# ACC Latin America Conference 2017

## MEXICO CITY

JUNE 22 – 24, 2017

## GLOBAL EXPERTS, LOCAL LEARNING

ACC Latin America Conference 2017

# Epidemiology of hyperlipidemia in Latin American populations

**Presenter:**

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**Mexico City**

# Cardiovacular mortality in Latin America



## Heart Disease as a public health issue

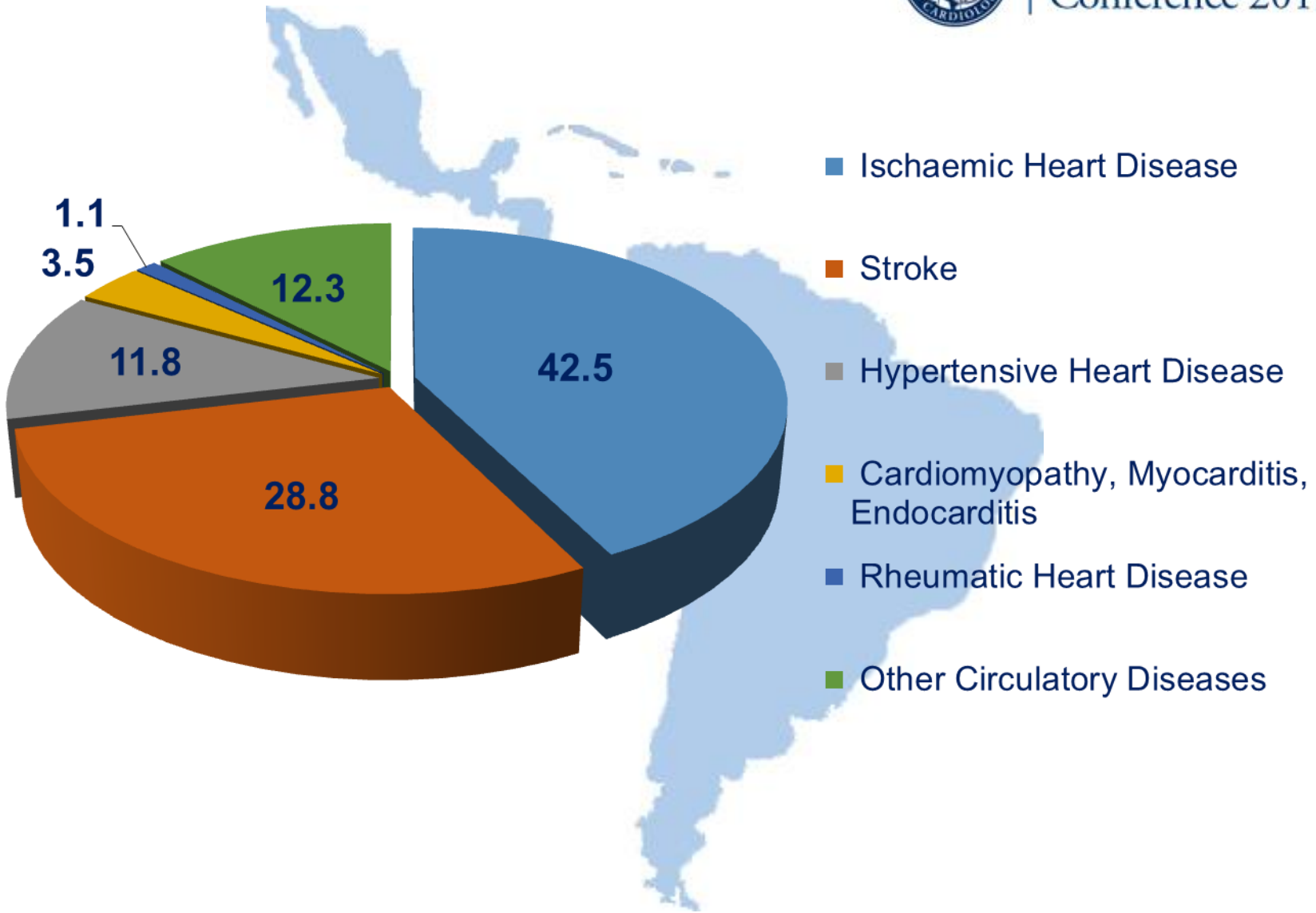
- Latin America: population of 600 million (2013).
- Language: latin origin including spanish, portuguese and french.
- Heart disease is the main cause of death in Latin American adults.
- Heart disease incidence is expected to increase 60% between the years 2000 and 2020.
- In the same period in the developed world the increase will be of 5%.



** Lanas, F., Prog in Cardiovasc Dis (2014)57:262-267.*

# Cardiovacular mortality in Latin America








** Lanas, F., Prog in Cardiovasc Dis (2014)57:262-267.*

# Interheart Study
# Design and Objectives



- International case-control study.
- N = 15,000 cases of first MI and 15,000 controls.
- In 52 countries, 6 from Latin America.
- Primary Objective: impact of risk factors on AMI.
- Secondary Objective: population-attributable risk (PAR) for all risk factors and combinations.



- *Lanas, F., Circulation (2007) 115: 1067-1074.*

# Interheart Study
# Risk Factors for MI in Latin America



## Participants from Latin America

| Countries | Cases | Controls | Total |
|---|---|---|---|
| Argentina | 234 | 178 | 412 |
| Brazil | 313 | 364 | 677 |
| Colombia | 275 | 550 | 825 |
| Chile | 322 | 672 | 994 |
| Guatemala | 85 | 107 | 192 |
| Mexico | 8 | 17 | 25 |
| Total: | 1237 | 1888 | 3125 |




- *Lanas, F., Circulation (2007) 115: 1067-1074.*

# Interheart Study
# Risk Factors for MI in Latin America



| Risk Factors | Controls % | |
|---|---|---|
| | LA | IH-ROW |
| Apo B / Apo A-I | 42.0 | 32.0 |
| Tobacco smoking | 48.1 | 48.1 |
| Diabetes | 9.5 | 7.2 |
| Hypertension | 29.1 | 20.8 |
| WHR | 48.6 | 31.2 |
| Continous Stress | 6.8 | 3.9 |
| Regular exercise | 22 | 18.9 |
| Alcohol | 19.4 | 11.9 |
| Fruits/vegetables | 84.3 | 83.7 |



