

Elimination of carriage

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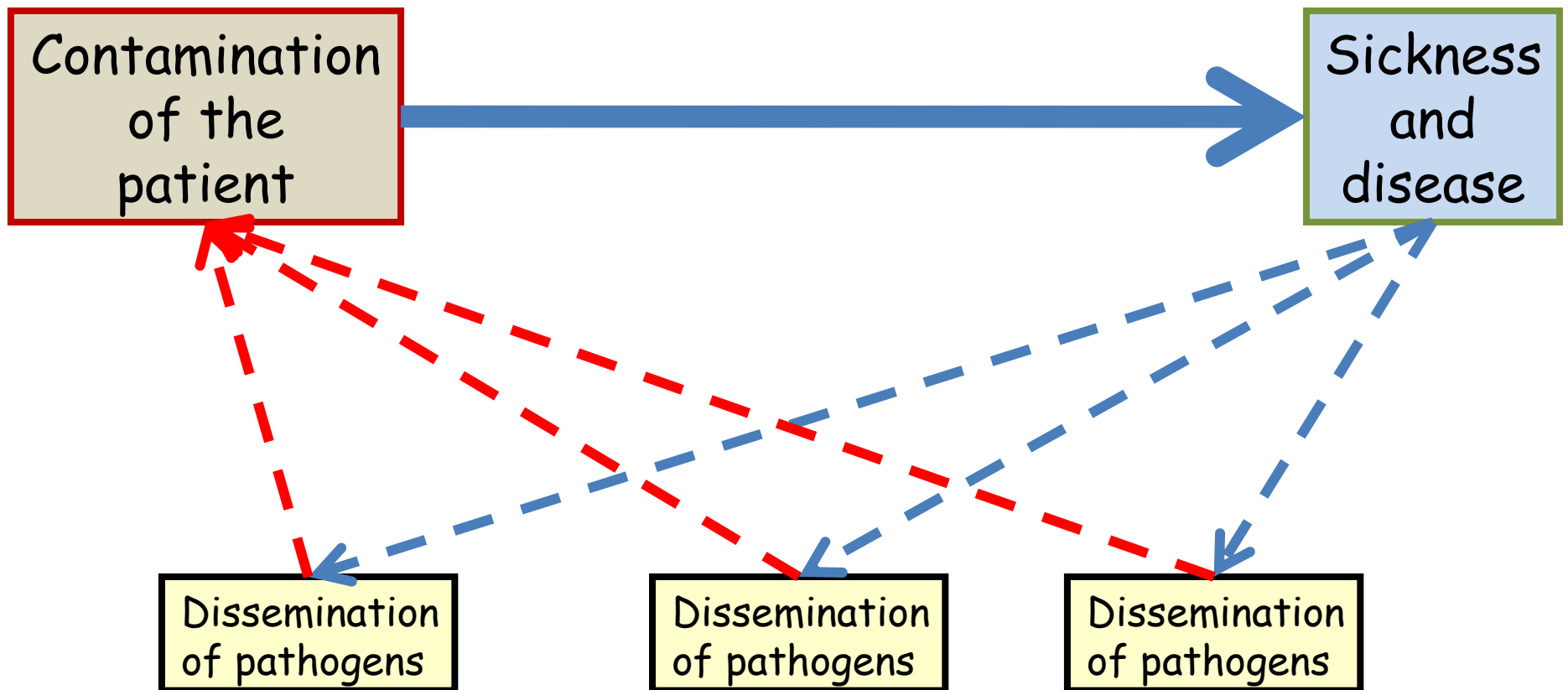
Fighting bacterial resistance at the root: need for adapted EMEA guidelines

