Swiss TPH

Swiss Tropical and Public Health Institute
Schweizerisches Tropen- und Public Health-Institut
Institut Tropical et de Santé Publique Suisse

Department of Epidemiology & Public Health

Air Pollution – still a Pan-European Concern?

Prof. Nino Künzli, MD, PhD

Deputy-Director Swiss Tropical and Public Health Institute Basel

Head Departement of Epidemiology and Public Health

Chair of Social and Preventive Medicine / Public Health,
University Basel, Switzerland

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Green and health-friendly mobility for sustainable urban life

WHO Regional Office for Europe and Economic Commission for Europe

Geneva November 14, 2012

Policy Briefing – 15:30-16:00

Air Pollution in Europe damages health!

- Premature death
- Chronic diseases
- Acute health problems
  e.g. myocardial infarction

Brochure available in

English
French
German
Italian
Turkish
Catalan

www.ersnet.org/publications/air-quality-and-health.html

EU Air Quality Standards for Particulate Matter (PM10) do not protect public health

	WHO Guide-lines	EU (2008) under revision
PM_{10} standard (annual mean)	**20 µg/m³**	**40 µg/m³**

Estimated benefit of a 30 µg/m^3 reduction of PM10 The Barcelona example (~4 Mio inhabitants)

(Perez et al, , Gac Sanit 2009)

DEATH

✓ long-term effects (age ≥30)	3,500	(2,200-4,800)
✓ Infant mortality (<1 yrs)	15	(7-22)
✓ Change in life expectancy (months)	14	(9-20)

