



CONGRESUL UNIVERSITĂȚII DE MEDICINĂ  
ȘI FARMACIE CAROL DAVILA - BUCUREȘTI

*Perspective interdisciplinare*

PALATUL PARLAMENTULUI, 29 - 31 MAI 2017, EDIȚIA A V-A

INIȚIERE. EVOLUȚIE.  
EXCELENȚĂ

*din 1857*

[www.congresumf.ro](http://www.congresumf.ro)

# VACCINATION- PUBLIC HEALTH DECISIONS AND IMPACT IN THE FAMILY DOCTOR PRACTICE

Dr. EUGENIA BRATU

Discipline of Public Health and Management

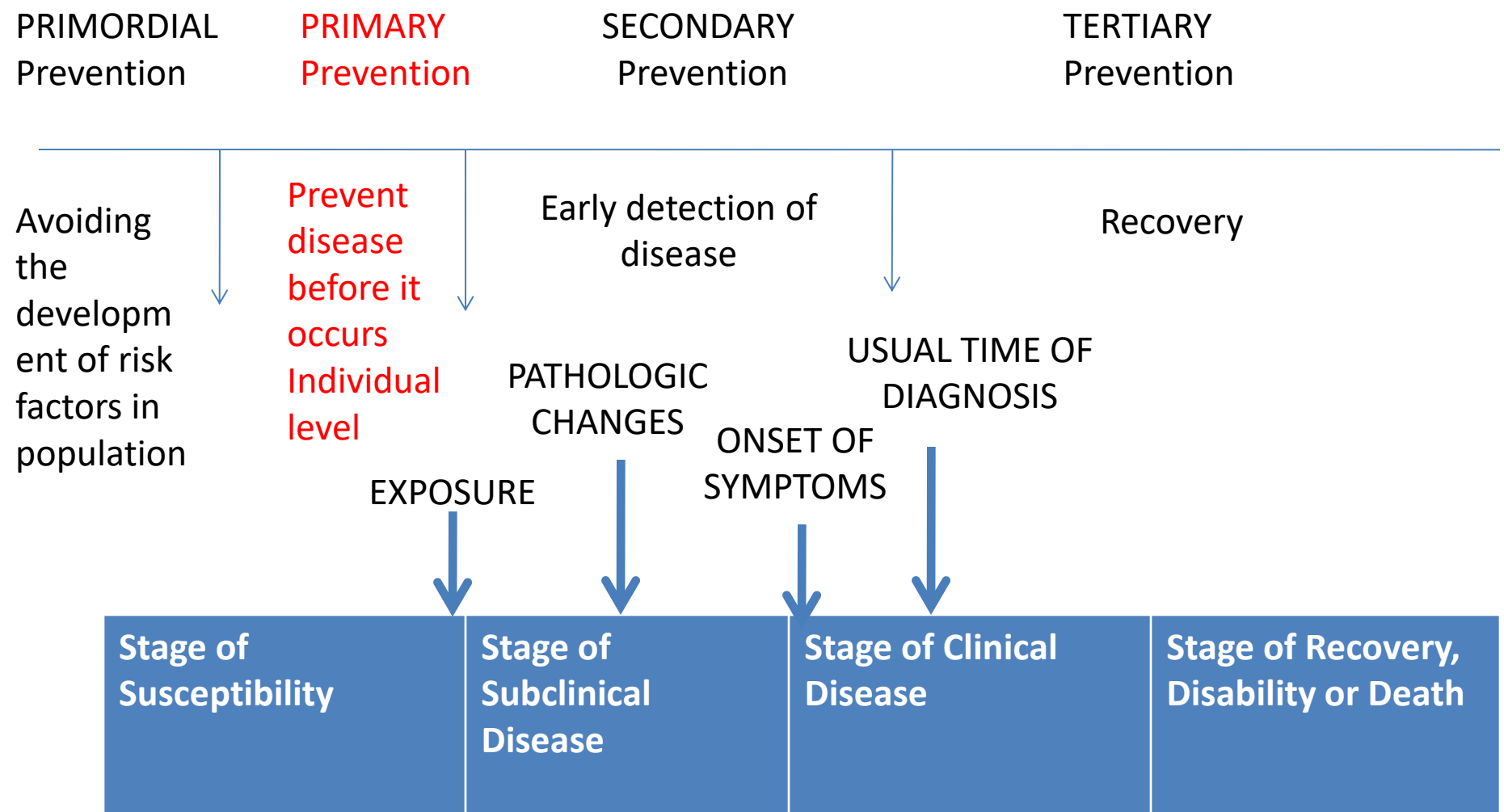
UMF "Carol Davila"