Lancet Infectious Diseases Jan 2011

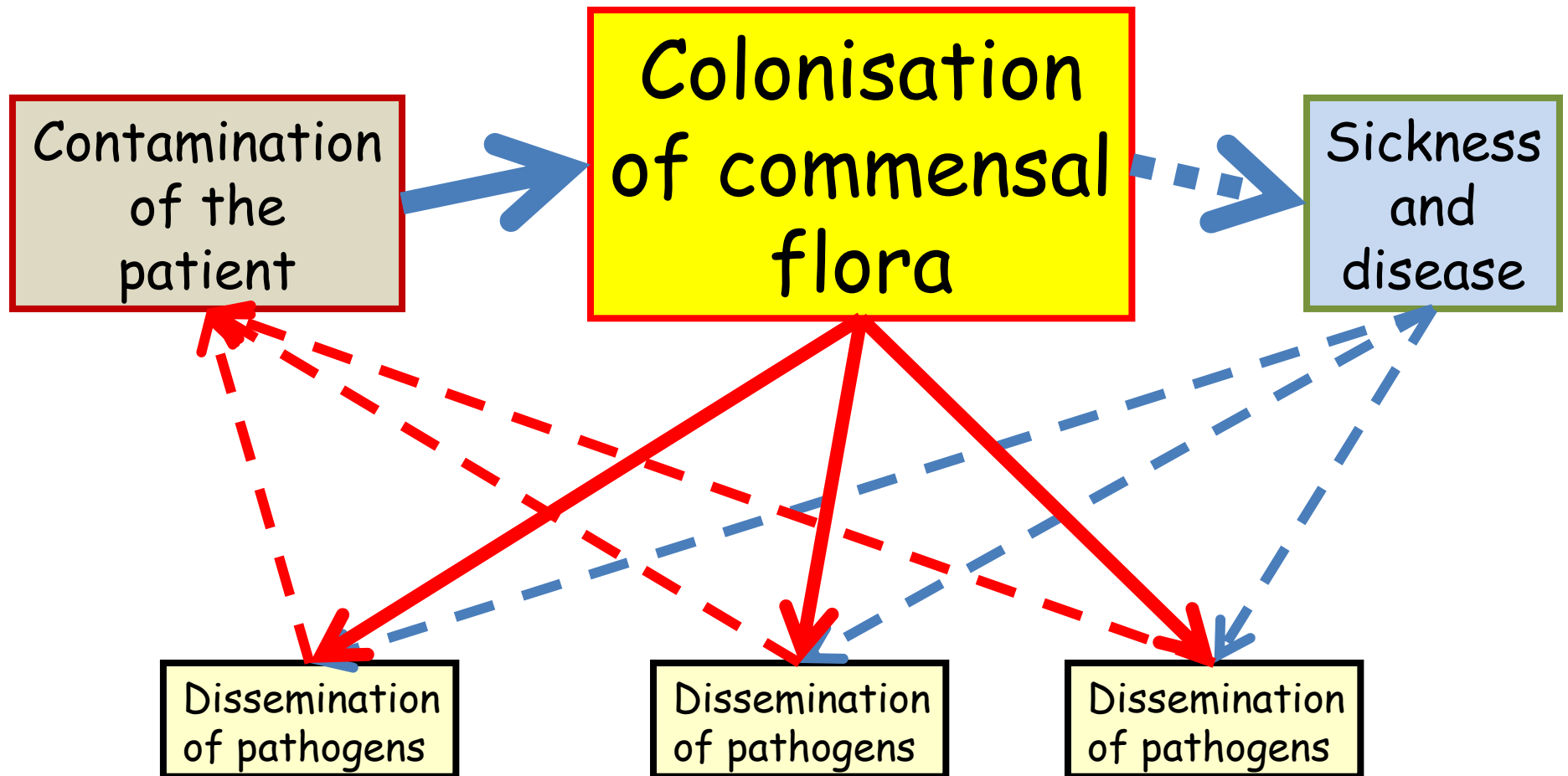
Antibiotic-resistant bacteria are a major public-health problem. Development of new antibacterial agents has dwindled resulting in a worrisome situation, particularly for Gram-negative bacterial infections. The about the development of new antibiotics, but also about ways to combat resistance before infections develop. Most patients are at first colonised by only

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- Marc Bonten (The Netherlands)
- Jan Kluytmans (The Netherlands)
- Yehuda Carmeli (Israel)
- Otto Cars (Sweden)
- Stephan Harbarth (Switzerland)

« Classical » natural history of bacterial infections



« New » natural history of bacterial infections



« Here and now »

