

EDUARDO FERNANDEZ MD MHS PhD

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PROFILE

Public Health Professional with more than 15 years of experience in **Health and Medical Sciences**. University Instructor for both graduate and undergraduate programs in the field of Public Health and Health Sciences.

- Public Health Officer for the Ministry of Health with increasing responsibilities in design, implementation and evaluation of Disease Control and Prevention programs and policies
- Extensive experience in Environmental Health and Vector-borne diseases (Malaria and dengue), global health and Health policies.

Special Interests in: Pharmacology, Public Health, Global Health, Health Promotion, Health Research Methodology, Environmental Health, Infectious Diseases.

FORMAL EDUCATION

PhD Degree in the Health Research Methodology Program

McMaster University, Hamilton, Ontario, Canada

Thesis Project: Predictive Model for dengue fever in Honduras. 2015

Master's Degree in Health Sciences MHS

Johns Hopkins University, Baltimore, Maryland, USA

School of Hygiene and Public Health, Baltimore, Maryland, 1988-1990

Thesis Project: [Evaluation of a school-based program for *Aedes aegypti* control, Puerto Rico] Spanish: Evaluation of a school based program for *Aedes aegypti* control in Caguas, Puerto Rico. 1990.

Medical Degree

M.D.*(8 years program)

National Autonomous University of Honduras, Tegucigalpa, Honduras

Faculty of Medical Sciences, 1978-1986

MD Thesis: [Prescription patterns for Psychoactive drugs in Tegucigalpa, Honduras]

Spanish: Patrones de prescripción de psicofármacos en Tegucigalpa, Honduras).

(*Canadian equivalency by WES: First professional degree in Medicine: Doctor of Medicine Ref # 588050)

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ACADEMIC DISTINCTIONS AND AWARDS

Distinction: Outstanding Research work on School based disease control Programs. Honduras Science and Technology Commissioner. 2003 and 2007

Distinction: Outstanding Teaching Career. Faculty of Medical Sciences, National Autonomous University of Honduras, UNAH. 2003

Distinction: Recognition for outstanding services to the Puerto Rico Health Department during the Public Health Internship in Caguas, Puerto Rico. 1990

Scholarship from the Rockefeller Foundation to undertake graduate studies at the Johns Hopkins University, Baltimore MD. 1988

ACADEMIC POSITIONS HELD

Assistant Professor (ILTA)

January 2019- Currently

Department of Health Sciences, Brock University, St Catharines, Ontario

- Part of Thesis Committee for MSc Sergio Hernandez February 2019
- Teaching
 - HLSC 3P19 Principles of Pharmacology (Winter and Spring Term)
 - HLSC 3Q97 Global Health (Winter Term)
 - HLSC 4P19 Integrated Cardiovascular Pharmacology(Winter Term)

Adjunct Professor (2006-currently)

Department of Community Health Sciences, Brock University St. Catharines, Ontario,

- **Tutoring students in Directed Readings**
- **Part of Thesis Committees**
- **Proposing new courses to include in the Department curricula**
 - **Public Health Issues of the HIV/AIDS Pandemic. Included in the curricula**
 - **Natural Disasters and Public Health Emergencies Administration (Pending)**
 - **Environmental Health (Currently offered for second time)**

Part Time Instructor January 2007—December 2018

Department of Community Health Sciences, Brock University St. Catharines, Ontario

- HLSC 2P02 Infection Control and Safety
- HLSC 2P97 (now HLSC 4P03). **Global Issues** of Infectious Diseases
- **HLSC 3P19** **Fundamentals of Pharmacology**
- **HLSC 3P99.** **Pharmacology and the Nervous System**
- HLSC 4P04 Environmental Health

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- **HLSC 4P19** **Integrated Cardiovascular Pharmacology**
- **HLSC 4P59** **Diversity and Health**
- **HLSC 4P51** **Public Health Issues of HIV/AIDS and other Pandemics**
- Invited speaker for different courses.

Tutor September 2007-April 2010

Faculty of Health Sciences.

McMaster University. Hamilton, Ontario.

