

# NEFTALI EDUARDO ANTONIO-VILLA

I am currently carrying out my primary research activities as an early career member in the Department of Public Health at the Faculty of Medicine of the National Autonomous University of Mexico. My primary line of investigation focused on studying the impact of the social determinants of health and the relationship with cardiometabolic diseases of the population living in Latin America.

## EDUCATION

2023  
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2020

- **Ph.D.**  
Mexico City, Mexico  
📍 Faculty Of Medicine - Universidad Nacional Autónoma De México (UNAM)
  - Project: Evaluation of the impact of social inequalities on the prevalence of risk factors and cardiovascular mortality rates in the population of Latin America and the Caribbean.
  - Mentorship: Dr. Omar Yaxmehen Bello-Chavolla
- **M.D.**  
Mexico City, Mexico  
📍 Faculty Of Medicine - Universidad Nacional Autónoma De México (UNAM)

2020  
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2015

## RESEARCH EXPERIENCE

2019  
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2018

- **Undergraduate Researcher**  
Metabolic Disease Research Unit  
📍 Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán
  - Research internship under the tutelage of Dr. Carlos Alberto Aguilar-Salinas
  - Projects: Development and validation of a visceral adipose tissue estimator using non-linear regression model approach for prediction of T2D and arterial hypertension.
  - Products: 10 published articles, two book chapters.

2018  
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2017

- **Undergraduate Researcher**  
Nuclear Cardiology Department  
📍 Instituto Nacional De Cardiología Ignacio Chavez
  - Research internship under the tutelage of Dr. Nilda Espinola-Zavaleta and Erick Alexanderson-Rosas at the National Institute of Cardiology Ignacio Chavez in Mexico City.
  - Project: Assessment of comorbidities and clinical risk factors within subject who are assessed by SPECT-CT.
  - Products: 4 published articles.



View this CV online with links at  
<https://nefoantonio.github.io>

## CONTACT

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## LANGUAGE SKILLS



Become a part of our [Research Lab](#).

Last updated on 2021-04-26.

2016  
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2016

- **Undergraduate Researcher**  
Public Health Department  
📍 Faculty Of Medicine - Universidad Nacional Autónoma De México (UNAM)
  - Research internship under the tutelage of Dr. Laura Leticia Tirado Gomez at the National Autonomous University of Mexico.
  - Project: Prevalence and incidence changes during the last two decades of lung cancer mortality in Mexico.
  - Products: Basic training in public health policies and estimators. Acknowledgment in a published article.



## AWARDS, INNOVATIONS, AND CONGRESS PRESENTATIONS

2021

- **Featured Abstract Award**  
ENDO2021  
📍 Atlanta, Georgia
  - Trends in Diabetes Subgroups and Their Risk for All-Cause, Cardiovascular Disease and Diabetes-Specific Mortality in the US: A Data-Driven Reproducible Machine Learning Approach
  - <https://www.endocrine.org/awards/the-endocrine-society-outstanding-abstract-awards>
- **Presidential Poster Award**  
ENDO2019  
📍 New Orleans, Louisiana.
  - Category Adipose Tissue, Appetite, and Obesity for the work "Intra-abdominal fat estimation combining the non-insulin-based METS-IR and Whtr indexes (METS-VAT)"
  - <https://www.endocrine.org/awards/presidential-poster-competition>

Areas of Expertise: Datasets management, Statistics of central tendency and variability, Probability distributions, Simple linear regression, Multiple linear regression, Experimental design, Fixed and random effects models, Analysis of experiments, Analysis of cross-sectional studies and Cases and Controls, Mediation analysis, Unsupervised modeling with regression methods, Survival analysis and Cox regression, Competitive risk models, Calibration of predictive models

2019

## PROFESSIONAL ASSOCIATIONS

2019

- **Endocrine Society**  
In-training member



## INNOVATIONS

2020

- **Mechanistic Score for COVID-19 lethality (MSL-COVID-19)**  
Clinical Estimator
  - We developed a mechanistic score to evaluate the risk for complications and lethality attributable to SARS-CoV2, considering the effect of obesity and diabetes in Mexico. Our score offers a clinical tool for quick determination of high-risk susceptibility patients in a first-contact scenario.
  - <doi:10.1371/journal.pone.0244051>

2019

● **Metabolic Score for Visceral Fat (METS-VF)**

Clinical Estimator

- Using as starting point the availability of body composition evaluations with intra-abdominal fat estimation by dual X-ray absorptiometry (DXA) obtained in the Metabolic Disease Research Unit at the INCMNSZ, I developed an equation that combines METS-IR with age, sex and waist-to-height ratio to estimate visceral adiposity, as well as metabolic risk for type 2 diabetes mellitus and incident systemic arterial hypertension. It is specific for Mexican and Latin American population.

