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Grass Roots Epidemiology in Guerrero, Mexico

by Louise Guénette



Dr. Ascencio Villegas (right) reviews a CIET questionnaire

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In Guerrero Mexico, the disparity between rich and poor is striking. The ultra-modern coastal zone of Acapulco contrasts sharply with the abject poverty at the city limits, far inland. But every day, people arrive there from the rural areas of Guerrero state, searching for a better life.

Living on the edges of the city and its economy, most of the new arrivals fall through cracks in the health care system. "Official health statistics in Guerrero reflect the condition of the less than 20% of the population that has access to health care," says [Dr. Ascencio Villegas](#) of CIET — the *Centro de investigación de enfermedades tropicales*.

Sentinel Community Surveillance

While CIET overlooks the beautiful Acapulco Bay, its attention is turned inland to poor city and rural people with little or no access to medical services. A group of epidemiologists established CIET in 1986 to monitor the health of the large majority of Guerrero's residents. In the process, they have refined a participatory research method, called Sentinel Community Surveillance, that yields scientifically accurate information and improved health, not only in Mexico but around the world.

"Sentinel Community Surveillance gives us a new set of eyes with which to discover what lies underneath official statistics," says Dr. Villegas. Researchers select sites that represent different aspects of an entire population: community sizes, degrees of access to health care, income levels and ethnic groups. Unlike other, more expensive survey methods, this approach lets CIET work with whole communities through one-on-one interviews, community meetings, focus groups, and conversations with key informants such as midwives and local pharmacists.

Complete picture of health conditions

Sentinel Community Surveillance is a fast, cost-effective way to obtain a complete picture of health conditions in a given area. Through repeated data collection cycles, CIET gathers information that will help to improve the situations it monitors. The cycles always focus on one or two health problems, identify their causes, and evaluate the success of measures that are used, or could be used, to deal with them.

Often, CIET gets useful results simply by verifying local knowledge with statistical proof. For example, when the Centre surveyed the risks of scorpion stings in three rural counties, it found that people who used gloves to pick corn and who hung plastic tarps over their sleeping areas were less likely to be stung. Scorpion venom in this part of Mexico not only causes great pain but can kill. Through community meetings and radio spots in Spanish and indigenous languages, CIET compared the costs of gloves and plastic sheets to the costs that victims paid in lost working days and medicine. As a result, the incidence of stings halved while the number of people who used the two preventive measures doubled.

Dr. Villegas is proud that some of the communities the Centre has worked with in the past will only cooperate now with researchers who agree to share their results, as CIET does. In every CIET survey, he explains, community members help plan and implement the research. In the process, they receive training in survey methods, simple medical treatment, and communication techniques — such as the production of home-made radio programs broadcast on community loud-speakers or public service announcements aired on local radio stations.

New directions

Meanwhile, CIET is branching out in new directions. For example, says Dr. Villegas, the privatization of garbage collection in Acapulco has brought such high disposal fees that illegal dumping is now widespread. In response, CIET plans to investigate this controversial issue as part of an ecosystem health project funded by the International Development Research Centre (IDRC). CIET will identify people's perceptions of the health risks associated with waste, solicit points of view, and identify workable solutions in a continuing bid to improve the lives of those who remain on the margins of Mexico's economic development.

Louise Guénette is a freelance writer based in Mexico City.

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Women's Health Risks: Maternal Mortality

"The small community in the county of Xochistlahuaca had already gathered around the woman's body and lit mourning candles, when we arrived," recalls Dr. Villegas. She had just given birth and was now dying of eclampsia, a pregnancy-related convulsive condition.

The CIET survey team thought the woman might still be saved and took her to the nearest health centre, 12 kilometres away. But to the team's surprise, 20 men, including the 23 year-old woman's husband, followed from her village, carrying a stretcher to bring her back. They argued that she was dying in any case, and that the costs of hospitalization and medicine were too dear. "Besides," said one man, referring to her husband, "he can always get himself another wife."

The survey team finally persuaded the men to relent. The woman stayed in hospital, eventually recovered, and returned to her community, but her story is etched in Dr. Villegas' mind. It underlines the high incidence of maternal mortality in Guerrero, Mexico — and the low level of importance given to women there. It showed CIET that gender inequity may work against efforts to improve health conditions.