Tutor for Biomedical courses

- **HTH SCI 2FO3. Human Anatomy and Physiology**
- **HTH SCI 4K03. Pathophysiology**

Visiting International Scholar (2006-2007)

Department of Community Health Sciences, Brock University St. Catharine, Ontario,

Assistant Professor (Tenured) . (1997-2016)

Faculty of Medical Sciences

Master in Public Health Program (MPH)

National Autonomous University of Honduras, Tegucigalpa, Honduras

CLINICAL POSITIONS HELD

Resident: Santa Rosita Psychiatric Hospital

Tegucigalpa, Honduras. 1985-1986

- Clinical evaluation of patients
- Treatment to acute and chronic disorders
- *Prescription of Pharmacological agents for mental disorders*

Resident: The White Cross Home for Elderly Adults

Tegucigalpa, Honduras. 1986-1986

- Treatment of patients
- Recommendations on sleep and consciousness disorders

MANAGERIAL AND TECHNICAL POSITIONS HELD

Research Assistant

St. Joseph's Health Care Regional Mental Health,

London, Ontario (Feb-June 2006)

- Developed a database in Personality Assessment Inventory (PAI) using the SPSS program
- Analyzed information on Geriatrics Psychiatry inpatients with P.A.I. with the Psychology team
- Reviewed relevant bibliographical search about **PAI, Attachment Theory and Models** and Geriatrics Psychiatry using library and online resources.

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Technical Assistant

General Health Surveillance Directorat

Honduras Ministry of Health

Tegucigalpa, Honduras, 2003-2005 and 2015

- Developed technical guidelines for effective control of a Severe Acute Respiratory Syndrome (SARS), Meningo-Encephalitis Syndrome and Rotavirus Diarrhea Disease (they have been implemented)
- Supported effectively the development of Chronic Diseases Baseline Research for implementing better control across the city of Tegucigalpa
- Provided technical and administrative support to the Honduras Field Epidemiology Training Program, HIV/AIDS Control Program and to the Epidemiology Master's Program
- Provided advice on Management of Environmental Health Surveillance

Officer

Environmental Health Education Program

Honduras Ministry of Health, Tegucigalpa, Honduras, 2000-2002

- Designed a successful training program for 700 Environmental Health Inspectors to improve the quality and impact of their work
- Advocated for innovations in the administration of the Environmental Health Program in Honduras (It was implemented by the Ministry)
- Introduced successfully new practices in the field work of Environmental Health workers (applying Knowledge translation to improve outdated practices).

Head Officer

Vector-borne Diseases Control Department

Honduras Ministry of Health, Tegucigalpa, Honduras, 1997-1999

- Supervised 9 provincial field teams responsible for education on viral diseases and for controlling mosquito populations
- Coordinated epidemiological and entomological surveillance for Malaria and dengue
- Identified alternative funding sources allowing for continuous programming

Manager

The Integrated Dengue Control Project

Honduran Ministry of Health, El Progreso, Honduras, 1991-1996

- Designed, implemented and evaluated research protocols and published the results in scientific reports and journals
- Implemented Methods based on Health Promotion to mobilize local communities
- Developed a Community-based network of volunteers for disease control
- Developed innovative interventions for vector borne diseases prevention and integrated disease control at community level
- Coordinate local responses to epidemics for dengue fever and environmental risks.
- Participated in Malaria research (surveillance, control and treatment)

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- Administered local and international projects for environmental management of Vector Control.

Research Assistant

Science and Technology Program of the Honduras Ministry of Health, Tegucigalpa, Honduras, 1988

- Developed qualitative research with HIV/AIDS high risk populations
- Analyzed information about Knowledge, Attitudes and Practices in female population regarding Sexually Transmitted Diseases (STDs) with emphasis on HIV transmission.

GRANTS OBTAINED

Date	Agency	Project	Amount	Role
2007-2010	GHRI (CIHR/IDRC/CIDA/H C) Teasdale-Corti Global Health Research Partnership Program	Increasing Capacity to Achieve Millennium Development Goal # 6 in Honduras: Combating Infectious Diseases	CAD\$ 1.5 millions	Collaborator Providing expertise in: public health, health education, curriculum design, cultural and language expertise.
1991-92	PAHO/Rockefeller Foundation	Developing a Community-based <i>Aedes aegypti</i> control project in northern Honduras	US\$200,000	Principal Investigator
Principal Investigator 1999	UNICEF	Developing a School based environmental health educational program for Elementary Schools in Honduras	US\$50,000	Principal Investigator
2002-2003	Panamerican Health Organization (PAHO)	School based Dengue control project	US\$15,000	Collaborator

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PUBLICATIONS

Peer-Reviewed

Fernández, E., Smieja, M., Walter, S. D., & Loeb, M. (2017). A retrospective cohort study to predict severe dengue in Honduran patients. *BMC Infectious Diseases*, *17*, 676. <http://doi.org/10.1186/s12879-017-2800-3>

Fernandez, E.A. *Curr Treat Options Infect Dis* (2017). <https://doi.org/10.1007/s40506-017-0132-x>

Fernández E, Smieja M, Walter SD, Loeb M.(2016). A predictive model to differentiate dengue from other febrile illness . *BMC Infect Dis*. 2016 Nov 22; 16(1):694