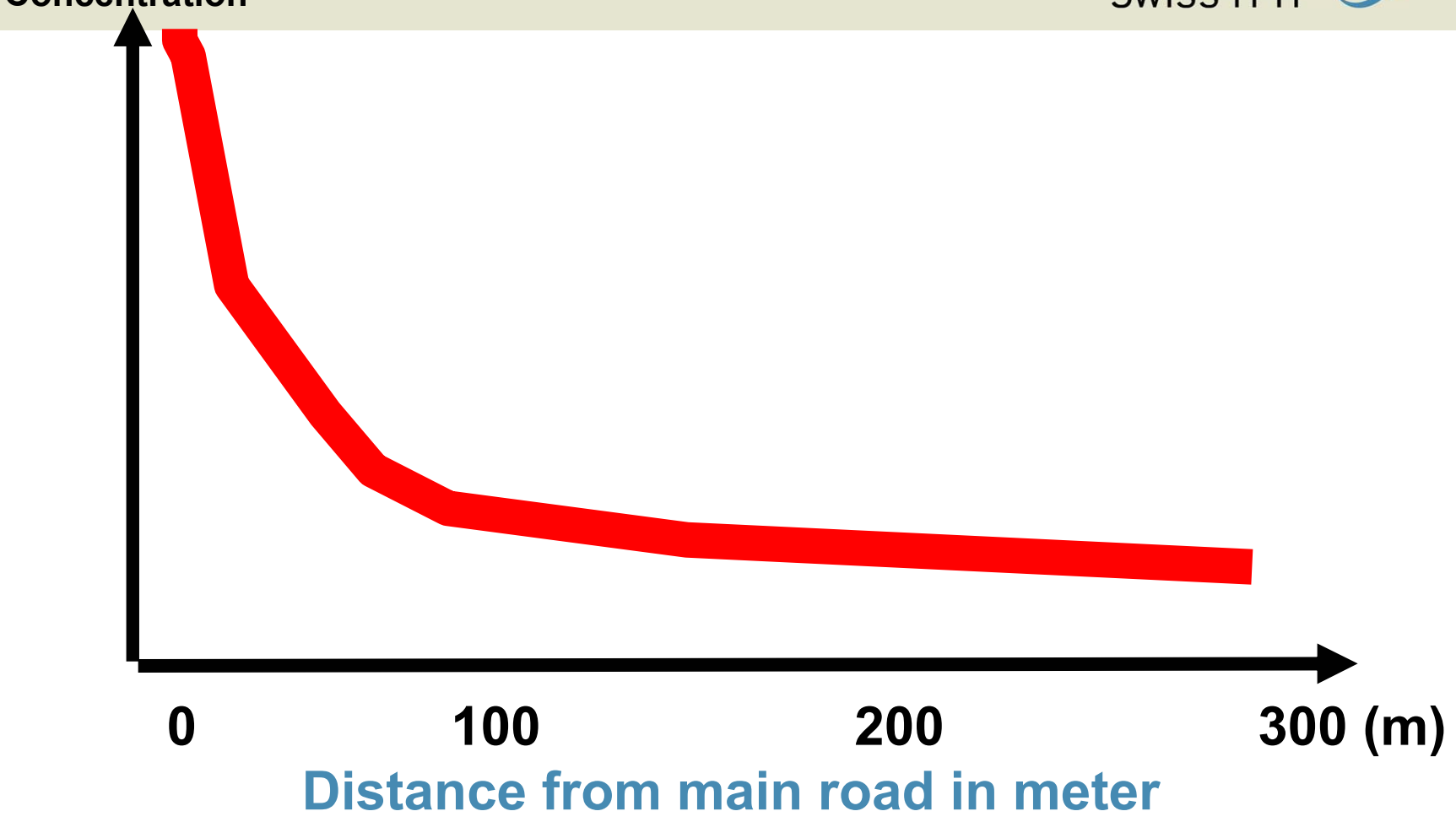
HOSPITALIZATIONS

✓ cardio-respiratory causes (all ages)	1,770	(940-2,600)
CHRONIC BRONCHITIS in adults (>26)	5,100	(550-8,500)
BRONCHITIS episodes children (<15)	31,100	(17'500-40'500)

ASTHMA attacks

adults (≥25)	41,500	(21,000-60,500)
children (<15)	12,400	(6,400-15,200)

