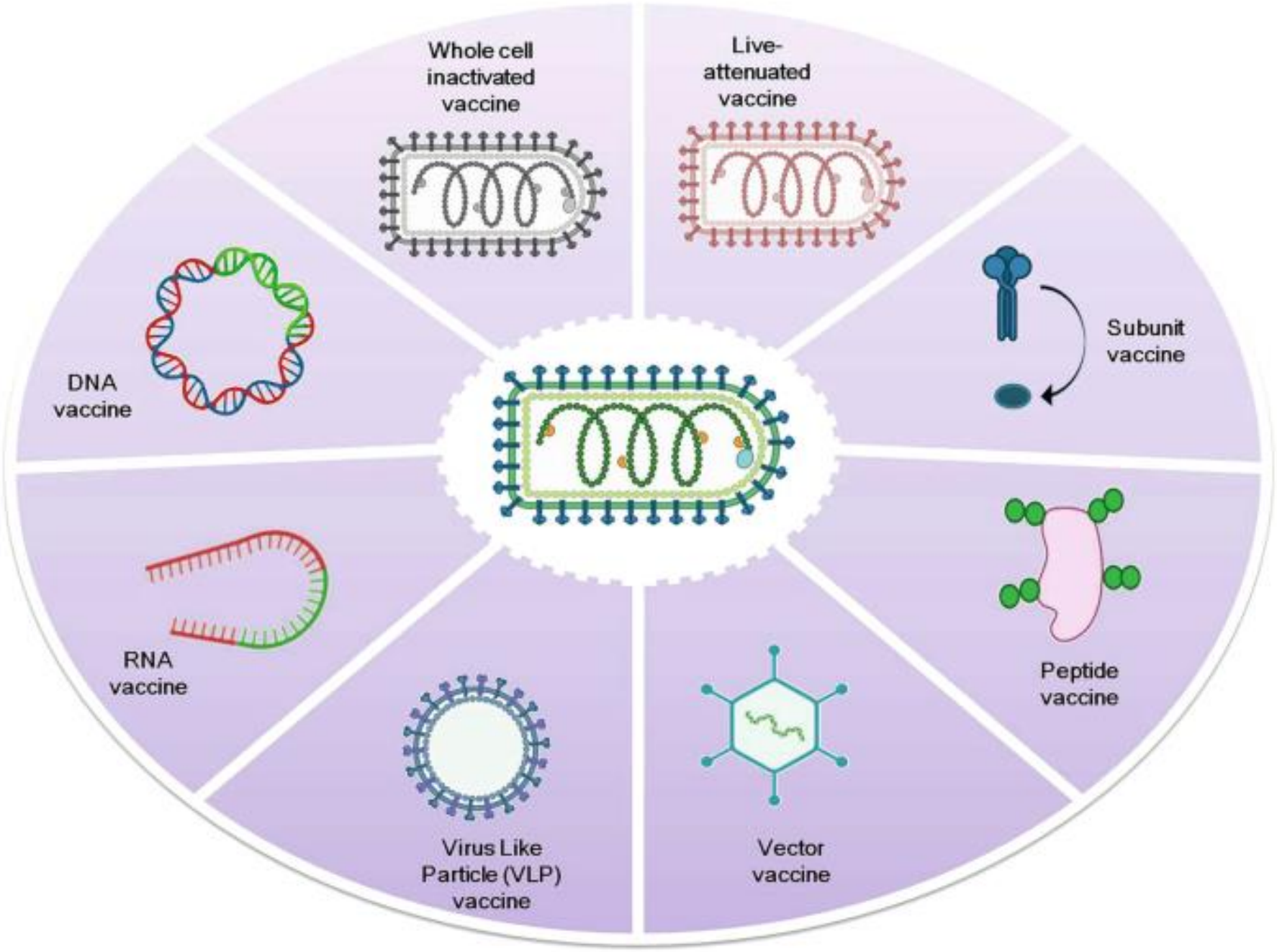
# Dị ứng và phản ứng bất lợi do vaccine và cách xử trí

PGS. TS. BS HOÀNG THỊ LÂM
BỆNH VIỆN ĐẠI HỌC Y DƯỢC TP HCM
CHỦ TỊCH LIÊN CHI HỘI DỊ ỨNG, MIỄN DỊCH, Y HỌC GIẤC NGỦ

# Các loại vaccine



# VACCINE HOẠT ĐỘNG NHƯ THẾ NÀO?

1. BN được tiêm căn nguyên ít gây bệnh, bất hoạt hoặc được làm yếu, hoặc yếu tố tái tổ hợp v.v…
2. Hệ thống miễn dịch sẽ tạo ra các kháng thể để nhận biết bệnh
3. Nếu nhiễm bệnh sau đó, hệ thống MD sẽ nhận biết và chiến đấu với bệnh này

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# Hiệu quả bảo vệ khi tiêm vaccine

