

Curriculum Vitae

First Name: Angel.
Middle Name: José.
Last Name: Paternina Caicedo.
Country of Birth: Colombia.
Date of Birth: January 29th, 1985.

Home

Address: Cr 81 # 31-240 CASA 2.
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Undergraduate Degree

Medical Doctor (M.D.). Universidad de Cartagena. Cartagena, Colombia. (2008).

Graduate Degree

M.Sc. in Clinical Epidemiology. Universidad Nacional de Colombia. Bogotá, Colombia. (2013).

Post-Doctorate

Postdoctoral Associate. University of Pittsburgh, Pittsburgh, PA, United States. (August, 2016 – June, 2018).

Professional Experience

(mmm-yy)

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| Jan-20 – | Universidad del Sinú, Cartagena, Colombia.
Professor. |
| Abr-19 – Dec-19 | Universidad de Cartagena, Cartagena, Colombia.
Researcher. |
| Apr-14 – Aug-16. | Hospital Infantil Napoleón Franco Pareja -La Casa del Niño. Cartagena, Colombia.
Responsibilities: To aid institutional decision making, and to design and carry out epidemiological research within the institution. |
| Jul-13 – Dec-13. | Pan American Health Organization/World Health Organization (PAHO/WHO), through a research contract with Universidad de Cartagena. Cartagena, Colombia.
Responsibilities: Coordinate research activities of a PAHO's ProVac Center of Excellence. |
| Jan-12 – Dec-12. | Universidad de Cartagena, Grupo de Investigación en Cuidados Intensivos y Obstetricia –GRICIO. Cartagena, Colombia.
Responsibilities: Assistant epidemiologist of the research project "Incidence of respiratory failure in a cohort of critically-ill Colombian women." |
| Jan-11 – Dec-12. | Universidad de Cartagena, Grupo de Investigación Salud de la Mujer. Cartagena, Colombia.
Responsibilities: Epidemiologic analysis of Quality of life data of 4000+ menopausal women in Colombia (CAVIMEC study). |
| Jan-11 – Dec-11. | Pan American Health Organization/World Health Organization (PAHO/WHO), through a research contract with Universidad de Cartagena. Cartagena, Colombia.
Responsibilities: Coordinate research activities of a ProVac Center of Excellence. |

Oct-09 – Mar-10. Universidad Nacional de Colombia, Grupo de Investigación en Epidemiología y Evaluación en Salud Pública. Cartagena, Colombia.
Responsibilities: Researcher of the projects entitled “Cost-effectiveness of mass varicella vaccination in Colombian children,” “Cost-effectiveness of mass pertussis vaccination in Colombian adolescents,” and “Cost-effectiveness of tetanus vaccination in Colombian adults.”

Awards (mmm-yy)

Jun-19. SMDM Travel Grant.
Organization: Society for Medical Decision Making (SMDM).
Conference name: 41st Annual North American Meeting.
Portland, Oregon, United States, October 20-23, 2019.

Jun-14. SMDM Travel Grant.
Organization: Society for Medical Decision Making (SMDM).
Conference name: 36th Annual North American Meeting.
Miami, FL, United States, October 18-22, 2014.

Sep-13. NASOM Travel Award
Organization: North American Society of Obstetric Medicine (NASOM).
Conference name: NASOM 2013 Annual Meeting
Providence, RI, USA, September 20-21, 2013.

Jun-12. SMDM Travel Grant.
Organization: Society for Medical Decision Making (SMDM).
Conference name: Biennial SMDM 2012 European Meeting.
Oslo, Norway, June 10-12, 2012.

Jun-12. ISPOR Student Travel Grant.
Organization: International Society for Pharmacoeconomics and Outcomes Research (ISPOR).
Conference name: ISPOR 17th Annual International Meeting. Washington, DC, USA, June 2-6, 2012.

Aug-11. Concurso Nacional sobre Maternidad Segura (Safe Motherhood Initiative) – 3rd place.
Organization: Pan American Health Organization/AMRO-World Health Organization, Colombia (PAHO/AMRO-WHO Colombia). Bogota, Colombia.

Funding (mmm-yy)

May-20 – Dec-20. Title: “Development and evaluation of mathematical and epidemiological models that support decision-making related to the emergency for SARS-CoV-2 and other causal agents of respiratory disease in Colombia using Data Analytics and Machine Learning”
Role: Co-investigator.
Institution: Universidad del Sinú (Cartagena, Colombia).
Funding: Ministerio de Ciencia, Tecnología e Innovación (Bogota, Colombia).
Amount: USD\$350,000.