ECONOMIC impact
3,000 - 6,400 Million € per yr.
or 1'600 € per person per year

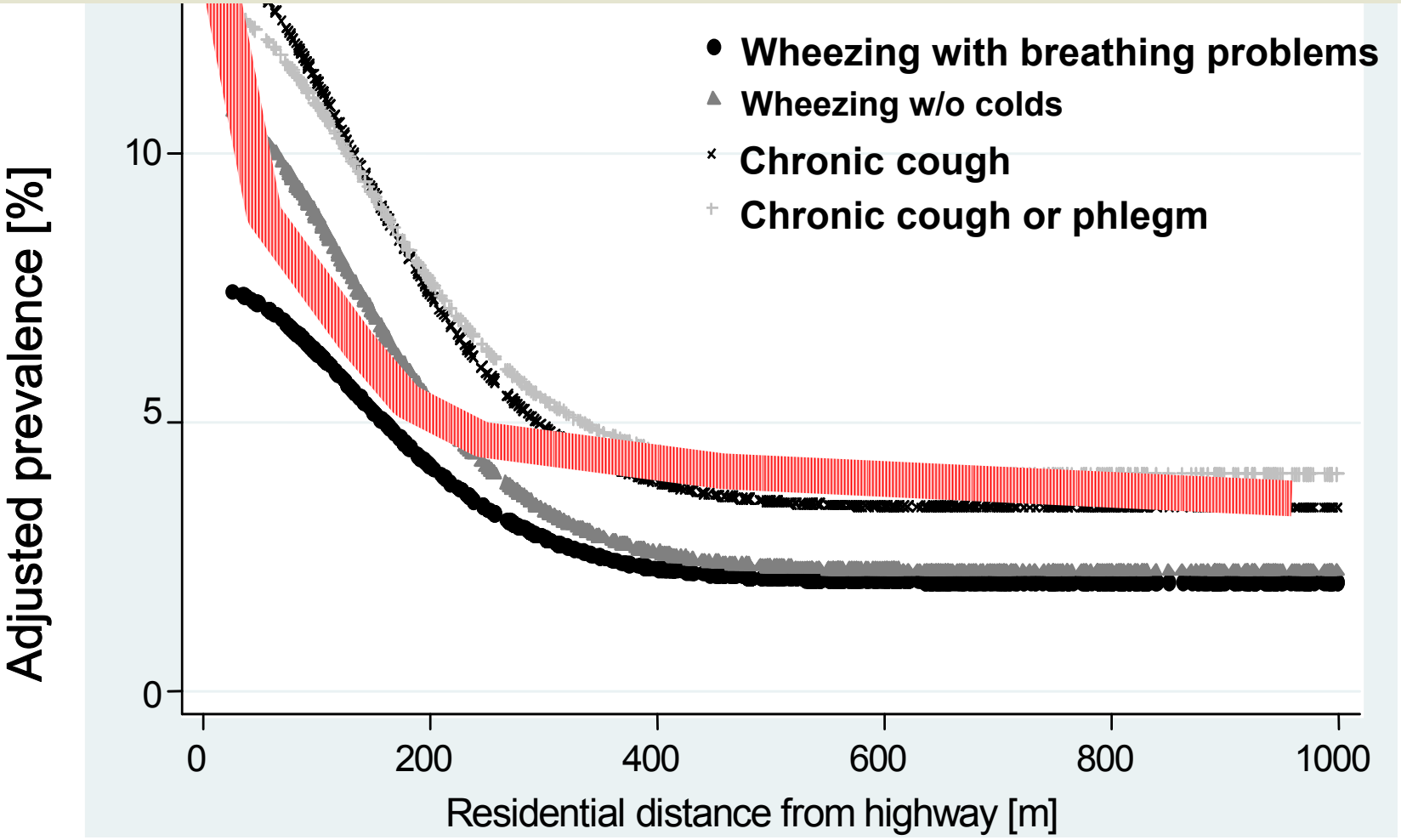


Paradigm of spatial distribution of near-road traffic-related pollutants along busy roads

(e.g. diesel soot, elemental carbon / black smoke, nano-particulate matter, NOx, CO)

Distribution of chronic cough in the Swiss population living along the North-South Transit highway (~1'800 adults, age 15-70)