Zeron Izaguirre-FA, Bonilla AV, Galeas JJ **Fernandez E** (2015). Clinical Conditions of patients in post-caesarea with infected surgical wound in two hospitals [Condiciones clínico-quirúrgicas de pacientes pos cesárea con infección de herida en dos centros hospitalarios].. *Revista Médica de los Post Grados de Medicina - UNAH Revista Médica de los Post Grados de Medicina – UNAH Vol. 18., Suplemento 2015 35T*

Mertz D, Kim TH, Johnstone J, Lam P-P, Science M, **Fernandez E.** et al. (2014) Populations at Risk for Severe or Complicated Avian Influenza H5N1: A Systematic Review and Meta-Analysis. *PLoS ONE* 9(3): e89697. doi:10.1371/journal.pone.0089697

Mertz Dominik, Kim Tae Hyong, Johnstone Jennie, Lam Po-Po, Science Michelle, Kuster Stefan P, **Fernandez Eduardo** et al. Populations at risk for severe or complicated influenza illness: systematic review and meta-analysis *BMJ* 2013; 347:f 5061

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Ávila Montes, G. A., Araujo, R., Leontsini, E., Orellana Herrera, G., & Fernández Cerna, E. (2012). A school program for dengue control in Honduras: from knowledge to action. *Revista Panamericana de Salud Pública*, 31(6), 518-522.

Letson G W, Singhasivanon P, **Fernandez E**, Abeyasinghe N, Amador JJ, Harold S Margolis HS and Edelman R (2010). Dengue vaccine trial guidelines and role of large-scale, post proof-of-concept demonstration projects in bringing a dengue vaccine to use in dengue endemic areas. *Human Vaccines*. October 2010: 6,10

Fernandez Eduardo; Krueger P; Loeb M (2010). Predictors of health decline in older adults with pneumonia: findings from the Community-Acquired Pneumonia Impact Study. *BMC Geriatrics* 2010, 10:1doi:10.1186/1471-2318-10-1

Kyu Hmwe, **Eduardo Fernandez** (2009). **Artemisin derivatives versus quinine for cerebral malaria in African children:A systematic review**. *Bull World Health Organ*. 87:896-904.

J Jacobs, **EA Fernandez**, B Merizalde, GA Avila-Montes and D Crothers (2007). **The use of homeopathic combination remedy for dengue fever symptoms: a pilot RCT in Honduras**. *Homeopathy*.96 (1):22-6.

Fernández E., Martínez M. Sherman C (2004). **Social Mobilization for Dengue Control in Honduras**. *Dengue Bulletin*. Vol 28 (Supplement): 30-34.

Avila Montes G.A., Martinez M., Sherman C and **Fernández Cerna E.A.** (2004) [Evaluation of a grade school educational module about Dengue and *Aedes aegypti* for schoolchildren in Honduras]. Evaluación de un Módulo Escolar sobre Dengue y *Aedes aegypti* dirigido a Escolares en Honduras. *Revista Panamericana de Salud Publica*, 16(2): 84-94.

Chan, A.S., Sherman C., Lozano R.C. **Fernandez E.A.**, et al (1998), Development of an indicator

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to evaluate the impact of a community-based *Aedes aegypti* control intervention on cleaning of water storage container by householders. *Annals of Tropical Medicine and Parasitology* 92(3), 317-329.

Quintana M, Piper R., **Fernández E.A.** et al. (1998) Malaria Diagnosis by dipstick assay in a Honduran population with co-endemic *Plasmodium falciparum* and *Plasmodium vivax*. *American Journal of Tropical Medicine and Hygiene* pp. 868- 871

Fernandez, E.A. Leontsini, E., Sherman, C., Chan, A.S., et al (1998). Trial of a community-based intervention to decrease infestation of *Aedes aegypti* mosquitoes in cement washbasin in El Progreso, Honduras. *Acta Tropica* 70, 171-183.

Sherman, C. **Fernandez, E.A.**,... Lozano R.C. Leontsini, E., Winch, P.I. (1998). La Untadita: A procedure for maintaining washbasins and drums free of *Aedes aegypti* based on modification of existing practices. *American journal of Tropical Medicine and Hygiene*. 58 (2), 257-262.

Soto, R.J.,**Fernandez EA.** And Avila GA.(1995).Evaluation of an Educational Program on Dengue and *Aedes aegypti* targeting elementary school children, *Rev. Médica Hondureña* 63 (1) 12.

Marten, G.G. Borjas G. Cush M. **Fernández EA.** Reid J.W. (1994) Control of larval *Aedes aegypti* (Diptera: Culicidae) by cyclopoid copepods in peridomestic breeding containers, *J Medical Entomology*. 31 (1) 36-44.