• Published on: [doi:10.1016/j.clnu.2019.07.012](https://doi.org/10.1016/j.clnu.2019.07.012)



## CONGRESS PRESENTATIONS

2021

● **Oral presentation**

ENDO 2021

📍 Atlanta, Georgia

- Trends in Diabetes Subgroups and Their Risk for All-Cause, Cardiovascular Disease and Diabetes-Specific Mortality in the US: A Data-Driven Reproducible Machine Learning Approach

2019

● **Poster presentation**

ENDO 2019

📍 New Orleans, Louisiana.

- The Non-insulin-based METS-IR Index Combined With Liver Transaminases Improves Prediction of Fatty Liver and Fibrosis.
- Bello-Chavolla OY, Vargas-Vazquez A, Almeda-Valdes P, Antonio- Villa NE, Aguilar Salinas CA.

2019

● **Poster presentation**

ENDO 2019

📍 New Orleans, Louisiana.

- Intra-abdominal Fat Estimation Combining The Non-insulin-based METS-IR And WHtr Indexes (METS-VF).
- Antonio-Villa NE, Bello-Chavolla OY.

2019

● **Oral presentation**

ENDO 2019

📍 New Orleans, Louisiana.

- NMRI-metabolomics Variables Associated With The Metabolically-healthy Obese Phenotype And The Transitions Between Metabolically-healthy And Unhealthy Obesity Phenotypes.
- Vargas-Vázquez A, Bello-Chavolla OY, Antonio-Villa NE.



## SCIENTIFIC PUBLICATIONS

2021

● **Assessment of Atypical Cardiovascular Risk Factors Using Single Photon Emission Computed Tomography in Mexican Women.**

Archives of Medical Research

- Alexanderson-Rosas, E., Antonio-Villa, N. E., Sanchez-Favela, M., Carvajal-Juarez, I., Oregel-Camacho, D., Gopar-Nieto, R., Flores-Garcia, A. N., Keirns, C., Hernandez-Sandoval, S., & Espinola-Zavaleta, N.

• <https://doi.org/10.1016/j.arcmed.2021.03.009>

- 2021
- **Pushing the boundaries of precision nutrition to tackle Alzheimer's disease: is there a role for DHA?.**  
The American Journal of Clinical Nutrition
    - Fernandez-Chirino, L., Antonio-Villa, N. E., & Bello-Chavolla, O. Y. (2021).
    - <https://doi.org/10.1093/ajcn/nqab085>
- 2021
- **Impact of undiagnosed type 2 diabetes and pre-diabetes on severity and mortality for SARS-CoV-2 infection**  
BMJ open diabetes research & care
    - Vargas-Vázquez, A., Bello-Chavolla, O. Y., Ortiz-Brizuela, E., Campos-Muñoz, A., Mehta, R., Villanueva-Reza, M., Bahena-López, J. P., Antonio-Villa, N. E., González-Lara, M. F., Ponce de León, A., Sifuentes-Osornio, J., & Aguilar-Salinas, C. A.
    - <https://doi.org/10.1136/bmjdrc-2020-002026>
- 2021
- **Letter to the Editor from Omar Yaxmehen Bello-Chavolla: "Are the Different Diabetes Subgroups Correlated With All-Cause, Cancer related, and Cardiovascular-related Mortality?"**  
The Journal of Clinical Endocrinology and Metabolism
    - Bello-Chavolla, O. Y., Antonio-Villa, N. E., Fernandez-Chirino, L., Vargas-Vázquez, A., & Bahena-Lopez, J. P.
    - <https://doi.org/10.1210/clinem/dgab173>
- 2021
- **A High Incidence of Metabolic Syndrome Traits in Mexicans Points at Obesity-Related Metabolic Dysfunction.**  
Diabetes, metabolic syndrome and obesity : targets and therapy
    - Bello-Chavolla, O. Y., Vargas-Vázquez, A., Antonio-Villa, N. E., Del Razo-Olvera, F. M., Elías-López, D., A Aguilar-Salinas, C., & Metabolic Syndrome Study Group
    - <https://doi.org/10.2147/DMSO.S266568>
- 2021
- **Adaptive metabolic and inflammatory responses identified using accelerated aging metrics are linked to adverse outcomes in severe SARS-CoV-2 infection.**  
The journals of gerontology. Series A, Biological sciences and medical sciences
    - Márquez-Salinas, A., Fermín-Martínez, C. A., Antonio-Villa, N. E., Vargas-Vázquez, A., C Guerra, E., Campos-Muñoz, A., Zavala-Romero, L., Mehta, R., Bahena-López, J. P., Ortiz-Brizuela, E., González-Lara, M. F., Roman-Montes, C. M., Martínez-Guerra, B. A., Ponce de Leon, A., Sifuentes-Osornio, J., Gutiérrez-Robledo, L. M., Aguilar-Salinas, C. A., & Bello-Chavolla, O. Y.
    - <https://doi.org/10.1093/gerona/glab078>
- 2021
- **Left ventricular and atrial global strain evaluation within subtypes of ventricular remodeling.**  
Echocardiography
    - Espinola-Zavaleta, N., Antonio-Villa, N. E., Briseño-Díaz, N., Oregel-Camacho, D., Camacho-Camacho, G., Keirns, C., & Alexanderson-Rosas, E.
    - <https://doi.org/10.1111/echo.14981>