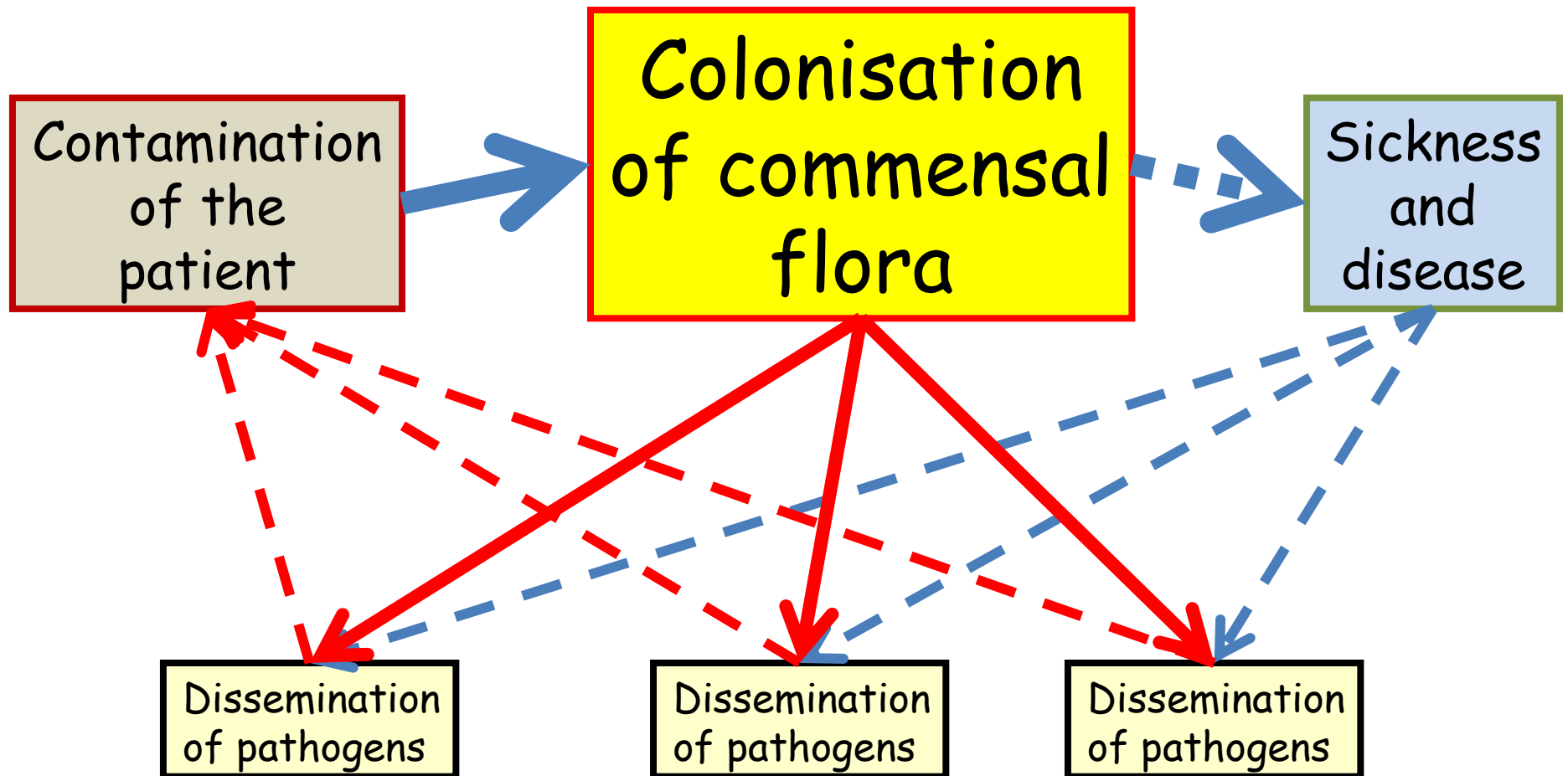
Importance of this new paradigm

1. Bacterial resistance devastating in GNB (ESBL, NDM-1, KPCs)
2. Pan-resistance disseminate through intestinal colonisation.
3. Anti GN pipe-line dried.
4. Still ahead (how much ?) of a major catastrophie.
5. Need of renewed modes of thinking