# Content

- How are public health decisions taken? What is important? What is important for vaccination?
- What evidences are available about the effectiveness and efficacy of vaccines?



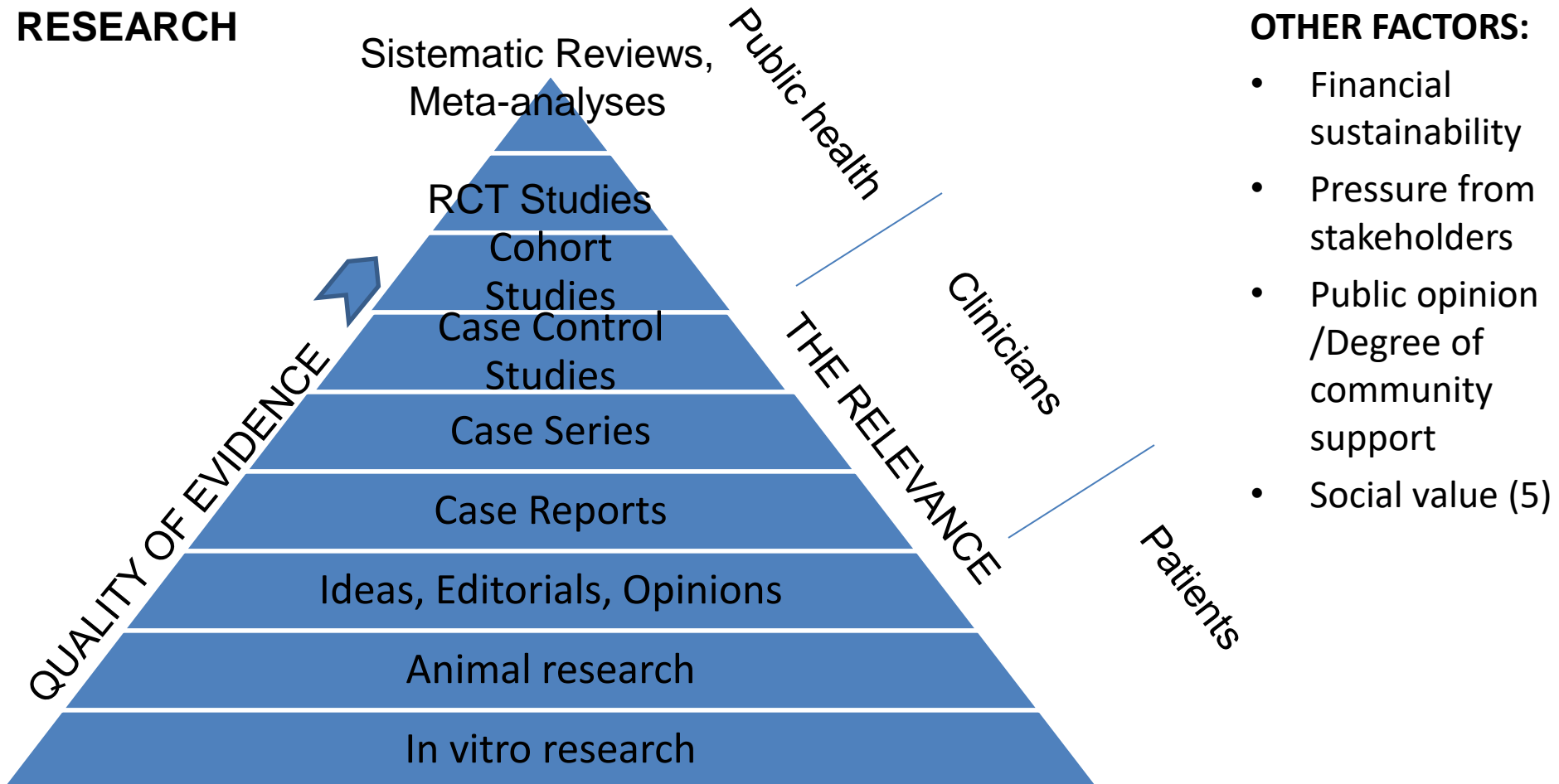
# VACCINATION – ONE OF THE MOST IMPORTANT TOOL OF PRIMARY PREVENTION



# THE USE OF EVIDENCES IN PUBLIC HEALTH DECISION MAKING PROCESS - HYPOTESIS

1. Public health decisions are taken **with communities** or entire country rather than individuals as the unit of intervention. (1)
2. The different parts of the population **respond differently** to identical intervention. (2,3)
3. “**Good intention** and plausible theories alone **are insufficient basis** for decision about public programmes that affect the lives of others”. (4)

# THE USE OF EVIDENCE IN PUBLIC HEALTH DECISION MAKING PROCESS –WHAT COUNTS?



Source: SUNY Downstate Medical Center. Medical Research Library of Brooklyn. Evidence Based Medicine Course. A Guide to Research

Methods: The Evidence Pyramid: <http://library.downstate.edu/EBM2/2100.htm>](6)

## VACCINATION – WHAT KIND OF EVIDENCES?

- CLINICIANS- used their 'networks' from sources that they trusted, internalized tacit guidelines. (7)
- PUBLIC HEALTH - need aggregate 'proof' that a practice is **safe, effective and cost-effective.**(7)

## EVIDENCES – WHAT IS NEEDED?

- Vaccines – tested for safety, immunogenicity and efficacy before to be licensed .
- European Medicines Agency – guidance on the clinical evaluation of vaccines.
- Immunogenicity studies: dose, determination of the primary vaccine schedule, persistence of protection, need for doses, other interactions, general safety of products.