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# Interheart Study
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# Carmela Study
## Cardiovascular Risk in 7 cities of LA



- Risk Factor Prevalence.
- Ultrasound:

  Carotid plaques

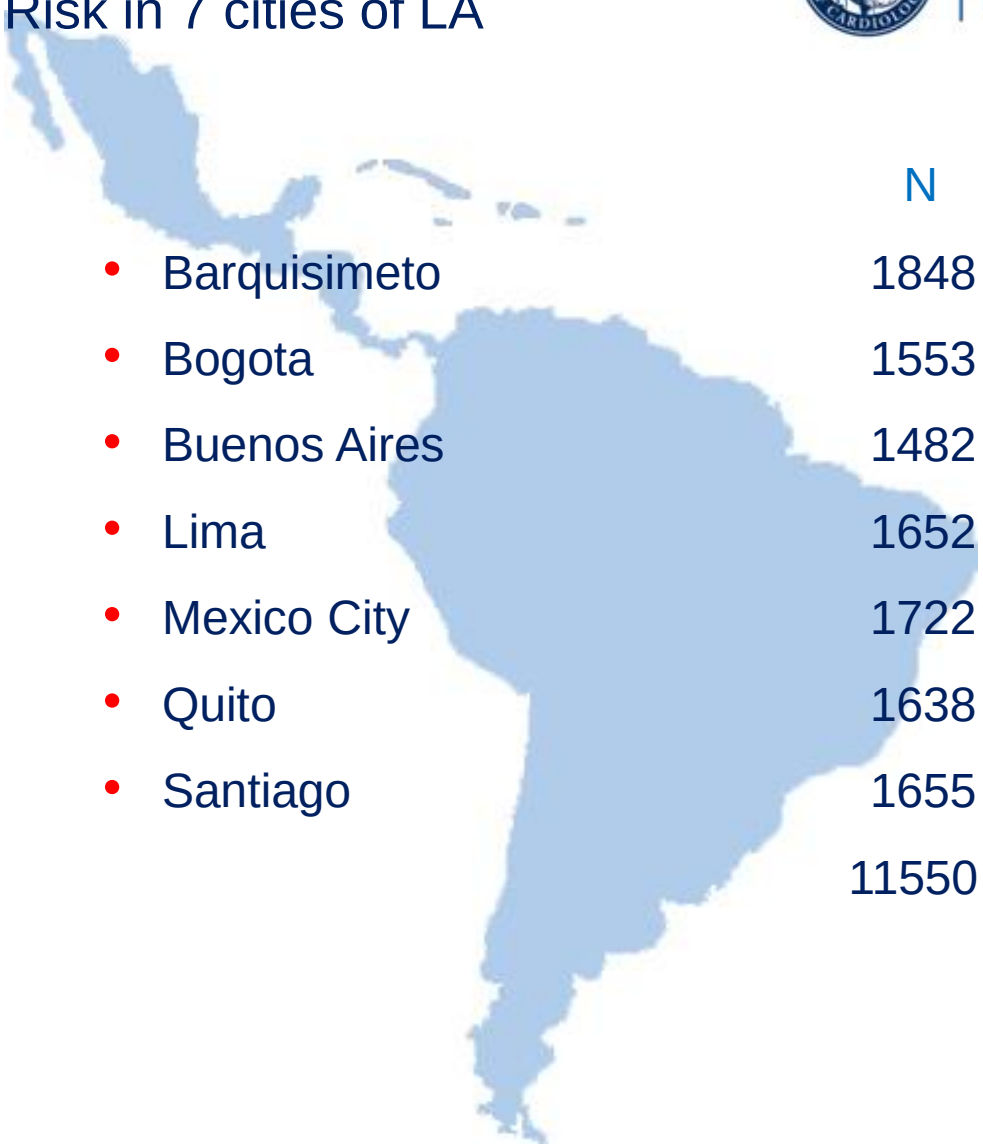
  Carotid Intima–media thickness



**Shargrodsky H., Am. J. Medicine (2008)121: 58-65*

# Carmela Study
## Cardiovascular Risk in 7 cities of LA





| | N |
|---|---|
| • Barquisimeto | 1848 |
| • Bogota | 1553 |
| • Buenos Aires | 1482 |
| • Lima | 1652 |
| • Mexico City | 1722 |
| • Quito | 1638 |
| • Santiago | 1655 |
| | 11550 |