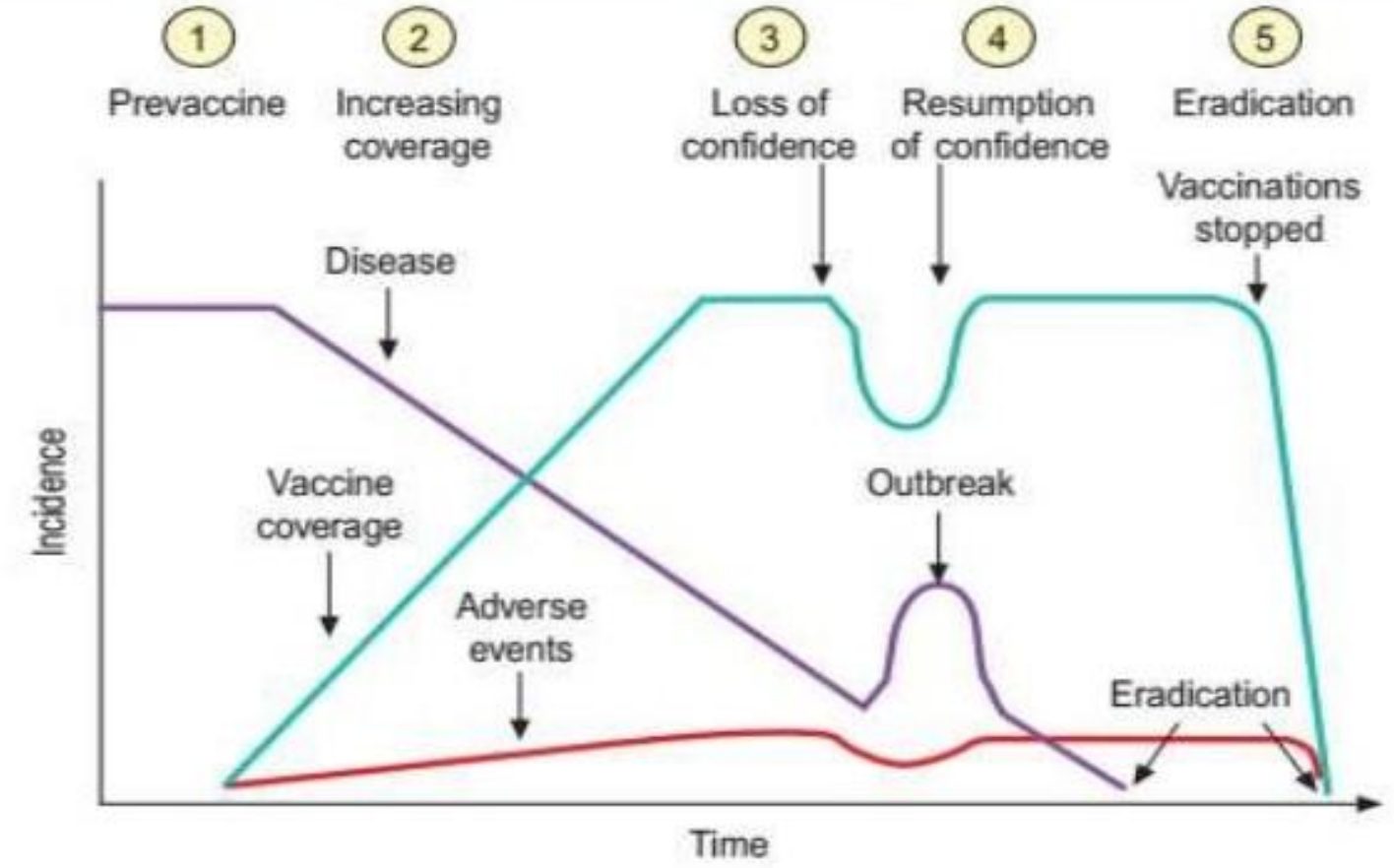


**Figure 85-1** Evolution of an immunization program. *(Modified from Chen RT, Rastogi SC, Mullen JR, et al. The Vaccine Adverse Event Reporting System [VAERS]. Vaccine 1994;12:542-50.)*