Dec-18 – Jul-20. Title: “Development of the definition of Severe Maternal Morbidity in obstetric patients of Latin America and the Caribbean: A prospective study of the CLAP Network for Adverse Maternal Outcomes (CLAP-NAMOs).”
Role: Co-investigator.
Institution: Universidad de Cartagena (Cartagena, Colombia) and Pan American Health Organization (Washington D.C., United States).

Funding: COLCIENCIAS (Bogota, Colombia).
Amount: USD\$82,500.

Dec-15 – Dec-17. Title: “Estimation of the predicted capacity of general models of severity in critically ill obstetric patients (MPM-II, MPM-III, SAPS 2, and SAPS 3): A national multicenter study.”
Role: Co-investigator.
Institution: Universidad de Cartagena (Cartagena, Colombia).
Funding: COLCIENCIAS (Bogota, Colombia).
Amount: USD\$50,000.

Software and Programming Languages

- Microsoft Office (Word, Excel, PowerPoint, Access).
- Open-Source Web Content Management Systems (WordPress).
- Programming languages (R, Julia, PHP, HTML, CSS).
- Reference Management Systems (EndNote, Mendeley, Papers).
- Statistical software (R, RStudio, Stata).

Publications as First Author

1. **Paternina-Caicedo A**, Parashar U, Carcia-Calavaro C, de Oliveira L, Alvis-Guzmán N, De la Hoz-Restrepo F. Diarrheal deaths after the introduction of rotavirus vaccination in four countries. *Pediatrics* [in Proof].
2. **Paternina-Caicedo A**, Driessen J, Roberts M, van Panhuis W. Heterogeneity Between States in the Health and Economic Impact of Measles Immunization in the United States. *Open Forum Infectious Diseases* 2018;5(7):1.
3. **Paternina-Caicedo A**, De la Hoz-Restrepo F, Díaz-Quijano F, Caicedo-Torres W, Auxiliadora Badillo-Viloria M, Bula-Anichiarico D, et al. Features of Dengue and Chikungunya Infections of Colombian Children under 24 Months of Age Admitted to the Emergency Department. *Journal of Tropical Pediatrics*. 2017; Apr 21. doi: 10.1093/tropej/fmx024.
4. **Paternina-Caicedo A**, Miranda J, Bourjeily G, Levinson A, Dueñas C, Bello-Muñoz C, et al. Performance of the Obstetric Early Warning Score in critically ill patients for the prediction of maternal death. *American journal of obstetrics and gynecology*. 2017;216(1):58.
5. **Paternina-Caicedo A**, Rojas-Suarez JA, Dueñas-Castel C, Miranda-Quintero JE, Bourjeily G. Mortality risk prediction with an updated Acute Physiology and Chronic Health Evaluation II score in critically ill obstetric patients: a cohort study. *Journal of intensive care medicine*. 2015;30(2):97-102.
6. **Paternina-Caicedo A**, Parashar UD, Alvis-Guzmán N, De Oliveira LH, Castaño-Zuluaga A, Cotes-Cantillo K, et al. Effect of rotavirus vaccine on childhood diarrhea mortality in five Latin American countries. *Vaccine*. 2015;33(32):3923-8.
7. **Paternina-Caicedo A**, De la Hoz-Restrepo F, Alvis-Guzmán N. Epidemiological and economic impact of monovalent and pentavalent rotavirus vaccines in low and middle income countries: a cost-effectiveness modeling analysis. *The Pediatric infectious disease journal*. 2015;34(7):e176-e84.
8. **Paternina-Caicedo A**, De la Hoz-Restrepo F, Gamboa-Garay O, Castañeda-Orjuela C, Velandia-González M, Alvis-Guzmán N. How cost effective is universal varicella vaccination in developing countries? A case-study from Colombia. *Vaccine*. 2013;31(2):402-9.
9. **Paternina-Caicedo A**, Alcalá-Cerra G, Paillier-Gonzales J, Romero-Zarante ÁM, Alvis-Guzmán N. [Agreement between three definitions of metabolic syndrome in hypertensive patients]. *Revista de Salud Pública*. 2009;11(6):898-908. [Spanish]

Publications as Co-author (English)

1. Cardenas V, **Paternina-Caicedo A**, Salvatierra Izaba B. Under-reporting of fatal congenital Zika syndrome in México, 2016-2017. *Emerging Infectious Diseases* 2019; 25(8): 1560–1562.
2. Dieleman JL, Campbell M, Chapin A, Eldrenkamp E, Fan VY, Haakenstad A, et al. Future and potential spending on health 2015-40. *Lancet* 2017; 389: 2005–30.