**Shargrodsky H., Am. J. Medicine (2008)121: 58-65*

# Carmela Study
## Cardiovascular Risk in 7 cities of LA

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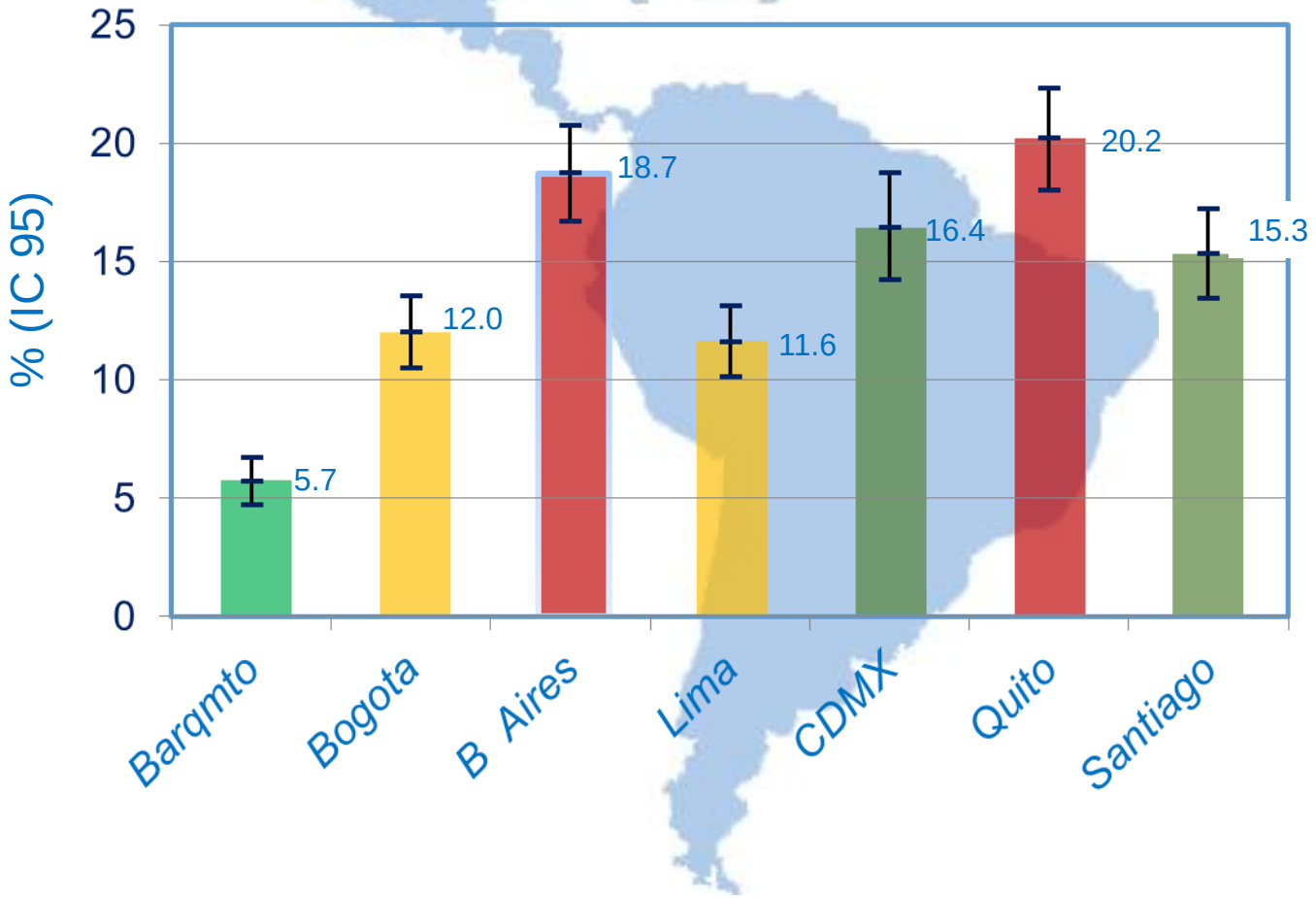
*Prevalence of Hypercholesterolemia (> 240 mg/dl)*



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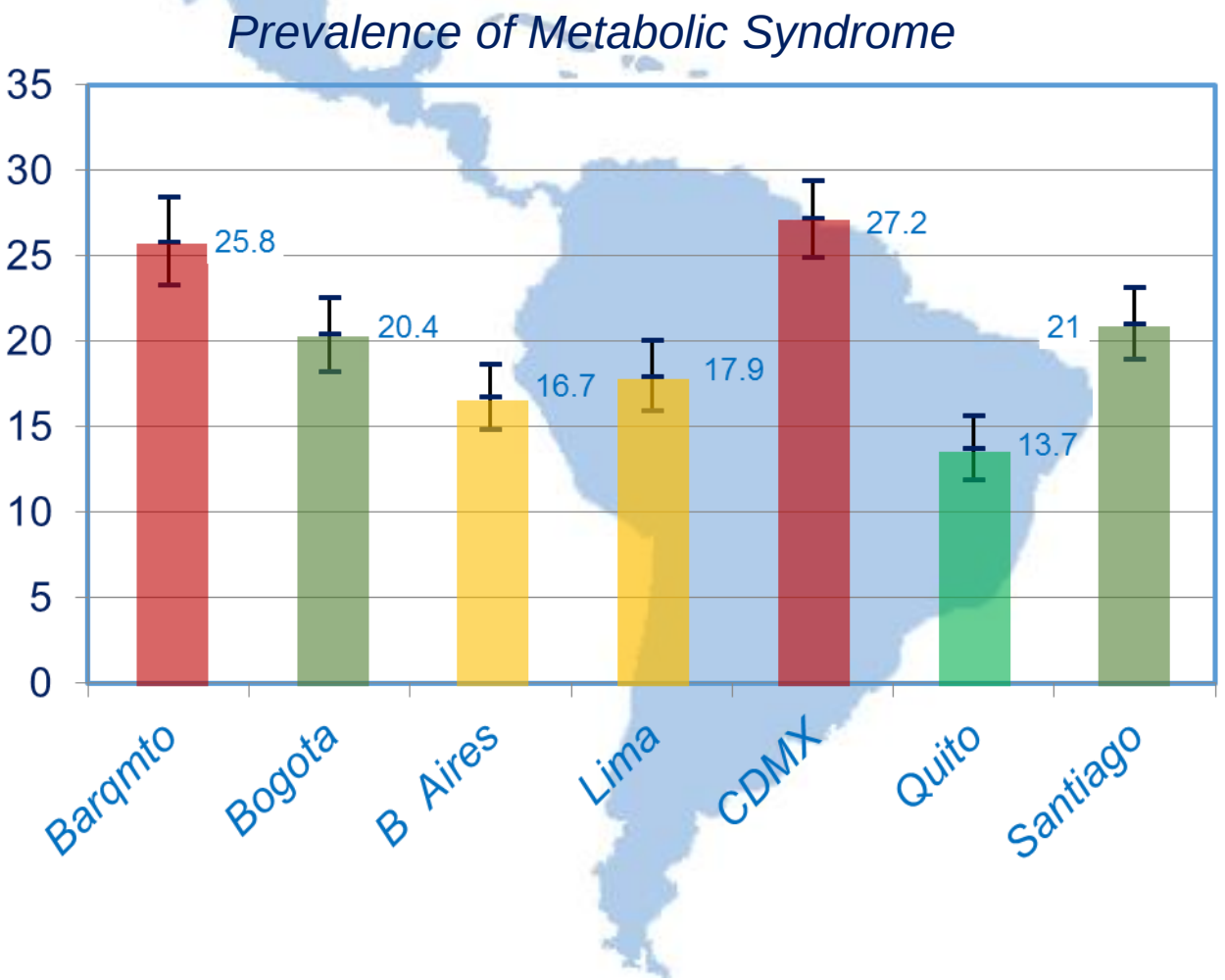
# Carmela Study
## Cardiovascular Risk in 7 cities of LA