Borjas, G. Marten, GG. **Fernandez, EA.** Portillo, H. (1993) Juvenile turtles for mosquito control, in water storage tanks. *J. Medical Entomology*. 30 (s), 943-946.

Books and book chapters

Solorzano O, Flores G, Sherman C, **Fernandez E.** (2016). Guidelines for the development of Health Situation Boardrooms in Honduras. Ministry of Health of Honduras

Fernandez,E.A.; Lagos I.; Portillo, H.; Borjas G (1992). Community-based *Aedes aegypti* control

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programme in Honduras. In Halstead, S.B.; Gomez-Dantes, H. (Eds) *Dengue: A Worldwide Problem. A Common Strategy*. Mexican Ministry of Health and Rockefeller Foundation, Mexico City, 279-282.

Marten G.G.,Cush M. **Fernandez** E.A.et al (1992) *Mesocyclops longisetus* and other forms of biological control for *Aedes aegypti* larvae in the integrated Dengue Control Project, El Progreso, Honduras. In Halstead, S.B. Gomez- Dantes, H. (Eds), *Dengue: A worldwide problem. A common Strategy*.Mexican Ministry of Health & Rockefeller Foundation,Mexico City, 133-137.

Fernández E.A. Reyes C.E., Hernández D. (1997) [Primary school textbook: Household Hygiene and Environmental Health]. Módulo Escolar: Higiene doméstica Salud Ambiental. Editorial Capiro San Pedro Sula (textbook).

Collaborator in: Kafati, Rosa et al, 2003. [Guidelines for Surveillance and Standardized Clinical Management of patients with dengue fever]. Lineamientos de Vigilancia y Manejo estandarizado de Pacientes con Dengue. Honduras Ministry of Health Report.

Collaborator in: Parks, Will et al, 2004. [Planning mobilization and social communication for Dengue Control and Prevention: a step-by-step guide]. Planificación de la movilización y comunicación social para la prevención y el control del dengue: guía paso a paso. *World Health Organization*. ISBN 92 4 359107 X.

Carranza, Marco T; Paz, Nerza; Prudott Suyapa; **Fernández, Eduardo** et al. 2004. Desarrollo Organizacional. Dirección General de Vigilancia de la Salud. Secretaria de Salud de Honduras. Honduras Ministry of Health Report.

Mendez J. And **Fernandez** E.A. (1996) Workshop on Recent Advances in Community-Based *Aedes aegypti* Control: Honduras and Mexico. Workshop proceedings: Merida, Yucatan, Mexico; Secretaria de Salud de Mexico pp 2-91

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Presentations at conferences and learned societies

Fernandez E. , Gadea N. Epidemiological Situation of the Snake bites in Honduras in 2012-2015. St. Kitts and Nevis. Congress of Parasitology and Tropical Medicine. July 2019

Fernandez E. Social Mobilization for dengue control in Hondura , **Colombia. Ministry of Health of Colombia.** June 2016

Fernandez E. Introduction of Dengue Vaccine in Honduras (In the advent of the dengue vaccine).(Dengue Control Board for the Americas. Bogota, **Colombia.** March 15, 2015

Fernandez E. Health Communication in the Context of Dengue Vaccine Implementation (Rapporteur). Dengue Control Board for the Americas. Medellin, **Colombia.** June 21-23,2010.

Solorzano O., **Fernandez E.** Epidemiological Surveillance of Dengue in Honduras. Dengue Control Board for the Americas. Mexico D.F. **Mexico.** January 17-19, 2008.

Fernandez. E. Dengue and Dengue Hemorrhagic Fever in Honduras. Dengue Control Board for the Americas Region. Managua, **Nicaragua** July 25, 2007

Carranza M.T., **Fernandez E.** A model to develop the Field Epidemiology in Honduras. Central American Health Consultive Committee. Belize City, Belize, April 2005

Fernandez E., Caceres ME. Occupational Health in Honduras. National Medical Congress. Choluteca, Honduras, July 2004

Pineda E. , **Fernandez, E.**, Escoto C. Diabetes, Hipertensión and Risk Factors in Tegucigalpa, Honduras. Fifth Central America Diabetes Initiative (CAMDI) Conference. Montelimar, Nicaragua. April 2004

Fernandez E.,Martinez M., Sherman C. Social Mobilization in Aedes aegypti control. First International Conference on Dengue Hemorrhagic Fever.Chiang Mai, Thailand. November 2000

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Fernandez E. Dengue and Dengue Hemorrhagic Fever in Honduras. Emerging Diseases Conference in the twenty first century. The U.S. Southern Command. Guatemala City, Guatemala. March 2000

Fernandez E., Sherman C, Chavez M. Success and Limitations of the dengue control Programs in Honduras. XXIX Congress of the Brazilian Society of Tropical Medicine. March 1993