Issues such as maternal mortality have multiple causes, many of which can not be solved quickly. Nevertheless, CIET is working to understand the causes of maternal mortality and reduce its incidence over the long term. For example, it has set up prenatal medical attention stalls in local markets and has started collecting verbal autopsies to verify the causes of death listed in hospital records against families' accounts.

Louise Guénette

Collaborating with Health Authorities

Collaborating with Health Authorities

CIET's low-cost successes have led to fruitful collaborations with local and state health authorities, despite some occasional friction when the Centre's statistics show poorer living conditions than officials would like to admit. But in a climate of debt repayment and government downsizing, health authorities welcome an organization that provides better value for their money. For example, CIET has evaluated the impact of public health campaigns conducted by local and state governments and recommended improvements to the messages.

Last year, during a local planning project funded by IDRC, a CIET study on diarrhea found that some people had stopped chlorinating their drinking water out of sheer confusion — different agencies had issued contradictory instructions — while others disliked the taste. It turned out that government health agencies had recommended higher than needed chlorine levels that were sufficient to purify even the most contaminated water. The results of CIET's research convinced health authorities to correct the flaws in their campaigns and persuaded many communities to resume chlorination, using the appropriate amount of chlorine based on local tests.

Louise Guénette

[You Can Drink the Water](#), by Nicolas Mesley

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International Training Initiatives

Building capacity through training is fundamental to CIET's work, which extends well beyond national boundaries. The CIET team in Acapulco is the nucleus of a growing international movement of centres committed to conducting participatory research that has scientific validity. Since UNICEF adopted the Sentinel Community Surveillance method as its main strategy, researchers in more than 38 countries have applied it to problems ranging from humanitarian aid delivery in Bosnia to school enrolment in Nepal, child rights in Costa Rica, corruption in the judiciary of Tanzania, and the effectiveness of health care delivery in Uganda. Since 1995, a CIET office in Canada has worked with First Nations communities to find out why some indigenous youth are better able than others to resist addiction to smoking, alcohol or drugs.

Louise Guénette

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Children's Health in Ghana's North

by Jason Lothian



**Researchers in northern Ghana
are probing the causes of child illness and death**

The guinea savannah of northern Ghana, home of the *Nankana* and *Kassena* people, is possibly the most risky place on earth to live during infancy. For every 1,000 children born, 222 die before age 5. Malaria takes most of them, but in northern Ghana death comes in many guises.

"Children die of malnutrition here. Measles, diarrhoeal disease, lung infection, it's all real here, it's not some faraway place," says [Dr Fred Binka](#), Director of the Navrongo Health Research Centre.

Wired to the world

In some senses, Navrongo is an isolated place: a 12-hour drive from the capital, Accra, and linked by unreliable telephone lines. Fortunately, the Centre is equipped with radio modem, computers, and a satellite ground station that permit communications and information exchange through the [HealthNet](#) project.

The Centre employs some 120 staff, from medical doctors to computer analysts and field workers hired from the area itself. Together, they are building a large database containing the names, ages, and movements of almost all the district's population, as well as pregnancies, births, illnesses, recoveries, and deaths.

Vitamin A trials

This ambitious research effort goes back to 1989 and a project supported by the United Kingdom's Overseas Development Assistance (ODA) studying the effects of Vitamin A on the health of children. In

time, VAST (Vitamin A Supplementation Trial), as the project was known, involved 22,000 children -- over 80% of the children in the district. A child mortality risk-factor study -- supported by IDRC -- was begun within the VAST project, as was detailed mapping, demographic, socio-cultural, and economic research.

Almost every child born after January 1, 1984 is recorded in the database. Field workers check on each child every 3 months. Community leaders are paid to communicate births, deaths, and pregnancies to the centre. When a child dies, the family is interviewed and the circumstances of death are reviewed by three medical doctors. If two of the three doctors agree about a cause of death, it is recorded. Otherwise, the cause of death is considered unknown.

The spirit child

An unsettling local practice uncovered through the project is responsible for the deaths of an estimated 4% of children born in the region. It is known as the 'spirit child' phenomenon. A spirit child is one who is born deformed, or whose birth results in the death of the mother or is followed by sickness in the family. A baby who cries too much is often sufficient proof of the presence of a spirit child.