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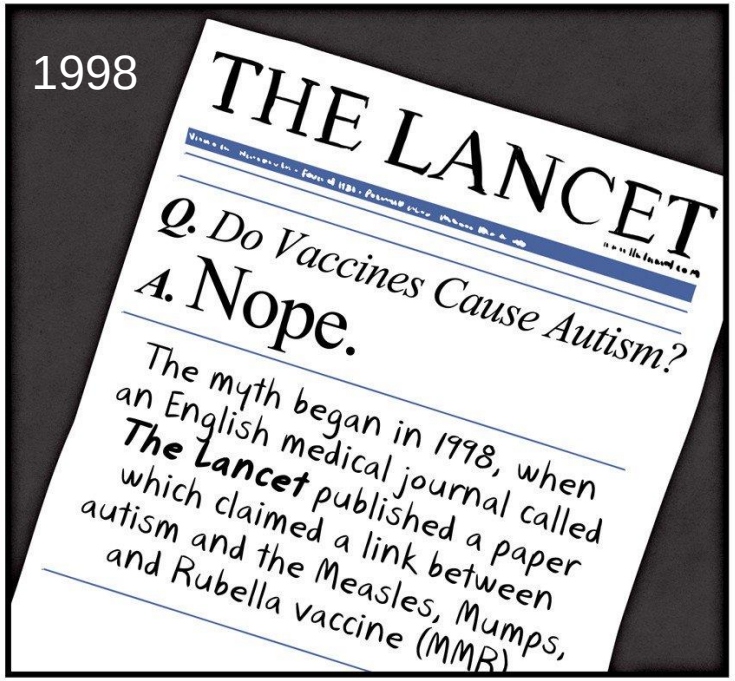
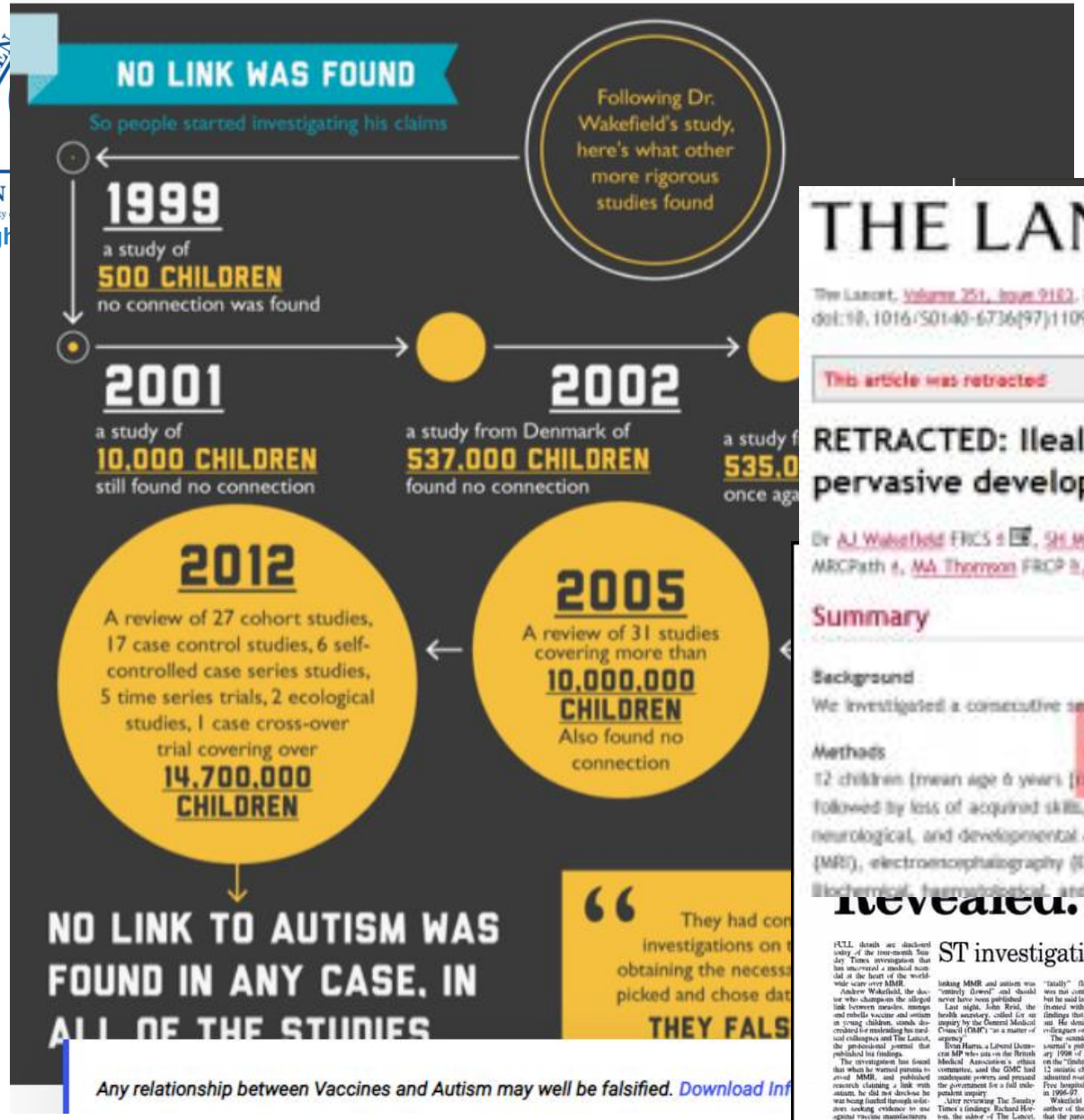
# Vaccine và bệnh tự kỷ