Fernandez E. Sherman C. Community based *Aedes aegypti* control in Honduras. International Conference of Entomology. Beijing , China. July 1992

Fernandez E.,Soto RJ, Avila G. Community Participation in Dengue Control Programs in Honduras. American Mosquito Control Association (AMCA) Annual Meeting . New Orleans, La. February 1990

TEACHING EXPERIENCE

- Taught Pharmacology Courses to students of 3rd and 4th year in Medical Sciences
- Taught Public Health Courses to Public Health to 2nd,3rd and 4th year Public Health
- Taught multidisciplinary courses in Research methodology and use of statistical packages (SPSS) for analysis.
- Taught multidisciplinary courses in disease control and epidemiology
- Monitored and evaluated student research protocols including topics such as: HIV/VIH Epidemic and Mass Media, HIV/AIDS and Sexually Transmitted Diseases control strategies
- International Health and Infectious Diseases, Reproductive Health.
- Supervised Students doing Directed Readings in topics of Infectious Diseases (STI, Parasitic Diseases, Meningitis, Hepatitis, Tuberculosis, and Vector-Borne diseases, Urban Pests management; Health care in developing countries.

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Courses Taught in the Faculty of Medical Sciences National Autonomous University of Honduras. Tegucigalpa, Honduras, MPH program

Course Name	Study Unit #	Type of Course	Number of times taught	Number of Students
Epidemiologia (Epidemiology)	U3	Graduate (Core)	5 (once every two years)	35 (cohort size)
Dinámica Salud Enfermedad en la Población (Health-Disease Dynamic in Human Population)	U5	Graduate (Core)	4(once every two years)	35 (cohort size)
Modelos de Atención en Salud (Health Care Models)	U6	Graduate (Core)	3 (once every two years)	35 (cohort size)
Vigilancia Epidemiológica (Epidemiological Surveillance)	U9	Graduate (Elective)	1 (once every two years)	22
Control y Prevención de las Enfermedades (Disease Control and Prevention)	U10	Graduate (Elective)	1(once every two years)	22
Temas Actuales de Epidemiología en Honduras (Topics of Honduras Epidemiology)	U11	Graduate (Elective)	1(once every two years)	22

Courses Taught in the Program of Health Sciences. Brock University. St. Catharines, Ontario.

Course Name	Code	Type of Course	Number times taught	Number of students
Global Issues of Infectious Diseases	HLSC 4P03 (previously known as CHSC 2P97 and HLSC 2P97)	Core	6	58
				58
				50
				100
				120
				120
Public Health Issues of the HIV AIDS and other Pandemics	HLSC 4P51 (Previously CHSC 4V51)	Elective	6	18
				15
				30
				28
				23
				13
				32

Directed Reading	HLSC-3P30 HLSC4P30	Elective	7	7
		Elective	3	3
Internship in Health Science	HLSC 3P33 (before CHSC 3P33)	Elective	5	5
Pharmacology and the Nervous System	HLSC 3P99	Elective	2	24 25
Integrated Cardiovascular Pharmacology	HLSC 4P19	Elective	2	32 43
Diversity and Health	HLSC 4P59	Elective	1 1	100 80
Infection Control and Safety	HLSC 2P02	Core	1	70
Principles of Pharmacology	HLSC 3P19	Core	4	73 82 50 82 (currently)
Environmental Health	HLSC 4P04	Elective	1	32
Global Health	HLSC 3Q97	Elective	2	56 61 (currently)
Pathophysiology of the Metabolic Syndrome	HLSC 4P96	Elective	1	20 (currently)

Invited Lectures

In the Department of Health Sciences Brock University

St. Catharines, Ontario

HLSC 4P03, 2017 Cancer and Infections

CHSC 2P97, 2006: Infections and International Travel

CHSC 3P97, 2006: Concepts in Public Health; Transmission mechanisms of Infectious Disease

CHSC 3P97, 2007: Concepts in Public Health; Transmission mechanisms of Infectious Disease

CHSC 3P97, 2007: Concepts in Public Health; Transmission mechanisms of Infectious Disease

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CHSC 2P97, 2008: Virology: Dengue and HIV Virus

CHSC 3F97 2006: The Health Situation in Honduras

CHSC 3P50 2006 Community Participation in Public Health programs

International Week 2006 “HIV/AIDS in Central America”

HLSC 2P40 2007: Geriatric Population and their level of family and social inclusion in Latin America.