For the *Nankana* and *Kassena* there is only one option: the spirit child must be killed. The village soothsayer makes the pronouncement and performs the deed with a lethal herbal potion. Some observers suggest that the practice could be the response of a society in which food security is tenuous and, therefore, is poorly endowed to look after disabled or orphaned children.

Unreported deaths

"We realized we were not being informed of all the neo-natal deaths," says Dr Binka. "If a child had a sixth finger, or for whatever reason was called a spirit child, we would not be told of the birth. Nor would we hear of the death," says Dr Binka.

Therefore, the team began recording pregnancies along with births and deaths. Still, Dr Binka believes the figure of 4% underestimates the number of deaths attributable to the spirit child phenomenon.

The solution, Dr Binka believes, lies in the South. When *Nankana* and *Kassena* people travel to the cities they take almost all of their culture with them. They organize their communities around a chief and soothsayer. But they don't take the spirit child phenomenon with them. "How do you leave that behind?" asks Dr Binka. "Somewhere in that mystery is the answer."

Digital mapping

Finding responses to these and other questions is facilitated technically by computers and satellites used to map the district and population. A handheld device about the size of a calculator uses satellites to isolate landmarks such as family compounds or irrigation canals. A geographic information system can couple this information with the project's research data.

Some types of research require data to be spatially represented -- family planning, for instance. Information on a screen reveals discrepancies better than numbers or charts. Dr Alex Nazzer, the project's coordinator for family planning and District Director of Health Services, calls the digital mapping a gold mine. With a computer map that shows where family planning is being practised, the areas that require renewed attention become obvious.

Malaria

Perhaps the Centre's greatest challenge is combatting malaria. DDT spraying was a way of controlling

mosquitos until the insects built up an immunity to such chemicals. Next came early diagnosis and treatment. Unfortunately, malaria now has three levels of resistance to modern drugs. Currently, the disease is at the second level in the Navrongo area.

"The worst part is that chloroquine, our first-level drug, is very cheap to employ -- only 200 cedis (approx. US\$0.14) for a course. The second-line drug costs 1,200 (US\$0.84) a dose. Finally, the third-line drug costs 8,000 (US\$5.63)," says Dr Binka.

Insecticide-treated bednets

The disease can strike several times a year. Subsistence farmers cannot absorb the financial burden of paying for drug treatment. Therefore, with support from WHO, IDRC, and the Canadian International Development Agency, the Navrongo team is investigating insecticide-impregnated bednets as an alternative for malaria control. The mosquito nets are expensive but long-lasting. Even a second-hand net with holes, but treated with insecticide, offers considerable protection. The idea is more radical than it seems because most people have never slept beneath a mosquito net. There was concern that people would not use them.

Huge success

For Dr Binka and his staff, the trial has been a huge success. Not least because the control group for the experiment, the half of the population not protected by nets, are now buying their own. Dr Binka thinks malaria deaths could be halved if everyone had a net.

"They know they sleep better at night, they are stronger on the farm and they get sick less often. What further proof does a working man or woman need?" he asks.

At the compound of the Akanson family, 22 people sleep under nets. Immaculate Akanson, the 70 year-old matriarch of the clan, enjoys the benefits of the bednets. "Ever since I was born, malaria has been my disease," she says through her interpreter, grandson Benjamin. "Malaria was so acute it could make you lose your appetite, you couldn't work, you couldn't sleep and it gave you fever and vomiting."

With research advances on child mortality, malaria control, and vitamins, the Navrongo Health Research Centre is becoming known as one of the best of its kind in the world. Dr Binka attributes much of that success to the trust the Centre has built among the local people.

Jason Lothian, Gemini News Service, reporting from Northern Ghana.