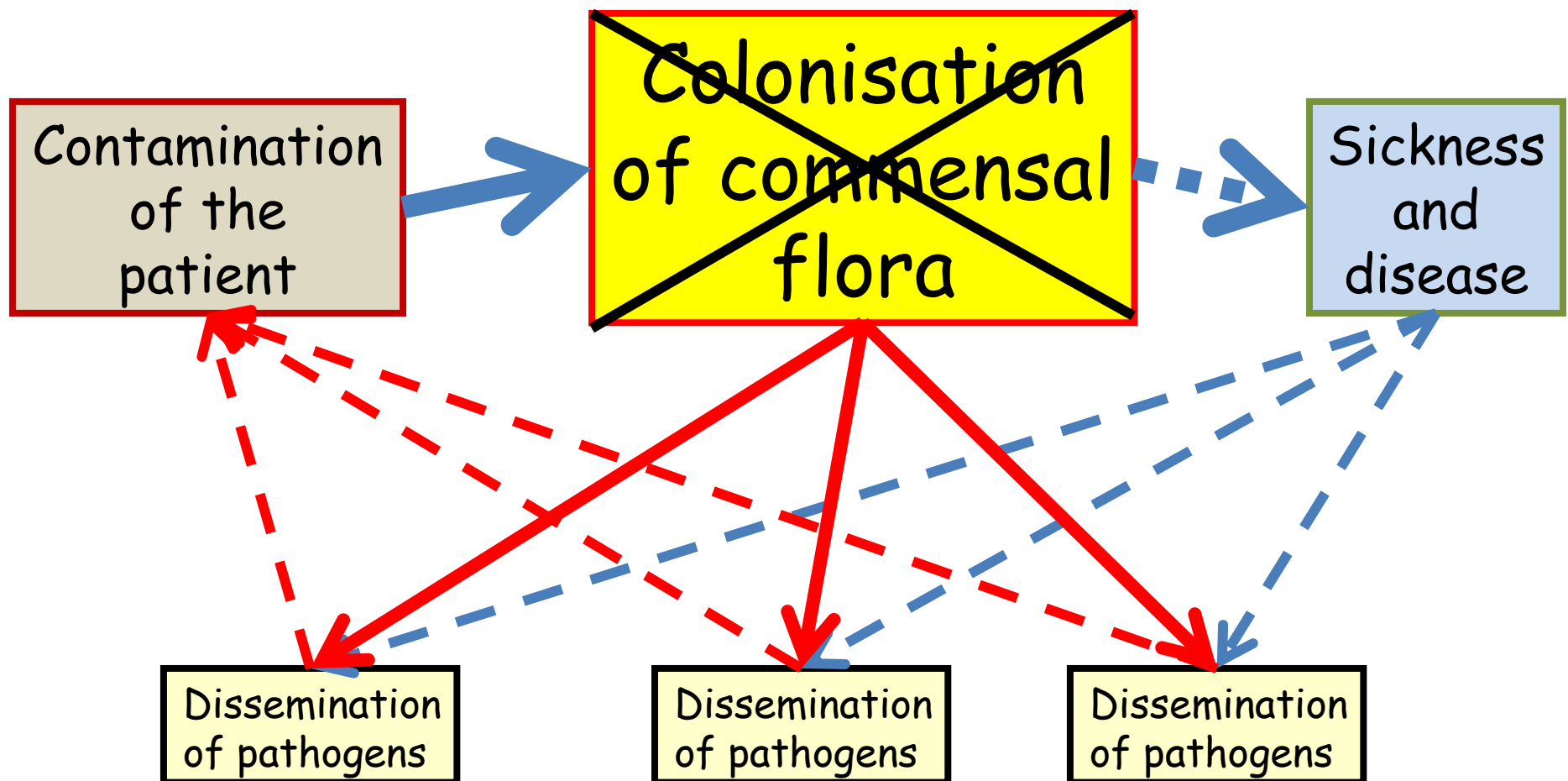
EU FP7 response :

- Encourage research
 - not only about the development of new antibiotics
 - also about “ *ways to use before infections develop* ».
- BUT novel strategies considered for funding only if with SMEs.
- *Current guidelines repel SMEs....*