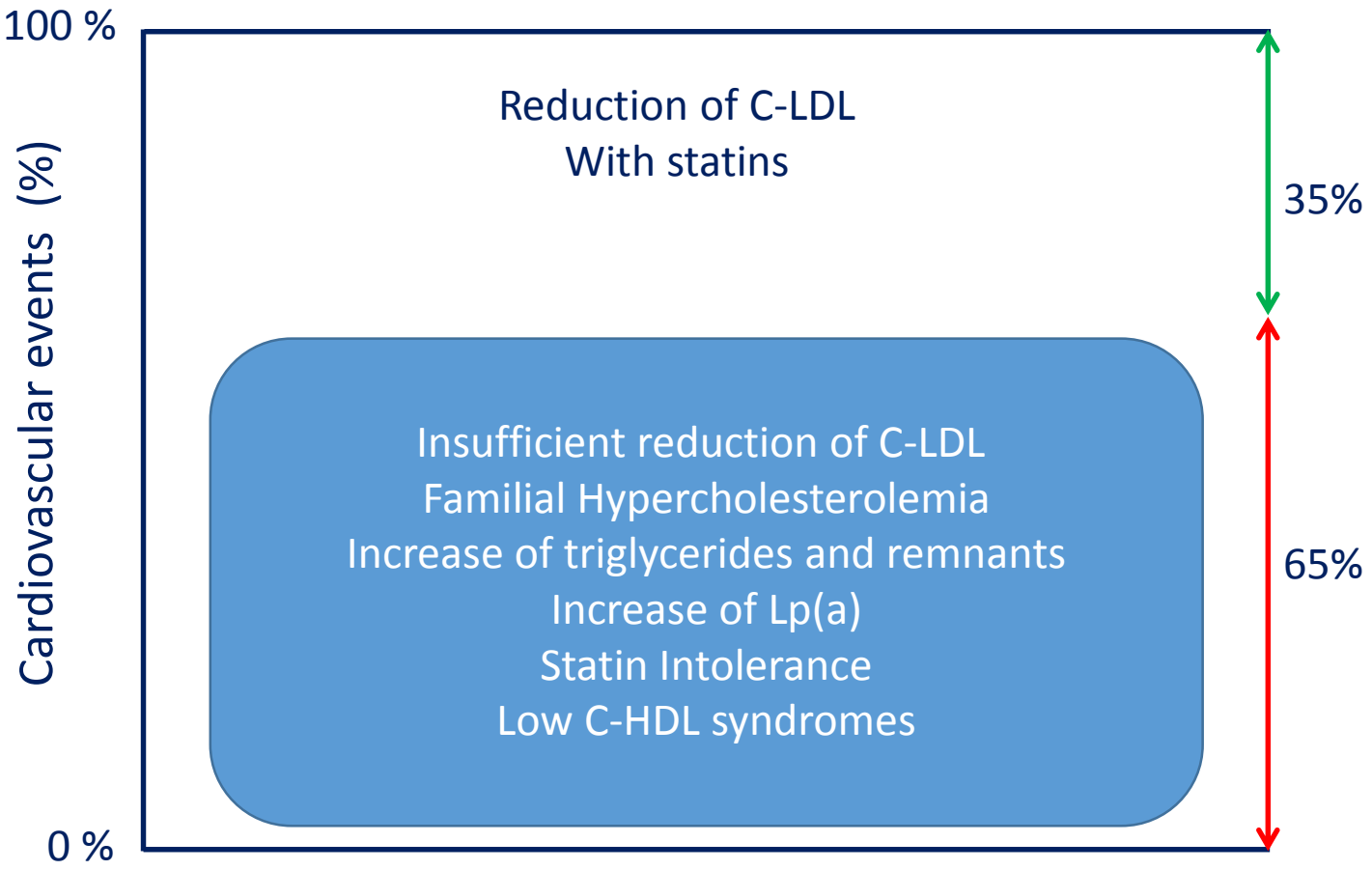





*Shargrodsky H., Am. J. Medicine (2008)121: 58-65

# Residual Risk after Statin



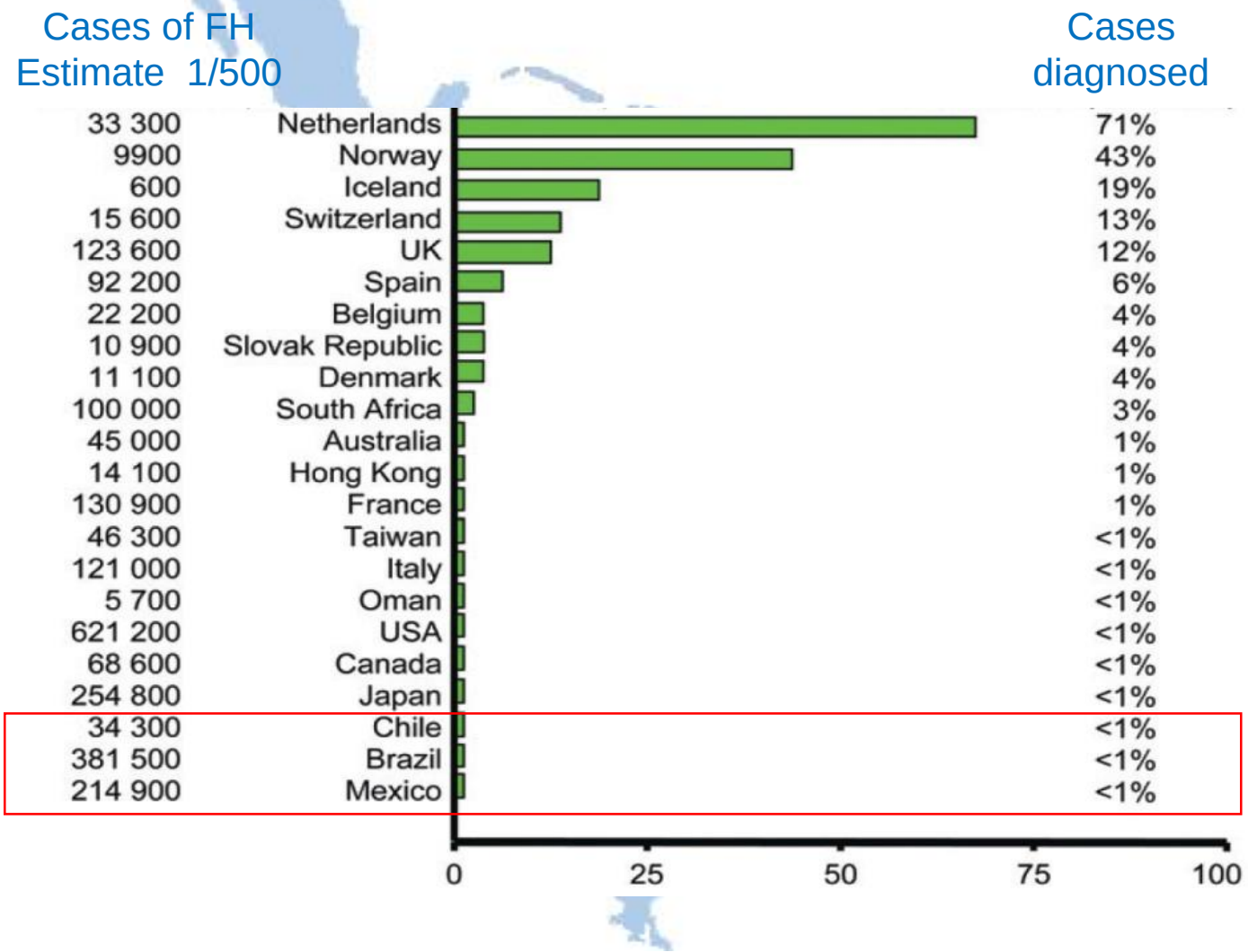





* Chapman J., Curr Opin Lipidol 2015,26:511-526

# Familial Hypercholesterolemia
# Diagnosis by countries





# Iberoamerican network for FH (IBAFH)



## Constituted in 2013

- Argentina
- Brazil
- Chile
- Colombia
- Mexico
- Portugal
- España



** Santos, R:D., J Clin Lipidol (2017): 11 (1):161-166*

# Iberoamerican network for FH (IBAFH)



## Objectives

- Promote knowledge of FH.
- Improve diagnosis and treatment of FH.
- Development of an Iberoamerican registry of FH.
- Reduce Cardiovascular Disease burden of FH patients.