IESL Programme. 2008: Current status of the HIV/AIDS pandemic around the world

CHSC 3F97 May 2011 Disasters and Emergencies in Global Health

GRADUATE STUDENTS (SUPERVISED)

Name	Year	Institution	Type of Supervision	Reached stage
Silvia Lopez	2003	UNAH	Thesis	Graduated
Nelly Amador	2003	UNAH	Thesis	Graduated
Irma Mendoza	2003	UNAH	Thesis	Completion
Reiniery España	2003	UNAH	Thesis	Graduated
Sandra Martinez	2005	UNAH	Thesis	Completed data analysis
Trinidad Acosta	2005	UNAH	Thesis	Graduated
Jacqueline Figueroa	2005	UNAH	Thesis	Graduated
Rosa Maria Duarte	2005	UNAH	Thesis	Graduated
David Martínez	2010-2011	Project MEIZ (Brock U-UNAH).	Thesis Supervisor	Completion of Master degree
Teresa Usuanlele	2011-2012	Brock University	Member of Thesis Committee	Completion of Master degree
Jose A. Gabrie	2012-2013	Brock University	Member of Thesis Committee	Completion of Master degree
Sayda Pejuan	2015-2016	UNAH	Thesis Supervisor	Completion of Master degree
Ana Ofelia Motino Zavala	2015-2016	UNAH	Thesis Supervisor	Completion of Master degree
María de los Ángeles Pineda	2015-2016	UNAH	Thesis Supervisor	Completion of Master degree

Isnaya Nuila	2015-2016	UNAH	Thesis Supervisor	Completion of Master degree
Sergio Hernández	2018-2019	Brock University	Member of Thesis Committee	Completion of Master degree

Memberships (including executive positions held) in scholarly and/or professional societies/organizations

- 1) Dengue Control Board for the Americas Region (Founding Member 2007- currently)
- 2) Honduras Tobacco Cessation Committee (Public Health Master’s Program Delegate) 2004-2005
- 3) Honduras National University Disaster Preparedness Committee (member since 2003)
- 4) Honduras Society of Parasitology (founding member, 2000)
- 5) Medical Board Head Delegate in Yoro, Honduras (1996-1997)
- 6) Honduras Public Health Professional Society (membership since 1991)
- 7) Johns Hopkins School of Hygiene Student Assembly. International Health Department Representative (1988-1989)
- 8) Honduras Medical Board (membership since 1988)

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Extracurricular courses and training

Feb 2018	Infection Control and Safety.	Niagara Health Region, Ontario
2016-2018	Food Advising Training.	Niagara Health Region, Ontario
Oct 2008	Second International Congress on Dengue Hemorrhagic Fever.	World Health Organization. Thailand
Nov 2006	Biosafety Training. Brock University,	St. Catharines, ON
Nov 2006	Privacy and Protection of Information. Brock University,	St. Catharines, ON
May 2006	Workplace Hazardous Material Information System. Occupational Safety and Health Information Service.	London , ON
July 2004	Field Epidemiology Tutors Workshop	US CDC @Guatemala, Guatemala
2004	Update in Epiinfo 2000. Universidad Nacional Autónoma de Nicaragua. León , Nicaragua	
2003	Epidemiology for Disease Control. Pan American Health Organization. Tegucigalpa, Honduras	
2001.	Fundamentals of Toxicology. Pan-American Health Organization. Tegucigalpa, Honduras.	
2001.	Hospital Solid Waste Disposal. Alas 86-91 Project. European Union	

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- 2000 First Congress on Dengue Haemorrhagic Fever in Chiang Mai. Thailand
- 1999 Internet and Webpages design. Central American Network for Health Systems and Policies Research (REISSCAC). San José, Costa Rica
- 1999 DDT Use in Public Health and Malaria Control in Central America Workshop. United Nations and IDRC. Cuernavaca, Mexico
- 1998 Health Economics. Pan-American Health Organization. Tegucigalpa, Honduras
- 1997 *Aedes aegypti* Control Programs in Central America. Pan American Health Organization Montelimar, Nicaragua
- 1993 Dengue Hemorrhagic Fever Clinical Management. Brazilian Tropical Diseases Society. Fortaleza, Brazil

Samples of Scientific Production (Some published papers)

These papers are part of my production in Topics that I teach: Global Health, Pharmacology and Infectious Diseases

Recent Publication on Dengue fever treatment and the advent of vaccines

Current Treatment Options in Infectious Diseases pp1-9

Moving to a Dengue Preventive Treatment Through New Vaccines

Eduardo A. Fernandez [Email author](#)

- Eduardo A. Fernandez

1. Department of Health Sciences Brock University St. Catharines Canada

Neglected Tropical Diseases (A Sanchez, Section Editor)

First Online:

05 August 2017

- [Sci](#)
- [Dovlas](#)

Part of the following topical collections:

1. [Topical Collection on Neglected Tropical Diseases](#)