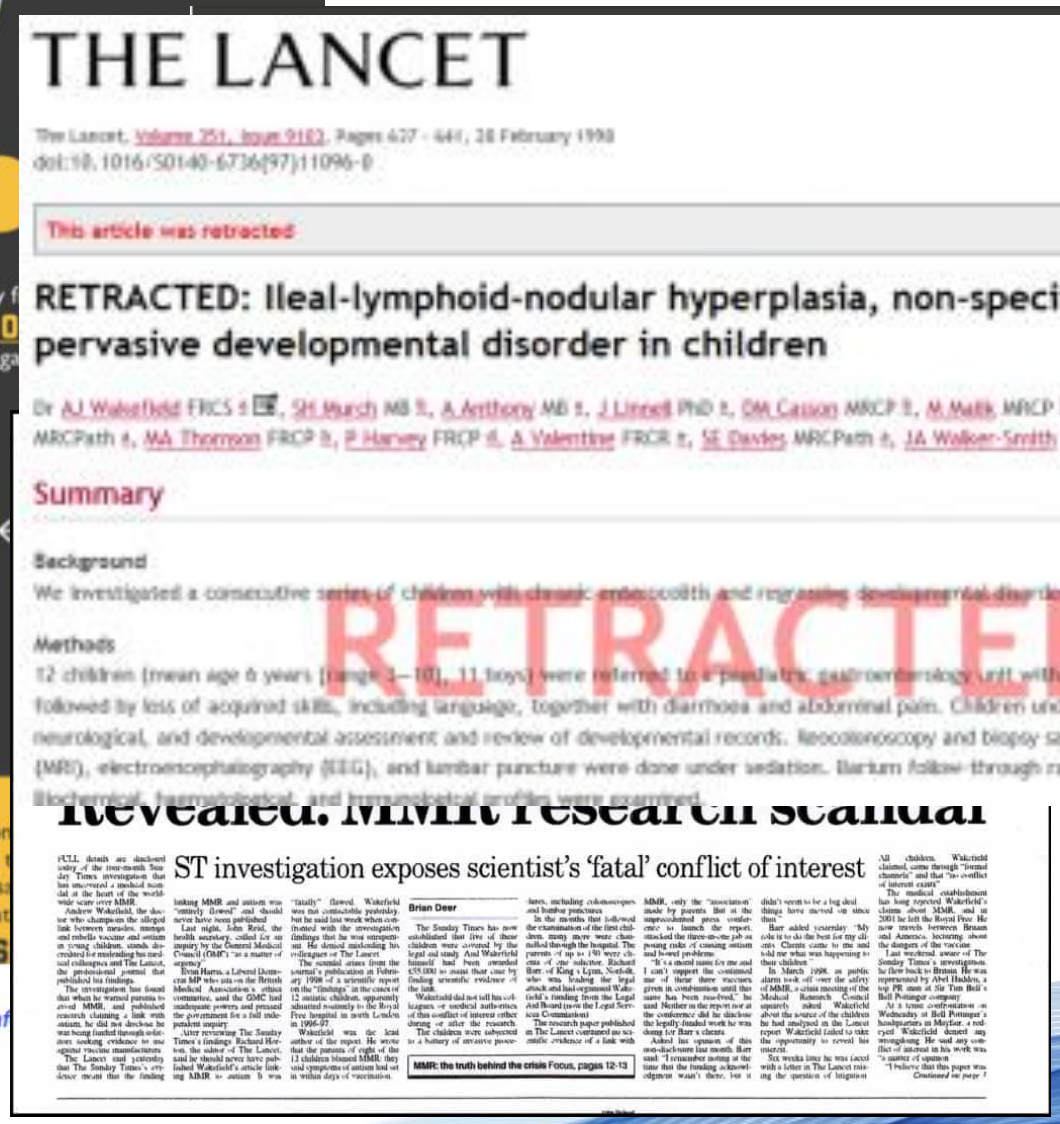
- 12 đứa trẻ viêm ruột có 8 trẻ bị tự kỷ tiêm vaccine sởi, quai bị, rubella






# Vaccine và bệnh tự kỷ



# Vaccine và bệnh tự kỷ


Thimerosal: chứa 50% thủy  ngân

Tổn thương thần kinh

# Tỉ lệ dị ứng

Range from 1 in 50,000 to 1 in 1,000,000 doses

The most concerning of these, anaphylaxis, has been estimated to occur at a rate of approximately one per 100,000 to one per 1,000,000 doses for most commonly administered vaccines

The true rate of allergic reactions is unknown because most reactions are not reported.

