



Global Health
Development

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together for better health



EMPHNET

The Eastern Mediterranean
Public Health Network



Strengthening One Health Capacity to Prevent and Control Brucellosis

*An Experience
from the Eastern
Mediterranean Region*

Using the One Health approach to engage stakeholders from the human and animal health sectors, GHD|EMPHNET is supporting the prevention and control of a highly prevalent zoonotic disease posing a potential biothreat in the region, **brucellosis**.

Strengthening Laboratory-based Surveillance

Beginning in Jordan

Five years ago, GHD|EMPHNET joined stakeholders from the ministries of health and agriculture, and military hospitals in their efforts to strengthen brucellosis surveillance, diagnosis, and control in Al Mafraq, a governorate whose dense animal population is endemic to the disease.



Step One: Training on Case Definition, Symptoms, and Treatment



75 Clinicians



25 Veterinarians

Step Two: Training on Laboratory Tests



50 Public Health
Laboratory Technicians

Tests:

Rose Bengal, Serum Agglutination Test
Enzyme-linked Immunosorbent Assay, PCR



25 Veterinarians
and Para-Veterinarians

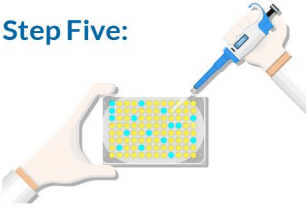
Tests:

Rose Bengal, Enzyme-linked Immunosorbent Assay, PCR

Step Three: Epi Info training for epidemiologists from Ministry of Health and Ministry of Agriculture

Step Four: New SOPs adopted for sample collection, preservation, transportation, and testing

Step Five:



ELISA test introduced into public health laboratories in Mafraq



PCR test introduced into the Central Public Health Laboratory in Amman

Outcome:

Communication strengthened between animal and human health sectors in Mafraq

Increase of reported cases following project by 165 in 2017 and 440 in 2018



Brucellosis is also an occupational health threat. GHD|EMPHNET supported, seroprevalence study in Jordan among high-risk groups showed an overall seroprevalence rate of 10%.

Building on the success of this two-year project, stakeholders extended their scope. In addition to Mafraq, **new endemic areas were added-East Amman and Karak**. In a new project, stakeholders are establishing active, laboratory-based surveillance of human and animal brucellosis using appropriate confirmatory testing in accordance with the standards of the World Health Organization and the World Organization for Animal Health.

Step One: Training on Case Definition, Symptoms, and Treatment



126 Clinicians and veterinarians also trained on laboratory testing criteria

Step Two: Training on Laboratory Tests



80 Public Health
Laboratory Technicians

Tests:

Rose Bengal, Serum Agglutination Test
Enzyme-linked Immunosorbent Assay, PCR



44 Veterinarians
and Para-Veterinarians

Tests:

Rose Bengal, Fluorescence-Polarization Assay
(for blood and milk) and PCR

Step Three: Surveillance and laboratory SOPs established and adopted for communication between field and laboratories and between animal and human health sectors

Next Steps

Epidemiological analysis of the project's data will estimate and characterize the true incidence in humans and animals and identify risk factors driving transmission between animals and from animals to humans

Outcome: Using Multilocus Sequence Variable Analysis, the circulating *Brucella* species in Jordan characterized

Expanding to Iraq

GHD|EMPHNET joined the Ministry of Health and Ministry of Agriculture in strengthening surveillance, diagnostics, and control of brucellosis through establishing molecular testing of the disease, starting in the provinces of **Babel and Diala** where 6 districts were covered and then expanding to **Maysan and Wasit** with 10 districts covered.

Step One: Training on Laboratory Tests



143 Laboratory
Technicians

Tests:

Enzyme-linked Immunosorbent
Assay



16 Veterinary
Laboratory Technicians

Tests:

Rose Bengal, PCR

Step Two: Training on Case Definition, Symptoms, and Treatment



95 Clinicians



16 Veterinarians

Step Three: Training on data entry and analysis using Epi Info for 8 personnel from the Surveillance Units at ministries of health and agriculture

Step Four: Sample transport procedures established from periphery to Central Public Health Laboratory and periphery to Central Veterinary Laboratory

Step Five: Introduced ELISA into provincial public health laboratories and PCR into the Central Public Health Laboratory and Central Veterinary Laboratory

Outcomes: Established epidemiological communication between human and animal sectors

Brucellosis burden determined in targeted provinces

Expanding to Pakistan

The government's National Agricultural Research Council, with support from GHD|EMPHNET, initiated the surveillance of animal brucellosis decrease transmission to humans.



Step One: Training on Laboratory Tests



6 Laboratory Technicians

Tests:
Enzyme-linked Immunosorbent Assay, PCR



15 Veterinarians

Tests:
Rose Bengal and milk ring test

Step Two: Training laboratory officers and veterinarians in case definition, symptoms, treatment, and also sample collection

Step Three: Integrated brucellosis sentinel surveillance sites in Islamabad Capital Territorys Tarlai and Sohan) provinces into the country's existing surveillance system

Outcome: Animal Brucellosis burden determined in targeted provinces

Creating Community Awareness



Training on Outreach Activities in Iraq



Community Awareness for High-risk Groups in Jordan



EMPHNET Conference Workshops on Animal and Human Brucellosis



EMPHNET Conference Roundtables on One Health

GHD|EMPHNET: Working Together for Better Health

Global Health Development (GHD) is a regional initiative created to support countries in the Eastern Mediterranean Region (EMR) and to strengthen their health systems to respond to public health challenges and threats. GHD was initiated to advance the work of the Eastern Mediterranean Public Health Network (EMPHNET) by building coordinating mechanisms with Ministries of Health, International Organizations and other institutions to improve population health outcomes. As an implementing arm to EMPHNET, GHD aligns its strategies with national policies and directions. Serving as a collaborative platform, GHD|EMPHNET is dedicated to serve the region by supporting national efforts to promote public health policies, strategic planning, sustainable financing, resource mobilization, public health programs, and other related services.