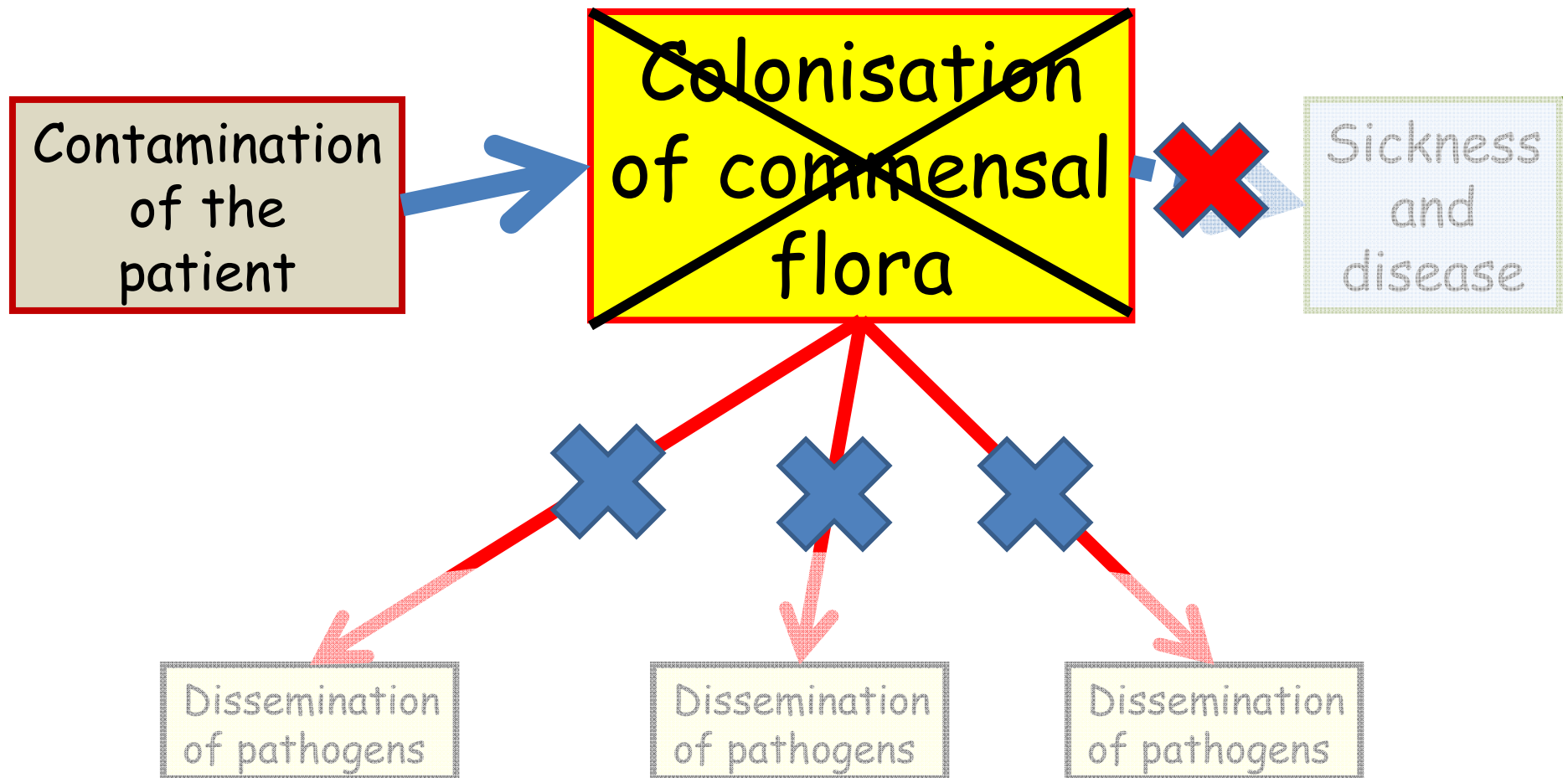
End-points for products attacking resistance before infection



End-points for products attacking resistance before infection



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End-points for products attacking resistance before infection