Hazenkamp et al, Env Health 2011 – online open access



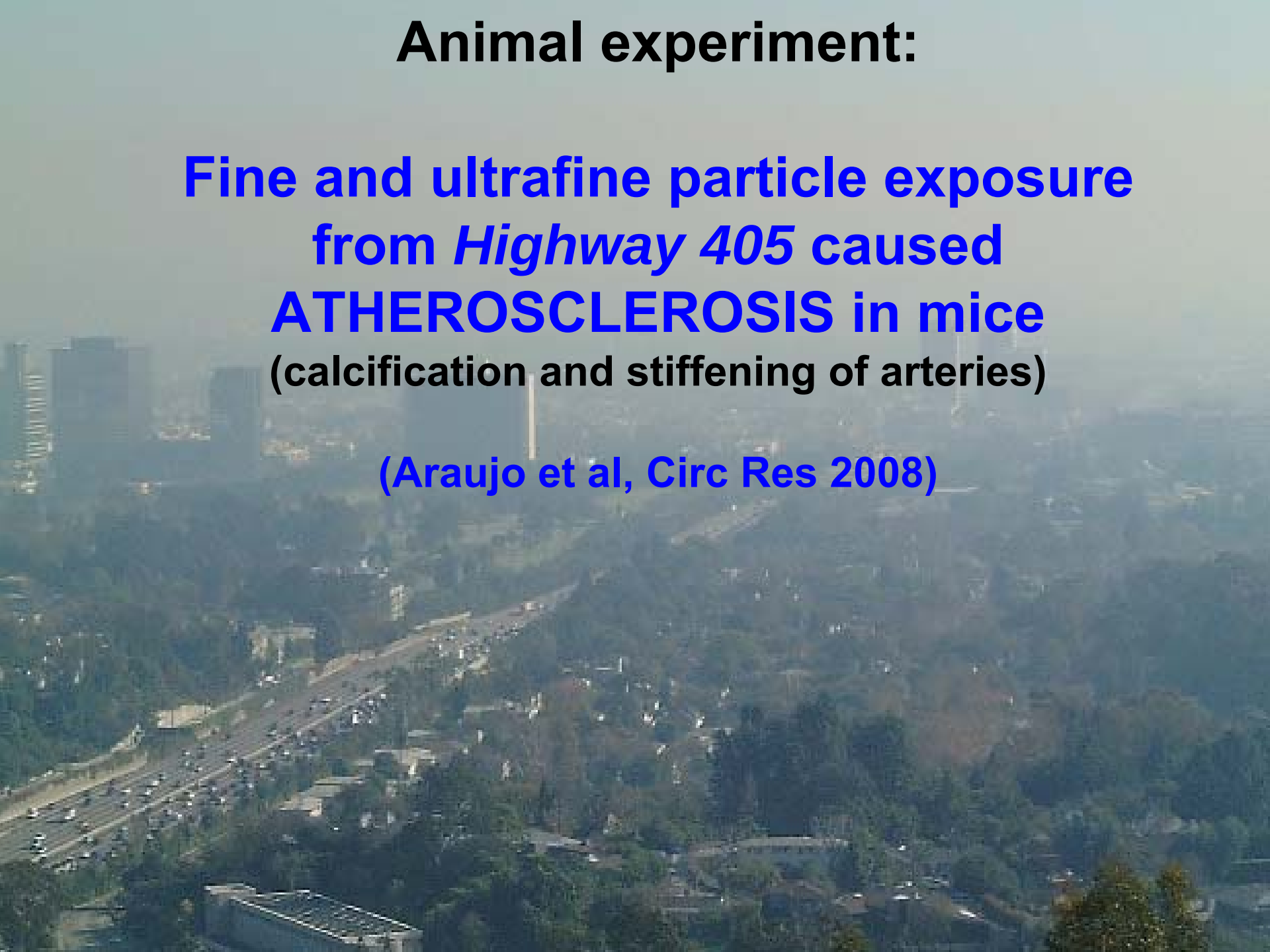
Adjusted prevalences (%) of respiratory health as a function of the residential distance from highway [m] (Switzerland)

Animal experiment:

Fine and ultrafine particle exposure from *Highway 405* caused ATHEROSCLEROSIS in mice