## VACCINE EFFICACY

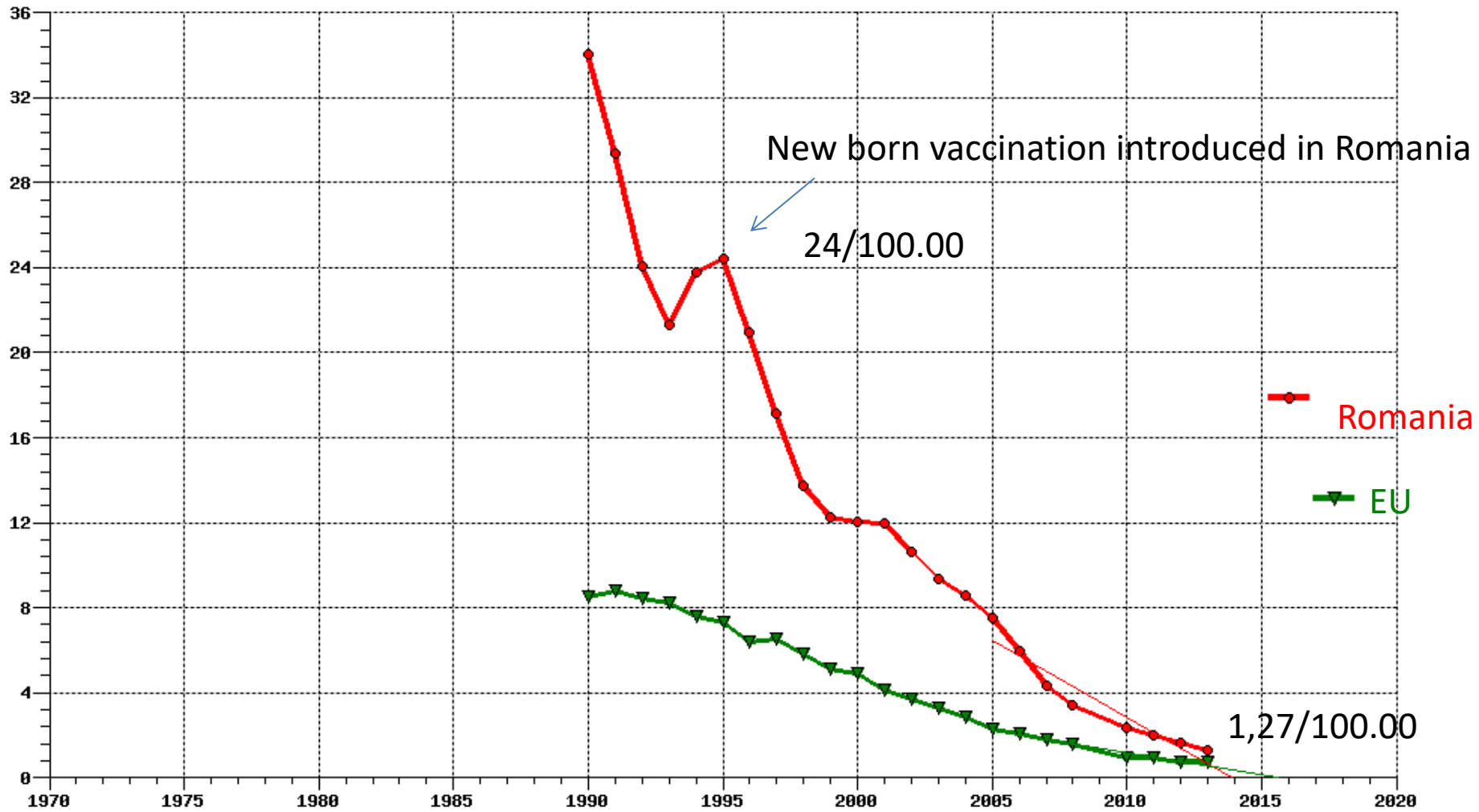
- **Does the vaccine work?** (8)
- % reduction in disease incidence in a vaccinated group compared to an unvaccinated group under optimal conditions (eg RCT) (9)
- Ex: Hepatitis B, adults=50-70% infectious asymptomatic/mild, 10% become chronically infected carriers; children =90% initially asymptomatic, 90% infant and 25-50% of 1-5 years become lifelong carriers. Estimates: 1/3 of the world's population infected
- After three intramuscular doses of hepatitis B vaccine, more than 90% of healthy adults and more than 95% of infants, children, and adolescents (from birth to 19 years of age) develop adequate antibody responses. (12)



