting on display outside the classroom a storyboard that includes a copy of the article, the image of the motorcycle ambulance and the student's posters.

Online

1. World Health Organization: [Facts and figures](#) about maternal health in Mozambique
2. Encyclopedia Britannica: [Information](#) about Mozambique
3. Human Rights Watch: [Mozambique](#)

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CROSSWORD:

Across

1. An institution where people go to get health care
8. The common name for a two- or three-wheeled motor vehicle
10. The southern African nation where the ambulances were deployed
11. A special vehicle used to transport people in need of medical care
12. A device usually made of poles, canvas and/or metal used for carrying the sick or injured

Down

2. The home province of Dr. Ron Siemens
3. The person who sits on the motorcycle and controls the ambulance
4. The profession of Dr. Ron Siemens
5. A preliminary model of something, especially a machine, from which other forms are developed
6. A permit needed to drive a motorized vehicle
7. A province located in Northern Mozambique
9. The month when the first motorcycle ambulances were deployed in Mozambique
12. A means of solving a problem or dealing with a difficult situation