Current : Reduce clinical burden

1. Too rare events
2. Extremely large trials
3. Too expensive
4. Kill research and investments
5. Does not respond to emergency



Sickness
and
disease



Dissemination
of pathogens



Dissemination
of pathogens



Dissemination
of pathogens

End-points for products attacking resistance before infection

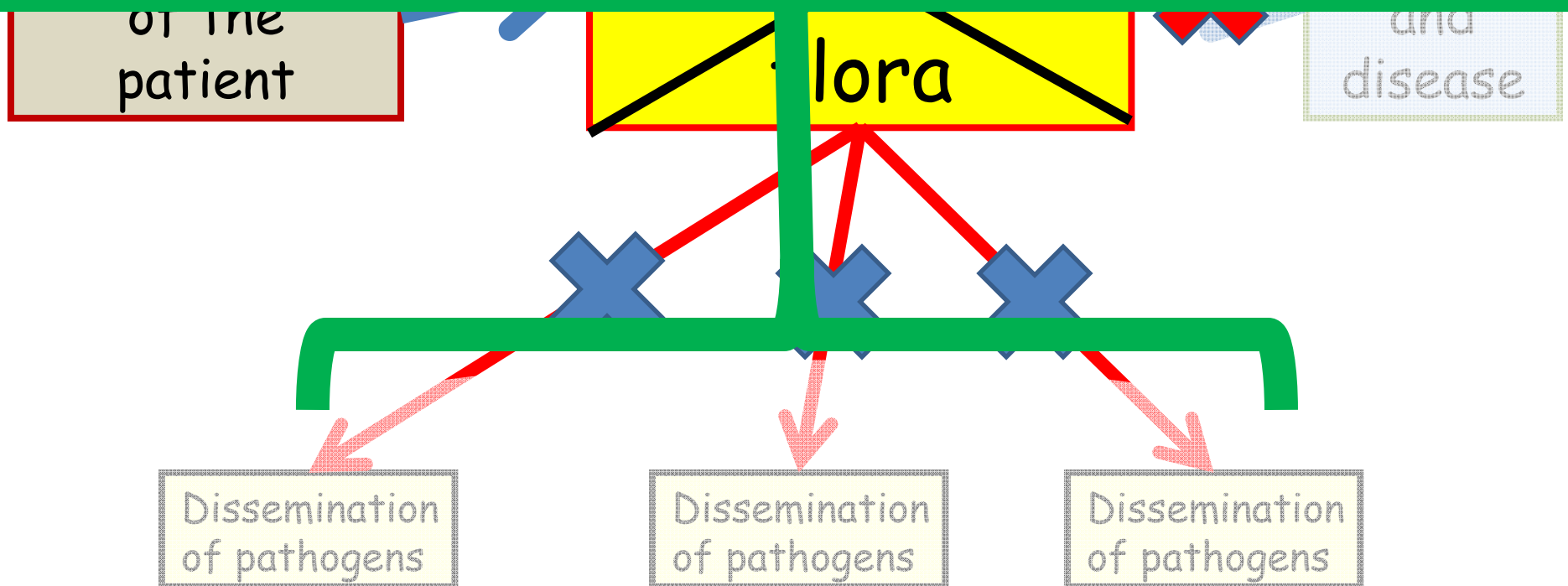


Alt 1: Demonstrate reduction of colonisation.

1. Frequent events
2. Small trials
3. Reasonably cheap
4. Stimulate R&D
5. Fast to respond to emergency

Alt. 2: Demonstrate reduction DISSEMINATION.

1. Frequent events
2. Not too large trials
3. Financially achievable
4. Stimulate R&D
5. Public health relevance



Rationales for new guidelines for eradication of carriage

- **Emergency** : we are reaching out of antibiotics for GNB
- Paths of dissemination of Resistance well understood
- Carriage plays a central role
- Lucky to be in the « pre-catastrophic era »
- Can we take the risk to remain still ?



Hospital outbreak caused by *Klebsiella pneumoniae* producing KPC-2 β -lactamase resistant to colistin

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Emergence of a new antibiotic resistance mechanism in India, Pakistan, and the UK: a molecular, biological, and epidemiological study