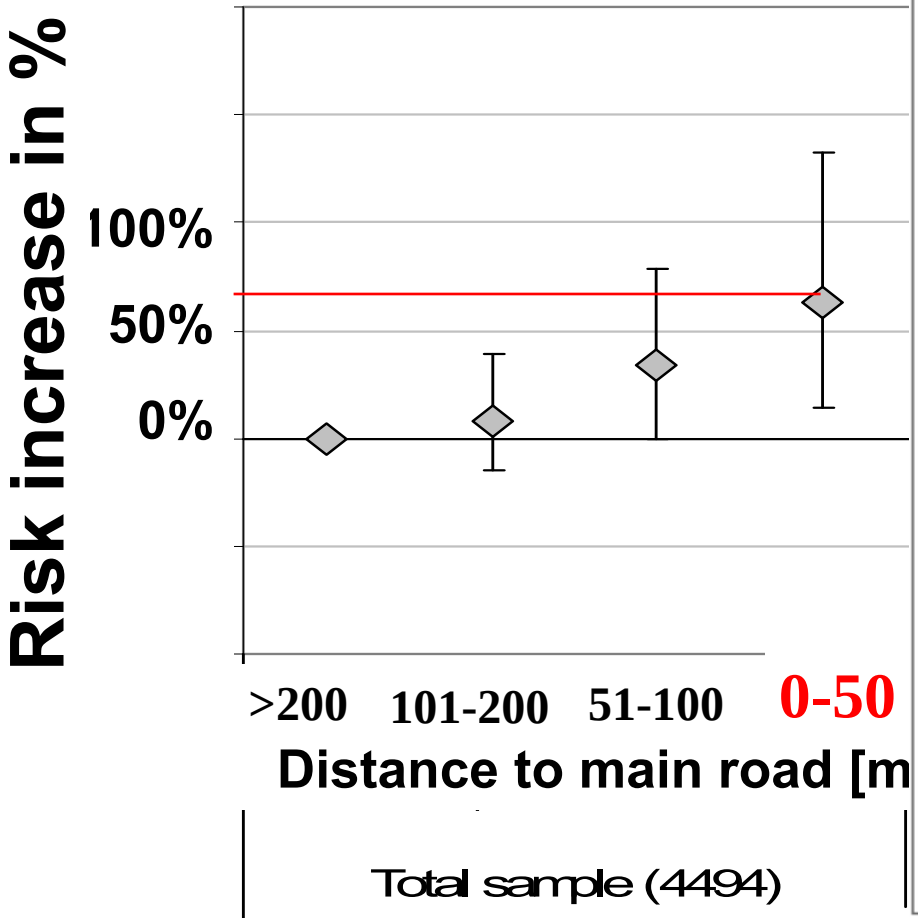
(calcification and stiffening of arteries)

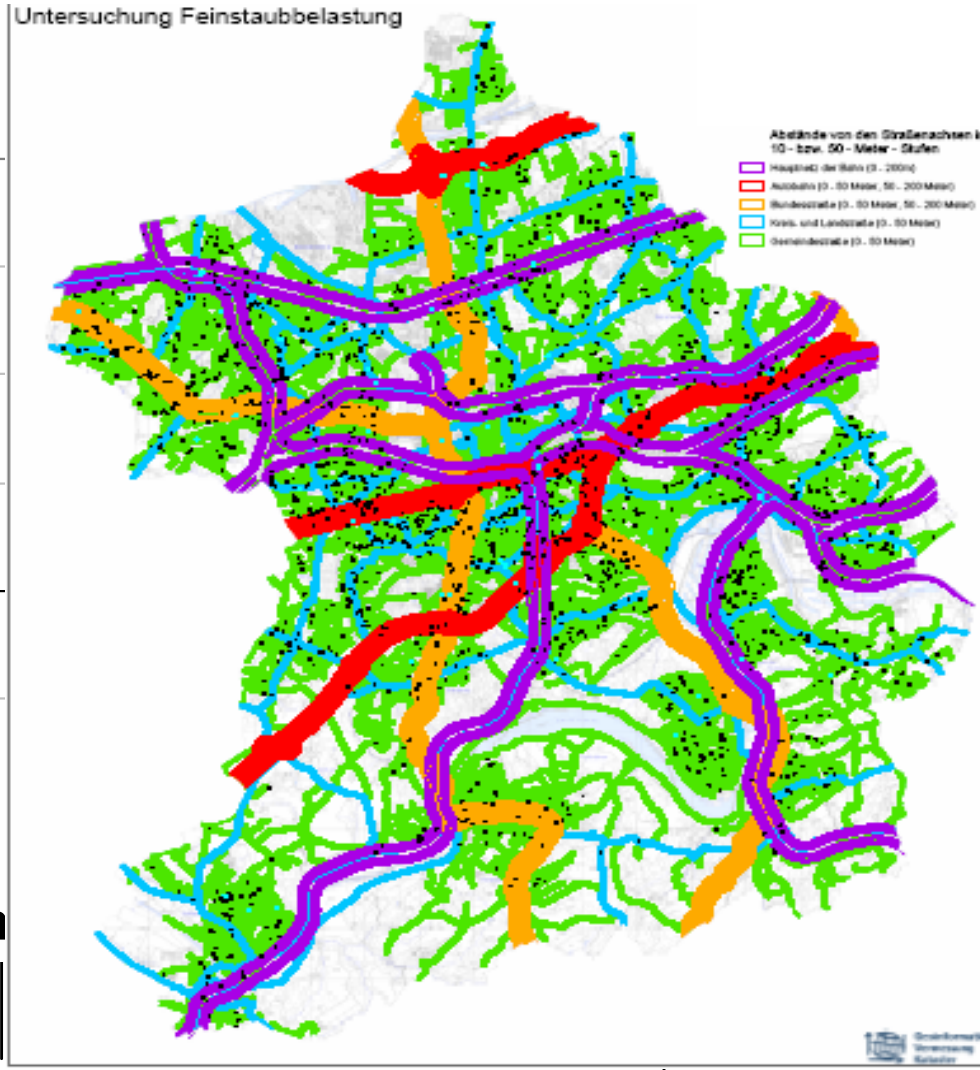
(Araujo et al, Circ Res 2008)