3. Wang H, Bhutta ZA, Coates MM, Coggeshall M, Dandona L, Diallo K, et al. Global, regional, national, and selected subnational levels of stillbirths, neonatal, infant, and under-5 mortality, 1980-2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*. 2016;388(10053):1725.
4. Vos T, Allen C, Arora M, Barber RM, Bhutta ZA, Brown A, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*. 2016;388(10053):1545.
5. Pinzón-Redondo H, **Paternina-Caicedo A**, Barrios-Redondo K, Zarate-Vergara A, Tirado-Pérez I, Fortich R, et al. Risk Factors for Severity of Chikungunya in Children. *The Pediatric infectious disease journal*. 2016;35(6):702-4.
6. Lim SS, Fullman N, Murray CJ, Mason-Jones AJ. Measuring the health-related Sustainable Development Goals in 188 countries: a baseline analysis from the Global Burden of Disease Study 2015. *The Lancet*. 2016:1-38.
7. Kyu HH, Pinho C, Wagner JA, Brown JC, Bertozzi-Villa A, Charlson FJ, et al. Global and national burden of diseases and injuries among children and adolescents between 1990 and 2013: findings from the Global Burden of Disease 2013 Study. *JAMA pediatrics*. 2016;170(3):267-87.
8. Kassebaum NJ, Barber RM, Bhutta ZA, Dandona L, Gething PW, Hay SI, et al. Global, regional, and national levels of maternal mortality, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*. 2016;388(10053):1775.
9. Forouzanfar MH, Afshin A, Alexander LT, Anderson HR, Bhutta ZA, Biryukov S, et al. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*. 2016;388(10053):1659.
10. Feigin V. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980-2015: a systematic analysis for the Global Burden of Disease Study 2015. *The lancet*. 2016;388(10053):1459-544.
11. Alcalá-Cerra G, **Paternina-Caicedo A**, Díaz-Becerra C, Moscote-Salazar L, Gutiérrez-Paternina J, Niño-Hernández L. External lumbar cerebrospinal fluid drainage in patients with aneurysmal subarachnoid haemorrhage: A systematic review and meta-analysis of controlled trials. *Neurología (English Edition)*. 2016;31(7):431-44.
12. Vos T, Barber RM, Bell B, Bertozzi-Villa A, Biryukov S, Bolliger I, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*. 2015;386(9995):743.
13. Rojas-Suarez J, Bello-Muñoz C, **Paternina-Caicedo A**, Bourjeily G, Carino G, Dueñas C. Maternal mortality secondary to acute respiratory failure in Colombia: a population-based analysis. *Lung*. 2015;193(2):231-7.
14. Cárdenas-Cárdenas LM, Cotes-Cantillo K, Chaparro-Narváz PE, Fernández-Niño JA, **Paternina-Caicedo A**, Castañeda-Orjuela C, et al. Maternal Mortality in Colombia in 2011: a two level ecological study. *PloS one*. 2015;10(3):e0118944.
15. Beyene T, Hoek H, Zhang Y, Vos T. Global, regional, and national age–sex specific all-cause and cause-specific mortality for 240 causes of death, 1990–2013. *The Lancet*. 2015;385(9963):117-71.
16. Abubakar I, Tillmann T, Banerjee A. Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2015;385(9963):117-71.
17. Wang H, Liddell CA, Coates MM, Mooney MD, Levitz CE, Schumacher AE, et al. Global, regional, and national levels of neonatal, infant, and under-5 mortality during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*. 2014;384(9947):957-79.
18. Rojas-Suarez J, **Paternina-Caicedo AJ**, Miranda J, Mendoza R, Dueñas-Castel C, Bourjeily G. Comparison of severity-of-illness scores in critically ill obstetric patients: a 6-year retrospective cohort. *Critical care medicine*. 2014;42(5):1047-54.
19. Rojas-Suarez J, **Paternina-Caicedo A**, Cuevas L, Angulo S, Cifuentes R, Parra E, et al. Maternal mortality due to pandemic influenza A H1N1 2009 virus in Colombia. *Journal of perinatal medicine*. 2014;42(1):19-26.
20. Peláez-Carvajal D, Cotes-Cantillo K, **Paternina-Caicedo A**, Gentsch J, de la Hoz-Restrepo F, Patel M. Characterization of rotavirus genotypes before and after the introduction of a monovalent rotavirus vaccine in Colombia. *Journal of medical virology*. 2014;86(6):1083-6.
21. Murray CJ, Ortblad KF, Guinovart C, Lim SS, Wolock TM, Roberts DA, et al. Global, regional, and national incidence and mortality for HIV, tuberculosis, and malaria during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*. 2014;384(9947):1005-70.