2021

- **Familial hypercholesterolemia in Mexico: Initial insights from the national registry.**

Journal Clinical Lipidology

- Mehta R, Martagon AJ, Galan Ramirez GA, Antonio-Villa NE, Vargas-Vázquez A, Elias-Lopez D, et al.  
• <https://doi.org/10.1016/j.jacl.2020.12.001>

2021

- **Validation and repurposing of the MSL-COVID-19 score for prediction of severe COVID-19 using simple clinical predictors in a triage setting: The Nutri-CoV score.**

PloS one

- Bello-Chavolla, O. Y., Antonio-Villa, N. E., Ortiz-Brizuela, E., Vargas-Vázquez, A., González-Lara, M. F., de Leon, A. P., Sifuentes-Osornio, J., & Aguilar-Salinas, C. A.  
• <https://doi.org/10.1371/journal.pone.0244051>

2020

- **Increased visceral fat accumulation modifies the effect of insulin resistance on arterial stiffness and hypertension risk.**

Nutrition, metabolism, and cardiovascular diseases

- Antonio-Villa, N. E., Bello-Chavolla, O. Y., Vargas-Vázquez, A., Mehta, R., Fermín-Martínez, C. A., Martagón-Rosado, A. J., Barquera-Guevara, D. A., Aguilar-Salinas, C. A., & Metabolic Syndrome Study Group  
• <https://doi.org/10.1016/j.numecd.2020.09.031>

2020

- **Profiling cases with non-respiratory symptoms and asymptomatic SARS-CoV-2 infections in Mexico City.**

Clinical infectious diseases : an official publication of the Infectious Diseases Society of America

- Bello-Chavolla, O. Y., Antonio-Villa, N. E., Vargas-Vázquez, A., Fermín-Martínez, C. A., Márquez-Salinas, A., & Bahena-López, J. P.  
• <https://doi.org/10.1093/cid/ciaa1288>

2020

- **Health-care workers with COVID-19 living in Mexico City: clinical characterization and related outcomes.**

Clinical infectious diseases : an official publication of the Infectious Diseases Society of America

- Antonio-Villa, N. E., Bello-Chavolla, O. Y., Vargas-Vázquez, A., Fermín-Martínez, C. A., Márquez-Salinas, A., & Bahena-López, J. P.  
• <https://doi.org/10.1101/2020.07.02.20145169>

2020

- **Use of an electronic integral monitoring system for patients with diabetes to identify factors associated with an adequate glycemic goal and to measure quality of care.**

Primary care diabetes

- Antonio-Villa, N. E., Palma-Moreno, B. G., Rodríguez-Dávila, F. M., Gómez-Pérez, F. J., Aguilar-Salinas, C. A., Hernández-Jiménez, S., García-Ulloa, A. C., & Almeda-Valdes, P.  
• <https://doi.org/10.1016/j.pcd.2020.07.009>