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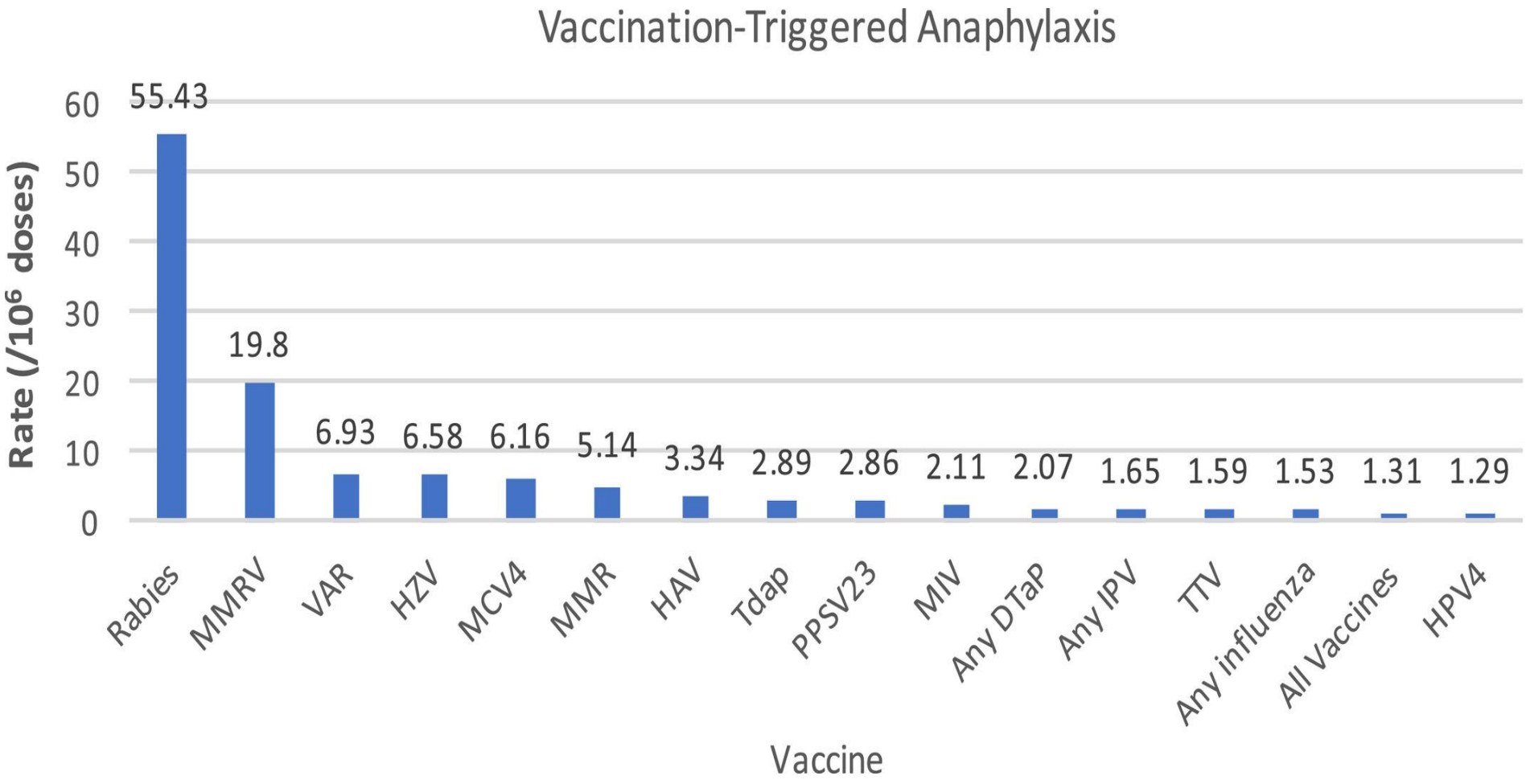
# Vaccines and allergic reactions




Allergy, Volume: 76, Issue: 6, Pages: 1640-1660, First published: 02 April 2021,
DOI: (10.1111/all.14840)

Special Article

# mRNA Vaccines to Prevent COVID-19 Disease and Reported Allergic Reactions: Current Evidence and Suggested Approach

Aleena Banerji, MD[a,b], Paige G. Wickner, MD, MPH[b,c], Rebecca Saff, MD, PhD[a,b], Cosby A. Stone, Jr., MD, MPH[d], Lacey B. Robinson, MD, MPH[a,b], Aidan A. Long, MD[a,b], Anna R. Wolfson, MD[a,b], Paul Williams, MD[e], David A. Khan, MD[f], Elizabeth Phillips, MD[d,*], and Kimberly G. Blumenthal, MD, MSc[a,b,g,*] *Boston, Mass; Nashville, Tenn; Seattle, Wash; and Dallas, Texas*

crisis, understanding the allergic reactions with the approved mRNA COVID-19 vaccines is crucial. At the time of writing this review, immediate reactions clinically compatible with anaphylaxis have occurred at a rate of 11.1 per million doses of the Pfizer-BioNTech mRNA COVID-19 vaccine.[2] Anaphylaxis has also been reported from the Moderna mRNA COVID-19 vaccine. Currently, the specific mechanism of allergy and the inciting antigen have not been identified. This review will

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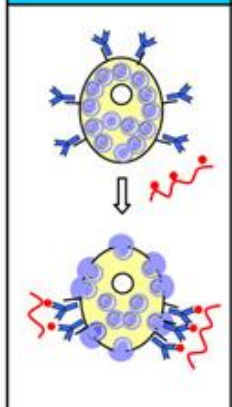
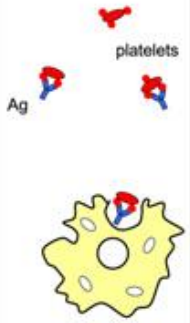
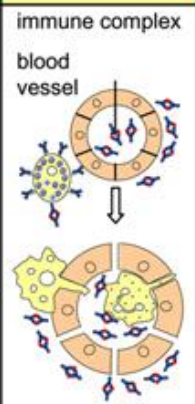
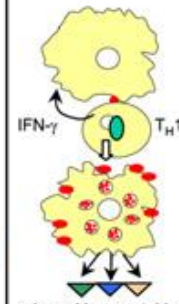
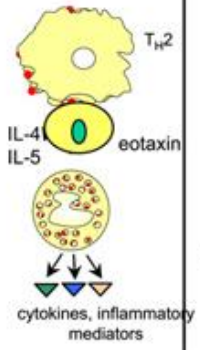
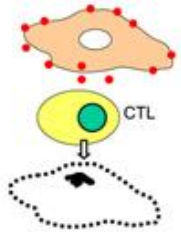
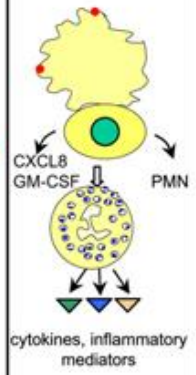
# Phân loại dị ứng vaccine