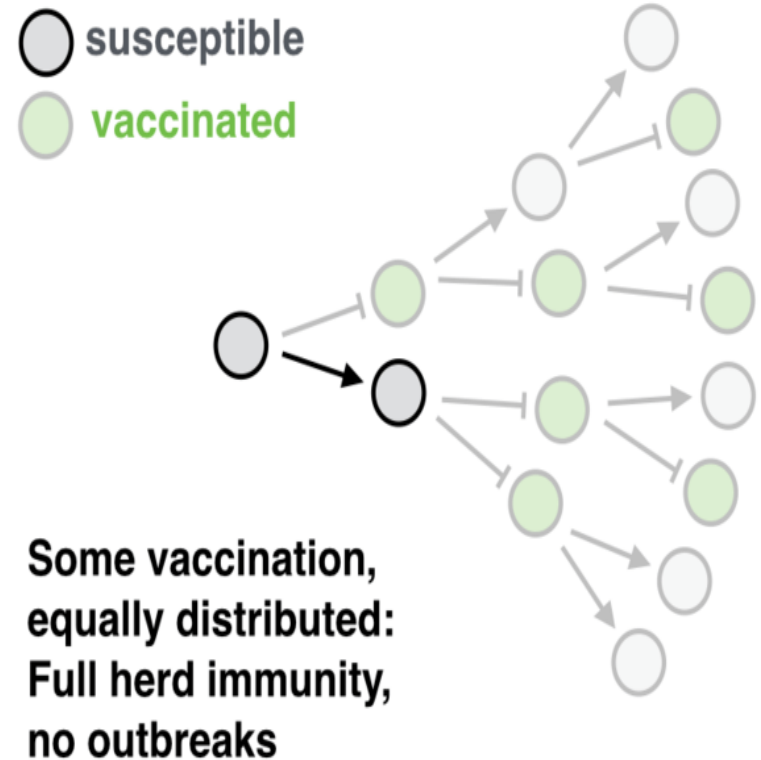
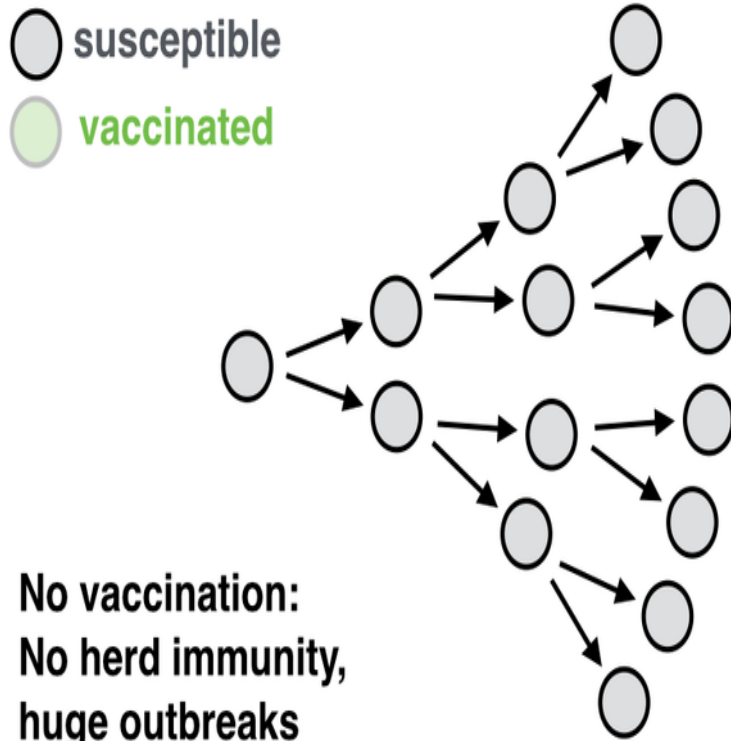
## VACCINE EFFECTIVENESS

- **Does the vaccination help people?** (10)
- The ability of vaccine to prevent outcomes of interest in the “real world” (9)
- Ex:
- “Since 1982, over 1 billion doses of hepatitis B vaccine have been used worldwide. In many countries where between **8–15%** of children used to become chronically infected with the hepatitis B virus, vaccination has reduced the rate of chronic infection to less than **1%** among immunized children.” (13)