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[The Intellectual Arrogance of the North](#) *Large-scale production of the world's first safe and effective malaria vaccine could begin in 1997. But the vaccine might already have been in use if not for the "intellectual racism" of scientists in the North.*

[Infectious Diseases: A Growing Global Threat](#) *An early warning system is needed to help fight the spread of infectious disease -- the leading cause of death and disability in the world.*

[The Micronutrient Initiative](#) *Eliminating micronutrient malnutrition can significantly improve the health and socio-economic wellbeing of billions of people.*

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[GIS for Health and the Environment](#) *How geographic information systems can be used to monitor tropical diseases, water quality, environmental toxicology and overall rural health.*

[Net Gain: A New Method for Preventing Malaria Deaths](#) *A finely spun net could prevent as many as one third of all child deaths in Africa.*

Additional resources:

[World Health Organization's \(WHO\) Division of Control of Tropical Diseases Internet Site](#)

[U.S. Centers for Disease Control \(CDC\) Home Travel Information Page](#)

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[Vol. 23, No. 2 \(July 1995\)](#)

ECUADOR: HEALTH AND THE WORKING WOMAN

by Neale MacMillan

The three-hour trip from Quito to Sigchos in Ecuador's Andean highlands winds along steep, narrow gorges, down green slopes and through hillside pastures and crops. Dr Patricia Costales has travelled this bumpy road often over the past two years. Her colleagues at the Health Research and Consultancy Centre (CEAS) Drs Jaime Breilh and Arturo Campa accompany her on many of these trips to meet the women of this mestizo farming community of some 2,000 families.

The CEAS team has also been travelling closer to its base in Quito to meet two other groups of women: administrative workers in government offices and textile factory workers. Despite the different work environments, all of these women find their health affected by conditions peculiar to their gender. They all face heavy domestic duties on top of daytime occupations and experience significant social inequities compared with men.

In a project supported by IDRC, CEAS set out to analyze the most important factors associated with gender, lifestyle and working conditions that determine the health status of working women.

The CEAS team surveyed 270 women office workers. In rural areas, CEAS surveyed another 270 women, comparing those in Sigchos with those in a community of the tropical forest region of eastern Ecuador.

The team surveyed 315 women in the textile and garment industry, which relies on a predominantly female workforce. But project leader Jaime Breilh said they had to approach dozens of medium-sized factories before finding nine owners willing to participate. Their factories are like feudal castles entrance inside is very difficult.

The CEAS researchers followed a model of participatory research in which the women assisted in administering questionnaires about their living and working conditions, health problems, and access to health care. They also employed interviews, observation, research on family conditions, tests for fatigue and stress, and blood analysis.

Decaying workplace in public sector

A visit to offices at the ministry of health revealed a building from the 1960s with inadequate lighting and overcrowded offices, and poorly maintained furniture. The floors and carpets are deteriorating and cleaning is infrequent.

Adriana Insuasti, president of the secretaries association, said that only a few months ago there were 115 women employees. But because of government downsizing, we are now only 40, with triple the workload, she said.

We have found massive levels of stress in the office environment, said Arturo Campa as.

On top of a poor working environment, the women office employees perform virtually all household tasks without any help from husbands. The health impact is seen not only in stress but in related mental health problems, anemia and increased menstruation.

In the garment factories a high correlation was found between stress level and length of service. At a morning meeting with women workers in the factory cafeteria, a woman complained that constant pressure from female supervisors to increase production was one source of stress. There is no communication between workers and supervisors. They make us nervous, they get on your nerves, she said.

Other health impacts for the garment workers are felt in back, leg, neck and arm pain from hours of sitting at machinery, and respiratory problems from high concentrations of dust and fluff from textiles and thread.

Is noise a problem? Jaime Breilh asked the women in the cafeteria. Yes! came the resounding response.

The home environment for these workers is characterized by inadequate incomes, poor quality food in small quantities and overcrowded living space. For the most part, the women carry out all cleaning, meal preparation and child care. The husbands dominate household decision-making.

Rural women farmers

In recent years in Ecuador, women in farming communities such as Sigchos have taken on bigger roles in agricultural production and community labour. Many men now work for long periods at paid employment elsewhere. Therefore, the women work an average of 14-16 hours daily.

These women suffer problems of the spine, of respiratory and reproductive organs, hernias, bruises, and wounds. Generally speaking, they are poorly educated. About three-quarters of them live in conditions of extreme overcrowding, without basic household sanitation. Their diet is too heavy in carbohydrates and too short on proteins and vitamins. By and large, the men receive more and better food.

Among the most significant findings was the discovery that 40% of women have high levels of toxins in their blood. The chemicals (pesticides and fertilizers) used in agriculture get into the blood through breathing and through the skin, said Dr Patricia Costales. They cause cancer, miscarriages, kidney problems and headaches. Costales lists other health problems in Sigchos: high infant mortality and high maternal mortality. Uterine cancer is very common, as is physical abuse from husbands.