Opinion statement

Dengue fever is a viral disease with no curative treatment. However, symptomatic treatment exists to alleviate the fever and provide analgesia to the multiple types of pain mainly headache, arthralgia, myalgia, and retro-ocular pain. Antiviral drugs to interfere with the process of viral replication are still under investigation. In the past, homeopathic treatment has been tried as well, with no success. In the case of severe dengue, hospitalization with strict monitoring of vital signs, parenteral liquids, and electrolytes replacement and, if needed, blood transfusion, are the most adequate courses of management. Most of the scientific work on the topic is dedicated to the development of a vaccine that may prevent the infection by any of the four serotypes of dengue, a tetravalent vaccine. Different research groups are searching for vaccine candidates among the different stages of viral development. One such group has completed a phase III trial and their vaccine has been licensed in different countries. However, more work is required to enhance this vaccine effectiveness beyond the current 60% protection. Moreover, new vaccine candidates are needed to provide safe immunization against the four dengue serotypes, whether preventing infection or reinfections.

Keywords

Dengue fever Serotype Vaccine Mosquitoes Antiviral

This article is part of the Topical Collection on *Neglected Tropical Diseases*

This paper correspond to a study done with information of the Dengue epidemic in Honduras in 2009 and 2010.

[BMC Infectious Diseases](#)

RESEARCH ARTICLE

OPEN PEER REVIEW

A predictive model to differentiate dengue from other febrile illness

- Eduardo Fernández,
- Marek Smieja,
- Stephen D. Walter and
- Mark Loeb [Email author](#)

BMC Infectious Diseases BMC series – open, inclusive and trusted 2016:694
<https://doi.org/10.1186/s12879-016-2024-y>

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[Open Peer Review reports](#)

Abstract

Background

Dengue is a major public health problem in tropical and subtropical countries and has a presentation similar to other febrile illnesses. Since laboratory confirmation is frequently delayed, the majority of dengue cases are diagnosed based on symptoms. The objective of this study was to identify clinical, hematological and demographical parameters that could be used as predictors of dengue fever among patients with febrile illness.

Methods

We conducted a retrospective cohort study of 548 patients presenting with febrile syndrome to the largest public hospitals in Honduras. Patients' clinical, laboratory, and demographic data as well as dengue laboratory detection by either serology or viral isolation were used to build a predictive statistical model to identify dengue cases.

Results

Of 548 patients, 390 were confirmed with dengue infection while 158 had negative results. Univariable analysis revealed seven variables associated with dengue: male sex, petechiae, skin

rash, myalgia, retro-ocular pain, positive tourniquet test, and gingival bleeding. In multivariable logistic regression analysis, retro-ocular pain petechiae and gingival bleeding were associated with increased risk, while epistaxis and paleness of skin were associated with reduced risk of dengue. Using a value of 0.6 (i.e., 60% probability for a case to be positive based on the equation values), our model had a sensitivity of 86.2%, a specificity of 27.2%, and an overall accuracy of 69.2%; allowing for the diagnosis of dengue to be ruled out and for other febrile conditions to be investigated.

Conclusions

Among Honduran patients presenting with febrile illness, our analysis identified key symptoms associated with dengue fever, however the overall accuracy of our model was still low and specificity remains a concern. Our model requires validation in other populations with a similar pattern of dengue transmission.

Keywords

Dengue Fever Predictive model Symptoms Honduras

Dengue vaccine trial guidelines and role of large-scale, post proof-of-concept demonstration projects in bringing a dengue vaccine to use in dengue endemic areas

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Key words: Proof of concept, demonstration project, clinical trial phases, dengue vaccine, effectiveness, *Correspondence to: G. William Letson; Email: bleton@pdvi.org Submitted: 05/04/10; Revised: 07/08/10; Accepted: 07/15/10 Previously published online: www.landesbioscience.com/journals/vaccines/article/13018 DOI: 10.4161/hv.6.12.13018 efficacy

Background

Dengue is a group of viruses with complex transmission and disease characteristics. Mosquito borne transmission of this group of viruses makes disease control and prevention more complex. Transmission can be erratic, moving its focus from one adjacent community to another in sequential years.¹ There are four dengue viruses which act as independent infectious agents,¹ i.e., immunity to any one type does not provide long-term immunity to the other three types. The distribution and relative proportion of the 4 virus types varies by year and geographic location. Asia is considered “hyperendemic” with all four viruses circulating simultaneously in most years, but in varying proportion.^{1,2} Generally type 4 accounts for a lower proportion of disease in the neighborhood of 5–10%. Latin American In this review, we consider the issues impacting conduct and design of dengue vaccine trials with reference to the recently published World Health Organization “Guidelines for Conduct of Clinical Trials of Dengue Vaccines in Endemic Areas.” We discuss logistic, scientific and ethical challenges concerning evaluation and