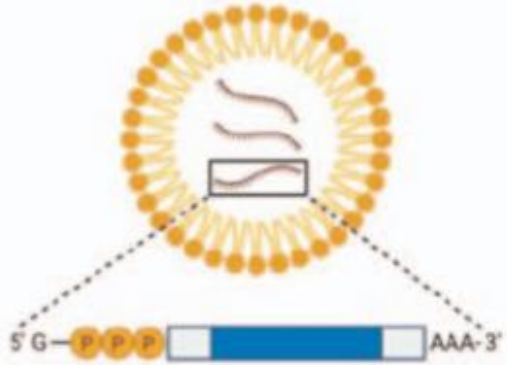
| | Type I | Type II | Type III | Type IV a | Type IV b c | Type IV | Type IV d |
|---|---|---|---|---|---|---|---|
| Immune reactant | IgE | IgG | IgG | IIFNγ, TNFα ($T_H1$ cells) | IL-5, IL-4/IL-13 ($T_H2$ cells) | Perforin/ GranzymeB (CTL) | CXCL-8, IL-17 (?). GM-CSF (T-cells) |
| Antigen | Soluble antigen | Cell- or matrix-associated antigen | Soluble antigen | Antigen presented by cells or direct T cell stimulation | Antigen presented by cells or direct T cell stimulation | Cell-associated antigen or direct T cell stimulation | Soluble antigen presented by cells or direct T cell stimulation |
| Effector | Mast-cell activation | FcR⁺ cells (phagocytes, NK cells) | FcR⁺ cells Complement | Macrophage activation | Eosinophils | T cells | Neutrophils |
| |  |  |  |  |  |  |  |
| Example of hypersen-sitivity reaction | Allergic rhinitis, asthma, systemic anaphylaxis | Some drug allergies (e.g., penicillin) | Serum sickness, Arthus reaction | Tuberculin reaction contact dermatitis (with IVc) | Chronic asthma, chronic allergic rhinitis Maculopapular exanthema with eosinophilia | Contact dermatitis Maculopapular and bullous exanthema hepatitis | AGEP Behçet disease |

# Thành phần vaccine

| Components | | Type |
|---|---|---|
| Active immunizing antigens and conjugating agents | | Toxoids, live-attenuated viruses, killed viruses or portions of virus, viral proteins, carrier proteins and antigens |
| Culture media (protein/peptides) | | Hen's egg, horse serum, murine and simian cells, kidney cells of dog, yeast |
| Additives | Antibiotics | Neomycin, chlortetracycline, gentamicin, streptomycin, erythromycin, kanamycin, polymyxin B, amphotericin B |
| | Preservatives | Thimerosal, 2-phenoxyethanol, phenol, benzethonium chloride |
| | Stabilizers | Gelatin, human serum albumin, amino acid mix, glutamate, glycine, monosodium glutamate, sucrose, lactose, sorbitol, ascorbic acid, phosphate, polysorbate 80/20, polygeline |
| | Adjuvants | Aluminum salts, MF-59, AS04 (deacylated monophosphoryl lipid A+ aluminum hydroxide) |
| | Inactivation residues | Formaldehyde, beta-propiolactone, formalin, gluteraldehyde |
| Contamination | | Latex |

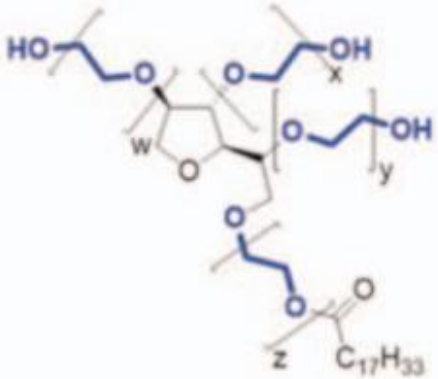
## COVID-19 mRNA vaccines

PEG
(polyethylene glycol)

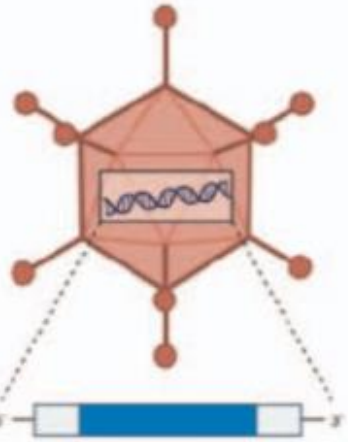



Potentially allergenic excipients

## Adenovirus vector vaccines



polysorbate 80



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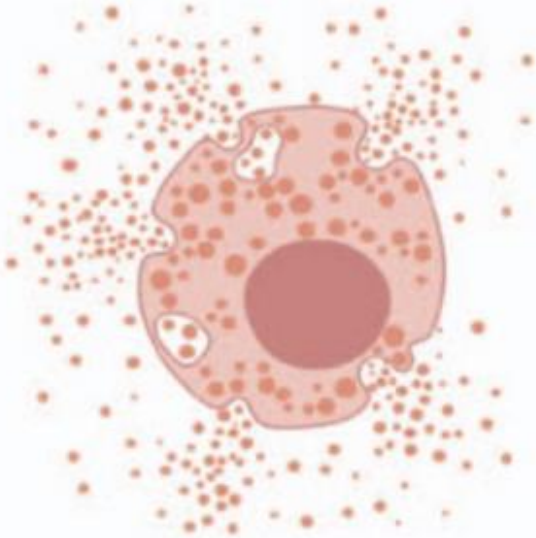
IgE mediated mast cell degranulation



Other non-IgE-mediated mechanisms?