# INCIDENCE OF VIRAL HEPATITIS B

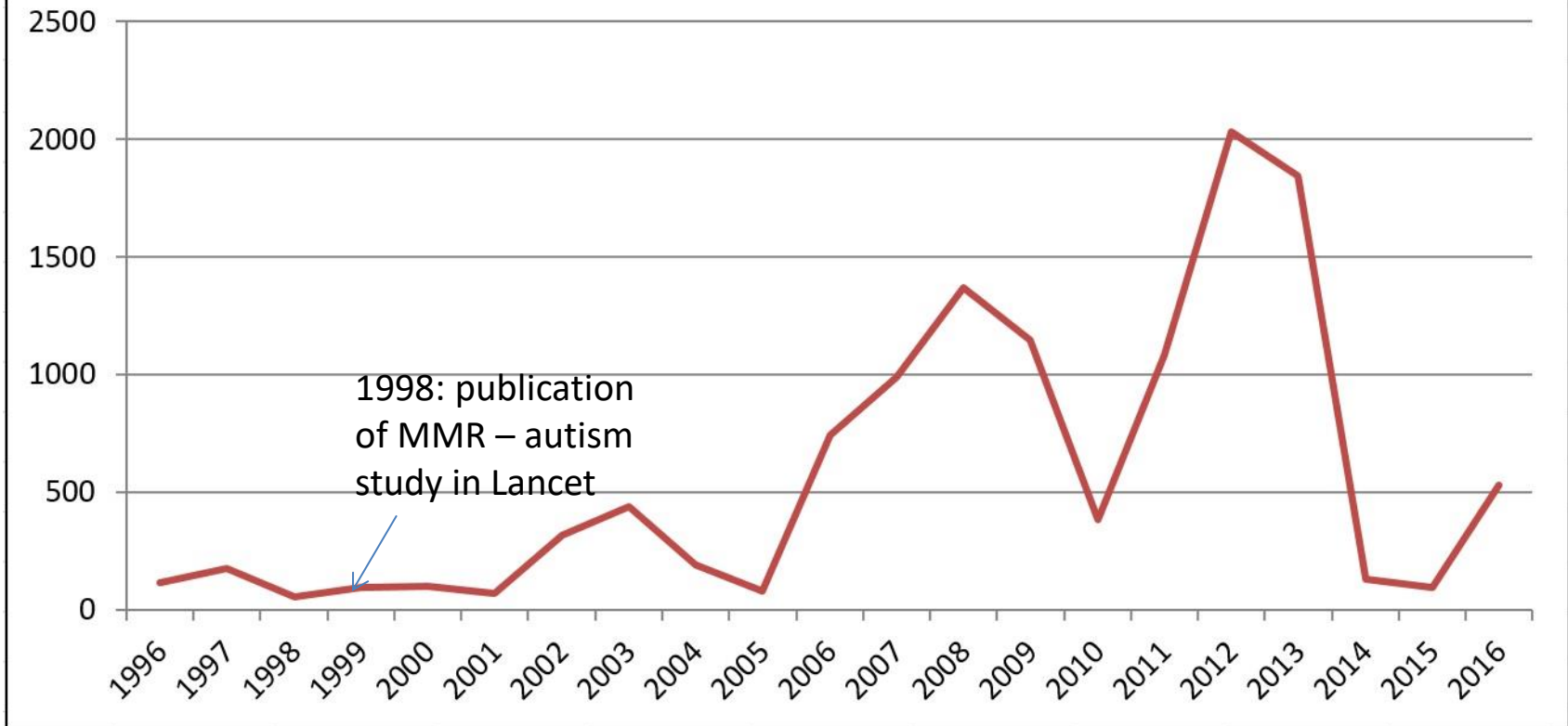


# WHY VACCINES ARE IMPORTANT



## Measles - annual laboratory confirmed cases in England and Wales, 1996-2016

*(provisional figures for 2016)*



## WHY AREN'T VACCINES PERFECT? (11)

- Individual variations
- Rare events – serious side effects (1 in 1000- 1 in million)
- Some people should not be vaccinated
  - previous allergic reaction
  - compromised immune system

# SUMMARY

- Vaccination – a primary prevention measure focused on decreasing the incidence of infectious diseases.
- Public health decision on vaccination take into consideration evidences:
  - A vaccine need to be safe, to have efficacy and efficiency (enough evidence) to be licensed
- Immunization coverage – correlated with decreasing of disease incidence.