introduction of dengue vaccines; these range from randomized trials that establish “proof of concept” of vaccine efficacy, to post-“proof of concept” trials, particularly demonstration projects likely to be required for licensure or for the introduction of an already licensed vaccine into public use. We clarify and define the meaning of “proof of concept” in the clinical trial context and the meaning of terms “phase 2b”, “phase 3b” and “demonstration project”, which are commonly used but have not been defined well in the clinical literature. patterns to date have exhibited varying circulation of dengue 1–3 and a paucity of type 4 virus.²⁻⁴ Although there is cross protective immunity between viruses for a brief period after infection with a single virus, that cross protective immunity wanes over a period of 4–6 months.⁵ As cross-protective immunity wanes, a point is reached where there is a hypothetical potential for increased severity of dengue disease with second infections, owing to a phenomenon called antibody dependent enhancement (ADE).^{6,7} A brief description of this process is that pre-existing, non-protective, sub-neutralizing antibody from prior infection with a dengue virus type enhances viral binding to Fc receptors on dendritic monocytes leading to increased viral replication within these cells. This is accompanied by complement activation and memory T cell activation; the latter has been shown capable of inducing a cytokine cascade that ultimately targets vascular endothelial cells, causing them to leak plasma and protein. This ‘plasma leakage’ is the pathogenic mechanism of serious dengue infection that has been called dengue hemorrhagic fever (DHF) and can lead to dengue shock syndrome (DSS) by virtue of extravasation of significant fluid volume from the intravascular spaces.⁸ Although ADE is a theoretical concern with regard to dengue vaccination, there is no evidence that vaccines actually promulgate the effect. There is one study that offers reassurance of the absence of vaccine induced ADE.^{9,10} In that study, 400 patients followed 3 to 8 years after immunization with an attenuated tetravalent vaccine experienced multiple subsequent infections with dengue viruses, without apparent clinical or serologic enhancement. In support of this vaccine trial’s conclusions, pre-existing in vitro ADE levels have not correlated with disease severity upon natural infection.¹¹ Clinical studies of antibodies in dengue infected infants have provided evidence suggestive of viremic enhancement with waning maternally acquired antibody, but a clear effect on disease severity is less clear.^{12,13} The numbers of patients in these studies is too small for statistically reliable conclusions. In addition, the risk of acquiring DHF is dramatically reduced as soon as responses have been induced against at least two serotypes.¹⁴

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Research

Populations at risk for severe or complicated influenza illness: systematic review and meta-analysis

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Abstract

Objective To evaluate risk factors for severe outcomes in patients with seasonal and pandemic influenza.

Design Systematic review.

Study selection Observational studies reporting on risk factor-outcome combinations of interest in participants with influenza. Outcomes included death, ventilator support, admission to hospital, admission to an intensive care unit, pneumonia, and composite outcomes.

Data sources Medline, Embase, CINAHL, Global Health, and the Cochrane Central Register of Controlled Trials to March 2011.

Risk of bias assessment Newcastle-Ottawa scale to assess the risk of bias. GRADE framework to evaluate the quality of evidence.

Results 63 537 articles were identified of which 234 with a total of 610 782 participants met the inclusion criteria. The evidence supporting risk factors for severe outcomes of influenza ranged from being limited to absent. This was particularly relevant for the relative lack of data for non-2009 H1N1 pandemics and for seasonal influenza studies. Limitations in the published literature included lack of power and lack of adjustment for confounders was widespread: adjusted risk estimates were provided for only 5% of risk factor-outcome comparisons in 39 of 260 (15%) studies. The level of evidence was low for “any risk factor” (odds ratio for mortality 2.77, 95% confidence interval 1.90 to 4.05 for pandemic influenza and 2.04, 1.74 to 2.39 for seasonal influenza), obesity (2.74, 1.56 to 4.80 and 30.1, 1.74 to 2.39), cardiovascular diseases (2.92, 1.76 to 4.86 and 1.97, 1.06 to 3.67), and neuromuscular disease (2.68, 1.91 to 3.75 and 3.21, 1.84 to 5.58). The level of evidence was very low for all other risk factors. Some well accepted risk factors such as pregnancy and belonging to an ethnic minority group could not be identified as risk factors. In contrast, women who were less than four weeks post partum had a significantly increased risk of death from pandemic influenza (4.43, 1.24 to 15.81).

Conclusion The level of evidence to support risk factors for influenza related complications is low and some well accepted risk factors, including pregnancy and ethnicity, could not be confirmed as risks. Rigorous and adequately powered studies are needed