** Santos, R:D., J Clin Lipidol (2017): 11 (1):161-166*

# Iberoamerican network for FH (IBAFH)

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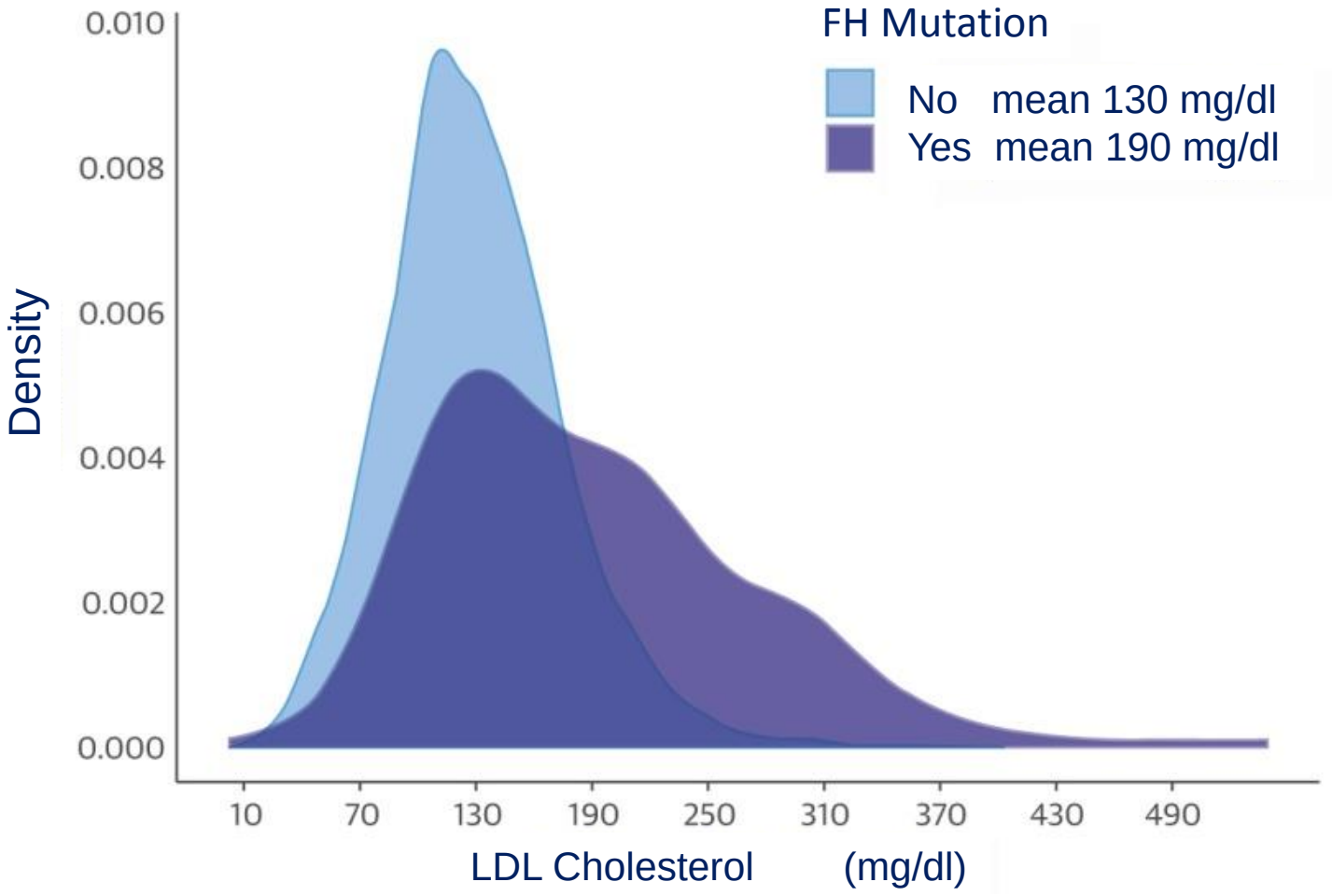
| Country | Number of expected FH patients | Number of Index Cases | Number of positive cases | CV disease (%) | Number variants found |
|---|---|---|---|---|---|
| Spain | 100,000 | 3901 | 8337 | 13 | 436 |
| Portugal | 20,600 | 832 | 786 | 16.9 | 258 |
| Uruguay | 6,600 | 76 | 170 | 35 | 35 |
| Brazil | 400,000 | 339 | 1258 | 23.2 | 101 |
| Mexico | 235,000 | 118 | 315 | 38 | 37 |
| Chile | 34,000 | 35 | 30 | 10 | 13 |
| Argentina | 87,000 | 35 | 51 | 42 | 20 |
| Colombia | 98,000 | - | - | - | - |