22. Kassebaum NJ, Bertozzi-Villa A, Coggeshall MS, Shackelford KA, Steiner C, Heuton KR, et al. Global, regional, and national levels and causes of maternal mortality during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*. 2014;384(9947):980-1004.
23. Cotes-Cantillo K, **Paternina-Caicedo A**, Coronell-Rodríguez W, Alvis-Guzmán N, Parashar UD, Patel M, et al. Effectiveness of the monovalent rotavirus vaccine in Colombia: a case-control study. *Vaccine*. 2014;32(25):3035-40.
24. Alcalá-Cerra G, Young AM, Moscote-Salazar LR, **Paternina-Caicedo A**. Efficacy and safety of subdural drains after burr-hole evacuation of chronic subdural hematomas: systematic review and meta-analysis of randomized controlled trials. *World neurosurgery*. 2014;82(6):1148-57.
25. Alcalá-Cerra G, **Paternina-Caicedo AJ**, Díaz-Becerra C, Moscote-Salazar LR, Fernandes-Joaquim A. Orthosis for thoracolumbar burst fractures without neurologic deficit: a systematic review of prospective randomized controlled trials. *Journal of Craniovertebral Junction and Spine*. 2014;5(1):25.
26. Alcalá-Cerra G, **Paternina-Caicedo A**, Moscote-Salazar L, Gutiérrez-Paternina J, Niño-Hernández L. Application of vancomycin powder into the wound during spine surgery: systematic review and meta-analysis. *Revista Española de Cirugía Ortopédica y Traumatología (English Edition)*. 2014;58(3):182-91.
27. Miranda JE, Rojas-Suarez J, **Paternina A**, Mendoza R, Bello C, Tolosa JE. The effect of guideline variations on the implementation of active management of the third stage of labor. *International Journal of Gynecology & Obstetrics*. 2013;121(3):266-9.
28. De la Hoz-Restrepo F, Castaneda-Orjuela C, **Paternina A**, Alvis-Guzman N. Systematic review of incremental non-vaccine cost estimates used in cost-effectiveness analysis on the introduction of rotavirus and pneumococcal vaccines. *Vaccine*. 2013;31:C80-C7.
29. Alvis-Guzman N, Orozco-Africano J, **Paternina-Caicedo A**, Coronell-Rodríguez W, Alvis-Estrada L, Jervis-Jálabe D, et al. Treatment costs of diarrheal disease and all-cause pneumonia among children under-5 years of age in Colombia. *Vaccine*. 2013;31:C58-C62.
30. Castañeda-Orjuela C, Alvis-Guzmán N, **Paternina A**, De la Hoz-Restrepo F. Cost-effectiveness of the introduction of the pneumococcal polysaccharide vaccine in elderly Colombian population. *Vaccine*. 2011.

Publications as Co-author (Spanish)

1. Alcalá-Cerra G, Young AM, **Paternina-Caicedo A**, Ribas ESC. Trends in the mortality of non-traumatic subarachnoid hemorrhage in Colombia: a 10-year analysis of a nationwide registry. *Archivos de neuro-psiquiatria*. 2013;71(11):841-5.
2. Alcalá-Cerra G, **Paternina-Caicedo A**, Díaz-Becerra C, Gutiérrez-Paternina JJ. Control de las crisis epilépticas con la hemisferectomía cerebral en adultos: revisión sistemática y metaanálisis con datos de pacientes individuales. *Neurocirugía*. 2013;24(4):154-62.
3. Monterrosa-Castro Á, **Paternina-Caicedo AJ**, Alcalá-Cerra G. Induced abortion in Cartagena, Colombia: estimation using Abortion Incidence Complications Methodology. *Revista de Salud Pública*. 2011;13(2):253-61.
4. Alvis-Guzmán N, **Paternina-Caicedo A**, Alvis-Estrada L, De la Hoz-Restrepo F. Direct costs of complicated chicken pox in a Colombian pediatric population. *Revista de Salud Pública*. 2011;13(6):921-9.
5. Alvis N, de La Hoz F, Gamboa O, Cediell N, Rico A, **Paternina A**, et al. Epidemiological and economic impact of tetanus vaccination in Colombian adults. *Revista Panamericana de Salud Pública*. 2011;30(3):209-16.