Same in HUMANS…: Living within 50 meters of busy traffic in Ruhr Area (Germany) increased risk for CALCIFICATIONS of arteries by ~60%

Hoffmann et al. Circulation 2007





Living close to streets with >10,000 vehicle/d

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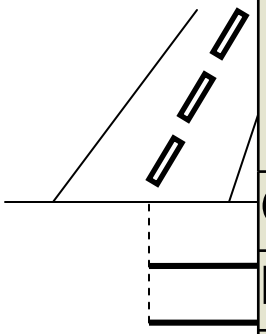
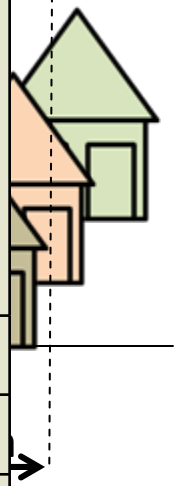


City	Population (Million. Hab)	% population within 75m (average 29%)	% population within 150m (average 52%)
Granada	0.24	14%	28%
Ljubljana	0.27	23%	47%
Bilbao	0.31	29%	59%
Sevilla	0.7	20%	38%
Valencia	0.74	44%	71%
Brussels	1.03	37%	64%
Stockholm	1.3	14%	30%
Barcelona	1.53	56%	77%
Vienna	1.66	36%	62%
Rome	2.81	22%	43%



Perez at al (APHEKOM Team) – in press 2013

Percent of diseases attributed to traffic-related air pollution in 10 cities of the APHEKOM Project (EU)

Attributable to near-road pollution:

1. Asthma cases in children 14%
2. Coronary heart diseases: 28%

Attributable to urban air pollution

- Episodes with asthma symptoms 15%
- Asthma hospitalisations 15%
- Non-fatal myocardial infarctions 31%
- Hospital admission for infarctions 29%
- Hospital admission for stroke 27%

Perez at al (APHEKOM Team) – in press 2013

Disability Adjusted Life Years (per 100‘000) due to road traffic accidents (2004, WHO)

CONCLUSION on Traffic and public health

- More streets need to be free of automobiles – reserved for pedestrians and bikes (NOT ONLY IN HISTORIC CITY...!)
- Promote bike use to promote health ***(net health benefit even in polluted European cities)***
- Vehicles on streets must become ZERO or NEAR-ZERO EMISSION

Why not in Europe?
CHINA: Motor-bikes, scooters, „vespas“ : ALL ELECTRIC !

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- Promote bike use to promote health ***(net health benefit even in polluted European cities)***
- Vehicles on streets must become ZERO or NEAR-ZERO EMISSION
- Speed reductions on streets shared with pedestrians and bikes to reduce accident & NOISE related health burden

Thank you – and
WELCOME IN BASEL 20-23 Aug 2013

Swiss Tropical and Public Health Institute welcomes you in Basel

Nino.Kuenzli@unibas.ch

www.EHBasel13.org