# Phản ứng Arthus

**Local Immune Complex Disease or Arthus Reaction:**

The immune complexes are formed locally i.e. skin and pulmonary diseases resulting from inhaled antigen.

**Arthus Reaction**

- **Type III** hypersensitivity reaction that occurs several hours to days following the intradermal injection of a vaccine into an animal
- Histamine are released from mast cells, can increase vascular permeability
- Localized inflammation, pain, redness, and sometimes tissue destruction

# Bệnh huyết thanh

Typ III

Triệu chứng: Sốt, đau khớp, hạch ngoại biên, ban đỏ ngứa trên da

Nguyên nhân: Vaccine, huyết thanh, thuốc sinh học, thuốc, nhiễm trùng

Gặp ở người lớn > trẻ em

C3, C4 giảm

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# Hình ảnh lâm sàng

# Hình ảnh lâm sàng

# Phân biệt phản vệ và phản xạ thần kinh phế vị

| Lâm sàng | Phản xạ TK phế vị | Phản vệ |
|---|---|---|
| **Tim mạch** | | |
| Mạch | Chậm | Nhanh |
| Huyết áp | Bình thường | Tụt |
| **Hô hấp** | | |
| Khàn giọng | Không có | Tăng dần |
| Ho, khò khè, thở rít | Không có | Có hiện diện |
| **Da** | | |
| Màu da | Xanh xao | Đỏ có thể có tím |
| Phù mạch, mày đay | Không có | Có hiện diện |
| **Khởi phát** | | |
| Thời gian | Rất nhanh | Vài phút đến vài giờ |

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# Vaccine và bệnh tự miễn

- Chứng minh vai trò của vaccine tới bệnh tự miễn: nghiên cứu dịch tễ học hoặc thử nghiệm lâm sàng: Cỡ mẫu lớn, tốn kém, không khả thi

- Đợt cấp của bệnh tự miễn không xảy ra sau tiêm vaccine, và vaccine ngăn ngừa một số trường hợp nhiễm virus gây bệnh tự miễn

- Bắt chước phân tử dẫn đến việc sản xuất các tự kháng thể

- Tạo các phức hợp miễn dịch

-

Int Med Case Rep J. 2020; 13: 697–699.
Published online 2020 Dec 15. doi: 10.2147/IMCRJ.S286335
PMCID: PMC7755875
PMID: 33376414

Severe Immune Thrombocytopenia Following MMR Vaccination with Rapid Recovery: A Case Report and Review of Literature

Clinical Rheumatology (2022) 41:1603–1609
https://doi.org/10.1007/s10067-022-06149-4

PERSPECTIVES IN RHEUMATOLOGY

Review > Inflamm Allergy Drug Targets. 2015;14(2):94-8.
doi: 10.2174/1871528114666160105113046.

Contents lists available at ScienceDirect
Autoimmunity Reviews
journal homepage: www.elsevier.com/locate/autrev

Insights into new-onset autoimmune diseases after COVID-19 vaccination

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ABSTRACT

Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has resulted in more than 670 million infections and almost 7 million deaths globally. The emergence of numerous SARS-CoV-2 has heightened public concern regarding the future course of the epidemic. Currently, the SARS-CoV-2 Omicron variant has rapidly become globally dominant in the COVID-19 pandemic due to its high infectivity and immune evasion. Consequently, vaccination implementation is critically significant. However, growing evidence suggests that COVID-19 vaccination may cause new-onset autoimmune diseases, including autoimmune glomerulonephritis, autoimmune rheumatic diseases, and autoimmune hepatitis. Nevertheless, the causal relationship between COVID-19 vaccines and these autoimmune diseases remains to be demonstrated. In this review, we provide evidence that vaccination induces autoimmunity and summarize possible mechanisms of action, such as molecular mimicry, activation by bystanders, and adjuvants. Our objective is not to refute the importance of vaccines, but to raise awareness about the potential risks of COVID-19 vaccination. In fact, we believe that the benefits of vaccination far outweigh the possible risks and encourage people to get vaccinated.