During the course of the study, women's attitudes changed from relying on medical attention to cure their ills to an emphasis on organizing for prevention. This shift was evident in the comment of Esther Jacome, president of the women's group, during a meeting with the CEAS team and Sister Inmaculada Castro, a nun from Spain who lives in Sigchos and represents an influential community institution: the Catholic Church. Sanitary conditions are the most important thing, Jacome said. Dr Patricia stimulated us, but we have to continue organizing ourselves.

Another woman spoke about her newfound awareness of health risks. We didn't know that clothes had to be washed to get rid of agricultural chemicals if we had been using pesticides, she said.

Unfortunately, doctors who periodically staff the local health post charge a lot for many services although they are not supposed to be charging at all, said Costales. There is no community control.

For Costales, the only means for improvement is to increase the women's ability to practice self-management of their health and press doctors to consider not just symptoms of ill health but conditions of work, family life and the social environment.

CEAS will offer its results to the government so that it can formulate health and social policies that better

address the real burdens on women's lives. The CEAS team also believes good use can be made of its research by two national women's organizations who participated in the study. In addition, CEAS intends to encourage the women themselves to improve their health conditions, aided by a women's health network that it plans to initiate and manuals it is developing in collaboration with the study participants, tailored to the three workplaces.

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[Vol. 23, No. 2 \(July 1995\)](#)

SOAPS FOR SOCIAL CHANGE

by Kevin Conway

It's suppertime. In communities across northeast Thailand villagers eagerly await the next instalment of this region's hottest new radio drama. What makes this Thai soap unusual, however, is its subject matter: aids. Behind the jokes and puns is a serious attempt to educate and change risky behaviours.

The group responsible for this novel mini-series is an international team of health researchers. Its co-leaders are Thicumporn Kuyyakanond of Thailand's Khon Kaen University and Eleanor Maticka-Tyndale of Canada's University of Windsor. With idrc support, they pioneered an aids awareness program to prevent the spread of hiv through the rural communities of Thailand's dry northeast.

The program was based on the team's earlier research. Local women were interviewed individually and in focus groups. Although the rate of hiv infection across Thailand's northeast is low, most of the women were aware of aids. The results also showed that few women felt personally at risk, despite knowing that their husbands frequented prostitutes.

According to Maticka-Tyndale, the women's sense of immunity is rooted in community norms and the belief system surrounding sexuality. She uses prostitution and married men as an example. There are certain rules. Having sex with someone other than your wife is not wrong, but it should never be a threat to the marriage unit.

As long as men were discreet about their liaisons, wives were expected not to pursue any suspicions they had. Most said they trusted their husbands not to put them at risk.

The interviews also revealed another cultural barrier to open communication between husband and wife; a cool heart. A cool heart or a calm emotional response towards others is a trait that Thai women value highly. We played into all of that, says Maticka-Tyndale. We had to encourage men and women to recognize that they had to prevent hiv transmission or those rules would have been broken.

The radio scripts were based on stories taken directly from the focus group discussions, thus reflecting real village situations. Cliffhangers that ended each broadcast sustained conversation and discussion, says Maticka-Tyndale.

The dramas were styled after a traditional, much-loved form of Thai theatre called Maw Lum. Maticka-Tyndale describes Maw Lum as a mixture of soap opera and improvisational theatre.

With a captive audience wanting more, the researchers held village meetings to discuss the radio shows and make hiv/aids a community issue. Maticka-Tyndale's own research has shown this step to be critical in changing individual behaviour. In some villages these discussions led to community action plans. One community even set up a condom-dispensary near a bus stop so that men heading for town to party would have easy access to protection.

Maticka-Tyndale believes that similar programs could be adapted to other cultures and other countries. The only thing that would change is the radio dramas. Specific interventions, based on prior research, would be tailored to individual communities needs.

The nature of hiv infection is such that measuring the program s effectiveness was problematic. The best you can do is look at behaviour changes, things like condom sales and distributions and community awareness, says Maticka-Tyndale. However, the lack of hard data didn t stop Thai health officials, in collaboration with local ngos, from expanding the pilot to province-wide programs.

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