** Santos, R:D., J Clin Lipidol (2017): 11 (1):161-166*

# LDL Cholesterol Values According to FH Mutation Status.



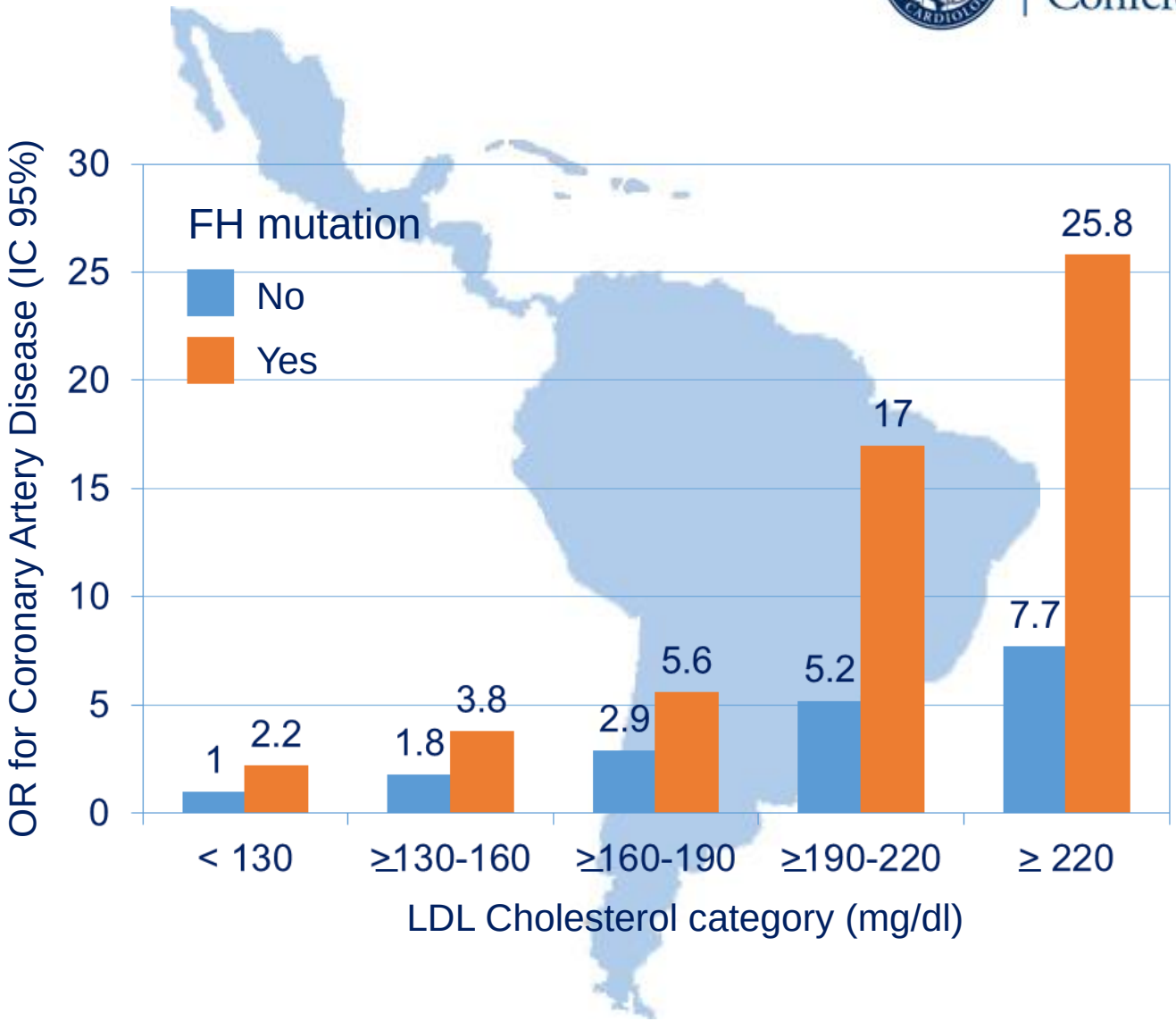





**Khera, A.V., J Am Coll Cardiol 2016;67:2578–89*

# Impact of FH mutation in Coronary Risk.



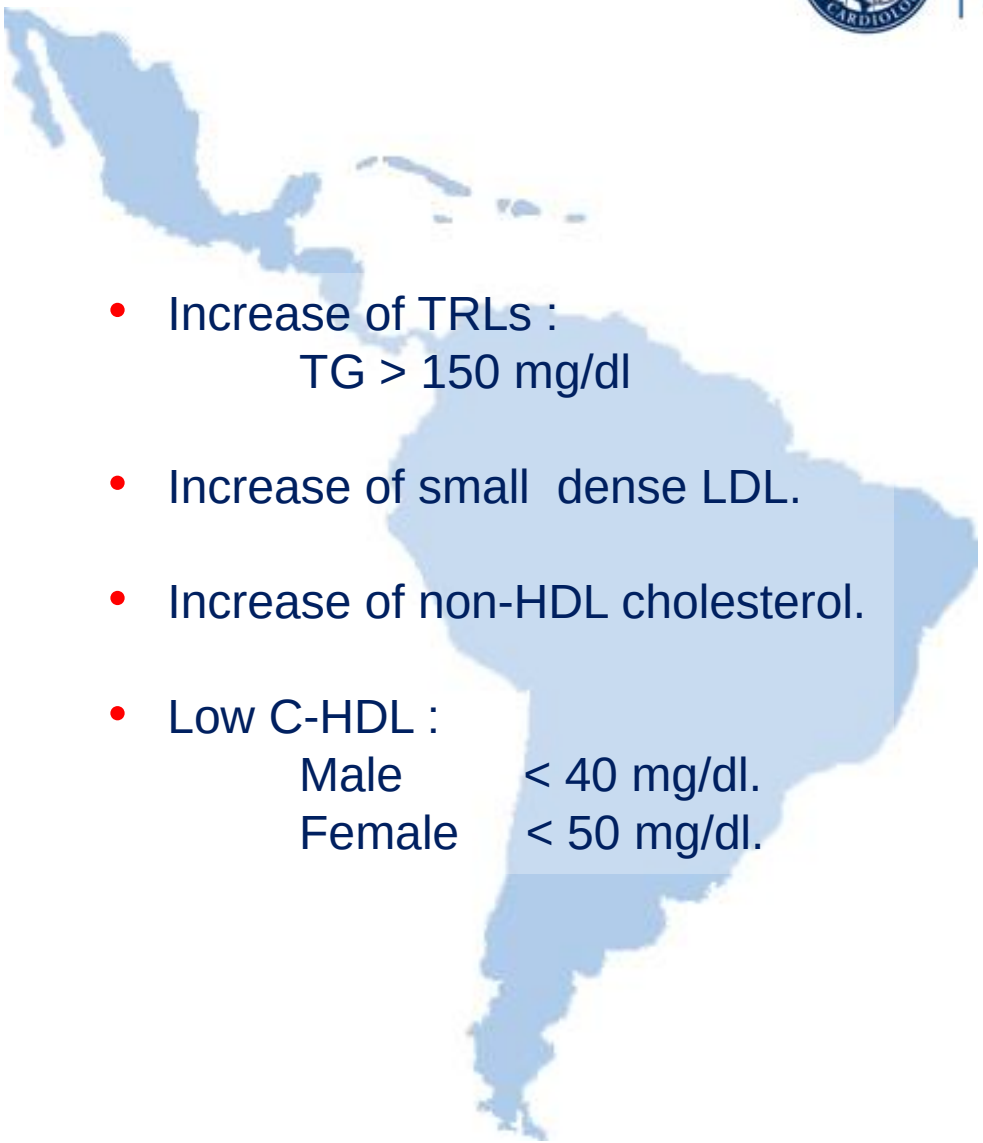





**Khera, A.V., J Am Coll Cardiol 2016;67:2578–89*

# Atherogenic Dyslipidemia
*Definition*





- Increase of TRLs :
  TG > 150 mg/dl
- Increase of small dense LDL.
- Increase of non-HDL cholesterol.
- Low C-HDL :
  Male < 40 mg/dl.
  Female < 50 mg/dl.