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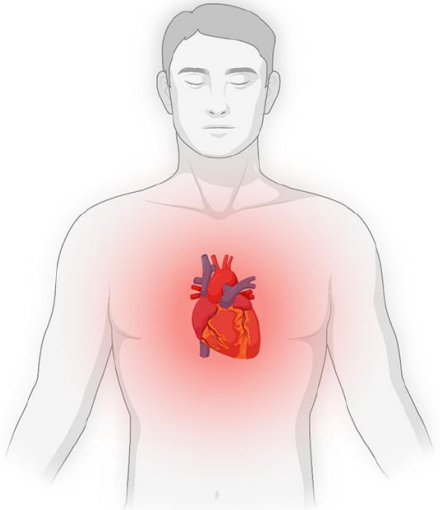
# Tai biến do vaccine Covid-19

## Rare Cardiovascular Adverse Side Effects Associated with COVID-19 Vaccines

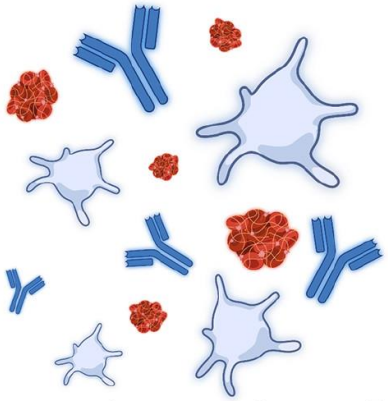


### Myocarditis & Pericarditis

**12.6 cases** per million doses with **second-dose mRNA vaccine** among those 12 to 39 years of age.

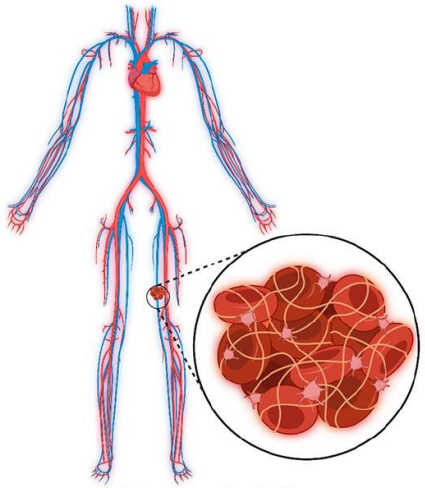
***versus***

**450 cases** per million in males under age 20 years with **COVID-19.**



### Vaccine-Induced Immune Thrombotic Thrombocytopenia (VITT)

**1 case** per 100,000 people after receiving an **adenovirus-vector vaccine.**



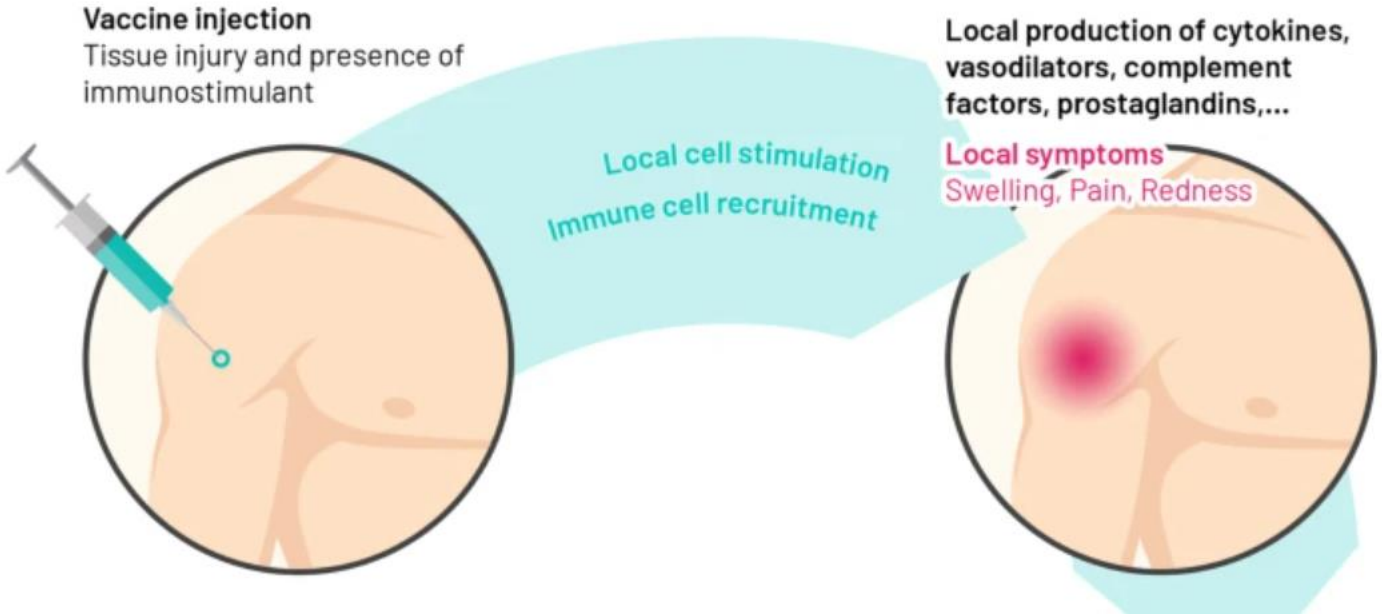
### Blood Clots

**66 excess cases of venous clots** per 10 million vaccinated with an **adenovirus-vector vaccine.**
*(Often seen with VITT.)*

***versus***

**12,614 excess cases of venous clots** per 10 million with **SARS-CoV-2 infection**.

# Tai biến tại chỗ tiêm




- Chườm lạnh
- Giảm đau
- Chống ngứa

# Kết luận

1. Lợi ích của vaccine là rất đáng kể
2. Tai biến xảy ra hầu hết nhẹ, thoáng qua
3. Các tai biến đa phần phòng tránh được
4. Vẫn nên khuyến khích tiêm vaccine


Thank you very much!