Conference Publications

1. **Paternina-Caicedo A**. Estimating Cost-Effectiveness Thresholds for 174 Countries: A Preliminary Empirical Study to Inform Health Decision-Making. 41st Annual Meeting of the Society for Medical Decision Making, 2019 (Portland, Oregon).
2. Caicedo-Torres W, **Paternina-Caicedo A**, Pinzón-Redondo H, Gutiérrez J. Differential Diagnosis of Dengue and Chikungunya in Colombian Children Using Machine Learning. Ibero-American Conference on Artificial Intelligence, 2018, 181-192.

3. Caicedo-Torres W, **Paternina A**, Pinzón H. Machine learning models for early Dengue Severity Prediction. Ibero-American Conference on Artificial Intelligence, 2016, 247-258.

Preprints

1. **Paternina-Caicedo A**, Choisy M, Garcia-Calavaro C, Espana G, Rojas-Suarez J, Dueñas C, Smith A, Pio De la Hoz-Restrepo F. Social interventions can lower COVID-19 deaths in middle-income countries. medRxiv. <https://doi.org/10.1101/2020.04.16.20063727>

Submitted papers

1. **Paternina-Caicedo A**, Fernández J, Hernández J, Paz-Wilches J, Rojas-Suarez J, Dueñas C, Alvis-Guzmán N, Alvis-Zakzuk N, Smith AD, De La Hoz-Restrepo F. Outcomes and risk factors for hospitalization, critical care, and mortality in symptomatic patients with confirmed Covid-19 from Colombia: A population-based cohort study of 2 million people.
2. **Paternina-Caicedo A**, Benavides J, Smith A, De la Hoz-Restrepo F, Ramos-Blanco A, Corley-Vargas G, Benedetti-Sarasti J, Castillo-Torres C, Hernández-Siado M, Bertel-De la Hoz A, Ochoa M, Lindo O, Outcomes and risk factors for mortality among confirmed cases with symptomatic Covid-19: A population-based surveillance cohort from Cartagena, Colombia. The Lancet Global Health [submitted].
3. Garcia-Calavaro C, **Paternina-Caicedo A**, Smith A, Harrison L, De la Hoz-Restrepo F, Acosta E, Riffe T. Covid-19 mortality needs age adjusting for international comparisons.

Working Papers

- **Paternina-Caicedo A**, Fernández J, Hernández J, Paz-Wilches J, Rojas-Suarez J, Dueñas C, Alvis-Guzmán N, Alvis-Zakzuk N, De La Hoz-Restrepo F, Smith A. Development and validation of a score to predict mortality and critical care admission in patients with symptomatic Covid-19.
- **Paternina-Caicedo A**, Espana G, De la Hoz-Restrepo F, Smith A. Transmission dynamics of Covid-19 after the introduction of vaccination in US counties.
- **Paternina-Caicedo A**. Non-pharmacological interventions for Covid-19 may decrease the notification of other infectious diseases in Colombia.
- **Paternina-Caicedo A**. Impact of non-pharmacological interventions for Covid-19 on vaccine preventable diseases in Colombia.
- Morales G, Espinoza O, Puertas E, **Paternina-Caicedo A**. Strategies to optimize the potential cost-effectiveness of SARS-CoV-2 vaccination in a middle-income country: A case-example for Colombia.
- Puertas E, **Paternina-Caicedo A**. Effectiveness and resource use of contact-tracing in a developing country: A case-example for Colombia.
- **Paternina-Caicedo A**, De la Hoz-Restrepo F. Transmission dynamics of measles and cost-effectiveness of vaccination in countries of the Americas.
- **Paternina-Caicedo A**, Miranda-Machado P, De la Hoz-Restrepo F, Cardenas V. Reduction of pneumonia mortality after the introduction of conjugate pneumococcal vaccination in children of the United States.