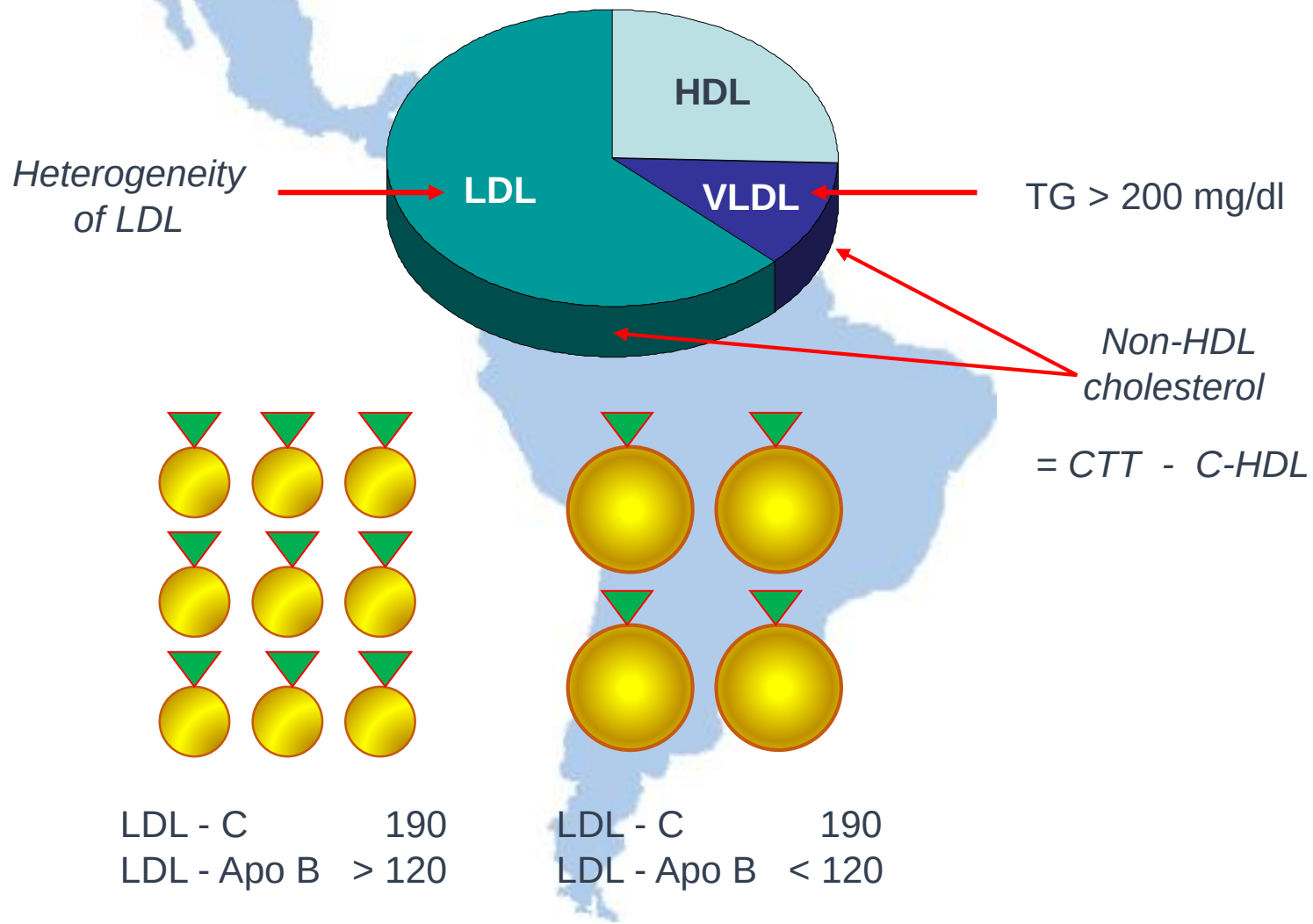


** Ponte-Negretti, C.I., Int. J. Cardiol. May 2017:on line.*

# Atherogenic Dyslipidemia

## *Importance of Non-HDL cholesterol*





# Atherogenic Dyslipidemia
## *Epidemiology*

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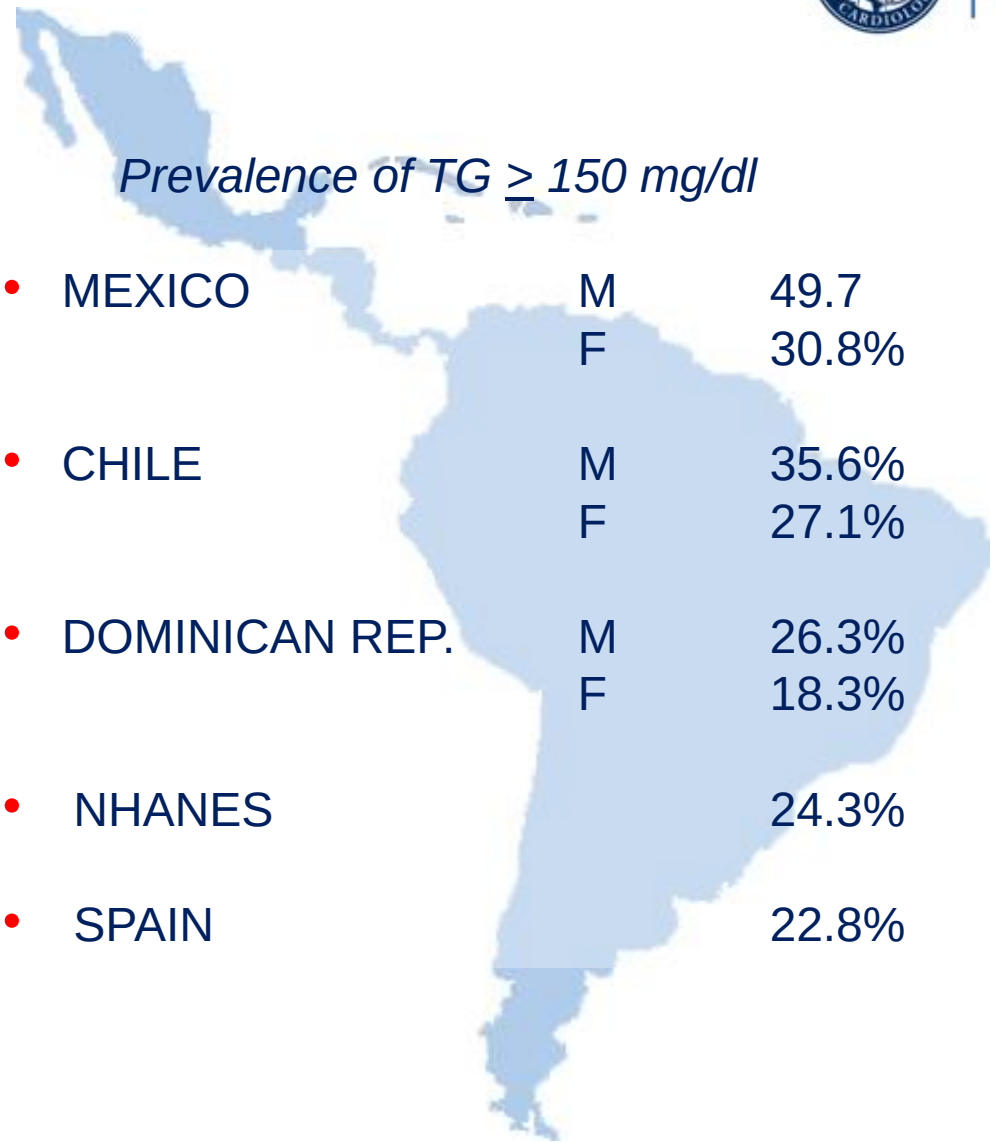

*Prevalence of TG ≥ 150 mg/dl*

| | | |
|---|---|---|
| • MEXICO | M | 49.7 |
| | F | 30.8% |
| • CHILE | M | 35.6% |
| | F | 27.1% |
| • DOMINICAN REP. | M | 26.3% |
| | F | 18.3% |
| • NHANES | | 24.3% |
| • SPAIN | | 22.8% |



** Ponte-Negretti, C.I., Int. J. Cardiol. May 2017:on line.*

# *Conclusions (1)*

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- Cardiovascular disease is currently the most important public health problem in LA.
- LA is formed by large and heterogenous population, even within single countries.
- Epidemiology of CV disease is a challenge because of this regional differences.
- Lifestyle and genetic factors  have caused an epidemia of risk factors for heart disease in LA.

- Large case-control studies have confirmed the importance of traditional risk factors in LA (dyslipidemia, tobacco smoking, diabetes mellitus).
- A disproportionately large PAR has been detected in LA for abdominal obesity, hypertension and continuous stress.
- FH has been poorly studied in LA although it is expected to have a large impact in the incidence of CV disease.
- Pharmacologic strategies should be focused to reduce C-LDL, even in patients with aparently normal C-LDL with an increase in non-HDL cholesterol reflecting atherogenic dyslipidemia.

*Hyperlipidemia in Latin America*