# REFERENCES

1. Kemm J. The limitations of 'evidence-based' public health. *J Eval Clin Pract.* 2006;12(3):319–24. DOI: [10.1111/j.1365-2753.2006.00600.x](https://doi.org/10.1111/j.1365-2753.2006.00600.x)
2. Killoran A, Kelly M. Towards an evidence-based approach to tackling health inequalities: the English experience. *Health Education Journal.* 2004;63(1):7–14.
3. Chalmers I. Trying to do more good than harm in policy and practice: the role of rigorous, transparent, up-to-date evaluations. *Annals of the American Academy of Political and Social Science.* 2003;589:22–40,
4. Macintyre S, Petticrew MJ Good intentions and received wisdom are not enough. *Epidemiol Community Health.* 2000 Nov; 54(11):802-3
5. Lavis J, Davies H, Oxman A, Denis JL, Golden-Biddle K, Ferlie E,J .Towards systematic reviews that inform health care management and policy-making . *Health Serv Res Policy.* 2005 Jul; 10 Suppl 1():35-48
6. SUNY Downstate Medical Center. Medical Research Library of Brooklyn. Evidence Based Medicine Course. A Guide to Research Methods: The Evidence Pyramid: <http://library.downstate.edu/EBM2/2100.htm>]
7. Wayne B. Jonas and George T. Lewith, Toward standards of evidence for CAM research and practice, <https://clinicalgate.com/toward-standards-of-evidence-for-cam-research-and-practice>
8. Fedson DS, [Measuring protection: efficacy versus effectiveness.](https://www.ncbi.nlm.nih.gov/pubmed/?term=Fedson%20DS%5BAuthor%5D&cauthor=true&cauthor_uid=9855432) *Dev Biol Stand.* 1998;95:195-201, [https://www.ncbi.nlm.nih.gov/pubmed/?term=Fedson%20DS%5BAuthor%5D&cauthor=true&cauthor\\_uid=9855432](https://www.ncbi.nlm.nih.gov/pubmed/?term=Fedson%20DS%5BAuthor%5D&cauthor=true&cauthor_uid=9855432)
9. ([http://www.who.int/influenza\\_vaccines\\_plan/resources/Session4\\_VEfficacy\\_VEffectiveness.PDF](http://www.who.int/influenza_vaccines_plan/resources/Session4_VEfficacy_VEffectiveness.PDF)
10. [Measuring protection: efficacy versus effectiveness.](https://www.ncbi.nlm.nih.gov/pubmed/?term=Fedson%20DS%5BAuthor%5D&cauthor=true&cauthor_uid=9855432) Fedson DS. *Dev Biol Stand.* 1998;95:195-201, [https://www.ncbi.nlm.nih.gov/pubmed/?term=Fedson%20DS%5BAuthor%5D&cauthor=true&cauthor\\_uid=9855432](https://www.ncbi.nlm.nih.gov/pubmed/?term=Fedson%20DS%5BAuthor%5D&cauthor=true&cauthor_uid=9855432)
11. Kung J, Vaccines and Public Health, Harvard Medical School, Lecture
12. Centers for Disease Control and Prevention. *Epidemiology and Prevention of Vaccine-Preventable Diseases.* Hamborsky J, Kroger A, Wolfe S, eds. 13th ed. Washington D.C. Public Health Foundation, 2015
13. <http://www.who.int/mediacentre/factsheets/fs204/en/>



**CONGRESUL UNIVERSITĂȚII DE MEDICINĂ  
ȘI FARMACIE CAROL DAVILA - BUCUREȘTI**

*Perspective interdisciplinare*

PALATUL PARLAMENTULUI, 29 - 31 MAI 2017, EDIȚIA A V-A

INIȚIERE. EVOLUȚIE.  
EXCELENȚĂ

*din 1857*

[www.congresumf.ro](http://www.congresumf.ro)

**Thank you for your attention!**

[eugenia.bratu@umfcd.ro](mailto:eugenia.bratu@umfcd.ro)