- 2020
- **Clinical characterization of data-driven diabetes subgroups in Mexicans using a reproducible machine learning approach.**  
BMJ open diabetes research & care
    - Bello-Chavolla, O. Y., Bahena-López, J. P., Vargas-Vázquez, A., Antonio-Villa, N. E., Márquez-Salinas, A., Fermín-Martínez, C. A., Rojas, R., Mehta, R., Cruz-Bautista, I., Hernández-Jiménez, S., García-Ulloa, A. C., Almeda-Valdes, P., Aguilar-Salinas, C. A., Metabolic Syndrome Study Group, & Group of Study CAIPaDi
    - <https://doi.org/10.1136/bmjdrc-2020-001550>
- 2020
- **Unequal impact of structural health determinants and comorbidity on COVID-19 severity and lethality in older Mexican adults: Considerations beyond chronological aging.**  
The journals of gerontology. Series A, Biological sciences and medical sciences
    - Bello-Chavolla, O. Y., González-Díaz, A., Antonio-Villa, N. E., Fermín-Martínez, C. A., Márquez-Salinas, A., Vargas-Vázquez, A., Bahena-López, J. P., García-Peña, C., Aguilar-Salinas, C. A., & Gutiérrez-Robledo, L. M.
    - <https://doi.org/10.1093/gerona/glaa163>
- 2020
- **Predicting Mortality Due to SARS-CoV-2: A Mechanistic Score Relating Obesity and Diabetes to COVID-19 Outcomes in Mexico**  
The Journal of Clinical Endocrinology and Metabolism
    - Bello-Chavolla, O. Y., Bahena-López, J. P., Antonio-Villa, N. E., Vargas-Vázquez, A., González-Díaz, A., Márquez-Salinas, A., Fermín-Martínez, C. A., Naveja, J. J., & Aguilar-Salinas, C. A. (2020).
    - <https://doi.org/10.1210/clinem/dgaa346>
- 2020
- **Optimal Medical Treatment vs. Invasive Approach in Patients with Significantly Obstructive Coronary Artery Disease and Ischemia.**  
Archives of Medical Research
    - Carvajal-Juarez, I., Espínola-Zavaleta, N., Antonio-Villa, N. E., Keirns, C., & Alexanderson-Rosas, E.
    - <https://doi.org/10.1016/j.arcmed.2020.04.002>
- 2020
- **The combination of insulin resistance and visceral adipose tissue estimation improves the performance of metabolic syndrome as a predictor of type 2 diabetes.**  
Diabetic Medicine : A Journal of the British Diabetic Association
    - Antonio-Villa, N. E., Bello-Chavolla, O. Y., Vargas-Vázquez, A., Mehta, R., Aguilar-Salinas, C. A., & Metabolic Syndrome Study Group
    - <https://doi.org/10.1111/dme.14274>
- 2019
- **Metabolic Score for Visceral Fat (METS-VF), a novel estimator of intra-abdominal fat content and cardio-metabolic health.**  
Clinical Nutrition
    - Bello-Chavolla OY, Antonio-Villa NE, Vargas-Vázquez A, Viveros-Ruiz T, Almeda-Valdes P, Gomez-Velasco D, Mehta R, Elias-López D, Cruz-Bautista I, Roldán-Valadez E, Martagón AJ, Aguilar-Salinas CA.
    - <https://doi.org/10.1016/j.clnu.2019.07.012>

2019

- **Prediction of incident hypertension and arterial stiffness using the non-insulin based METS-IR index.**

Journal of clinical hypertension

- Bello-Chavolla OY and Antonio-Villa NE, Vargas-Vázquez A, Martagón AJ, Mehta R, Arellano-Campos O, Gómez-Velasco DV, Cruz-Bautista I, Melgarejo-Hernandez MA, Muñoz-Hernandez L, Guillén LE, Garduño-García JJ, Alvirde U, Ono-Yoshikawa Y, Choza-Romero R, Sauque-Reyna L, Garay-Sevilla ME, Malacara-Hernandez JM, Tusié-Luna MT, Gutierrez-Robledo LM, Gómez-Pérez FJ, Rojas R, Aguilar-Salinas, CA.

• <https://doi.org/10.1111/jch.13614>

2019

- **Diastolic dyssynchrony assessment by gated myocardial perfusion-SPECT in subjects who underwent cardiac resynchronization therapy**

Journal of Nuclear Cardiology

- Alexanderson-Rosas E, Espinola-Zavaleta N, Garcia EV, Peix A, Massardo T, Pabon LM, Antonio-Villa NE, Carvajal-Juarez I, Mesquita CT, Jimenez-Heffernan A, Patel C, Karthikeyan G, Kumar A, Butt S, Kalaivani M, Marin V, Morozova O, Paez D.

• <https://doi.org/10.1007/s12350-019-01845-2>

2019

- **Comorbid conditions in individuals assessed by SPECT: Study of a reference cardiology center in Mexico City.**

Journal of Nuclear Cardiology

- Antonio-Villa NE, Espínola-Zavaleta N, Carvajal-Juárez I, Flores-Garcia AN, Alexanderson-Rosas E.

• <https://doi.org/10.1007/s12350-019-01737-5>

2019

- **Pathophysiological mechanisms linking type 2 diabetes and dementia: Review of evidence from clinical, translational and epidemiological research.**

Current Diabetes Reviews

- Bello-Chavolla OY, Antonio-Villa NE, Vargas-Vázquez A, Ávila-Funes JA, Aguilar-Salinas CA.

• <https://doi.org/10.2174/1573399815666190129155654>