Overview of the Past and Future Development of Novel Antibiotics in France: Is It Sufficient to Tackle Antimicrobial Resistance?

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Study conducted by IQVIA, with the support of Pfizer

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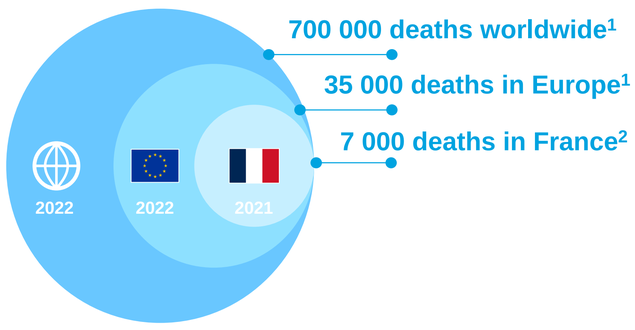
BACKGROUND

- Antimicrobial Resistance (AMR) is a **global public health challenge** leading to significant clinical, environmental, and economic burdens.
- This 'silent pandemic' is exacerbated by the misuse of antibiotics (ATBs) in both humans and animals. An increasingly number of infections are becoming more difficult to treat, as the antibiotics used are confronted with resistant pathogens.



Projections by 2050

- More than **10 million deaths** worldwide every year [19]
  - **1,91 million attributable** to AMR
  - **8,22 million associated** with AMR
- Up to $100 trillion in cumulative global economic loss[17]

Figure 1 : Estimated number of deaths attributable to AMR

- The therapeutic arsenal is facing challenges in addressing this issue, particularly in hospital settings.[3]
- The market is not attractive enough and does not encourage research and development activities, despite the significant demand for new ATBs with enhanced efficacy, tolerance, and resistance profiles.
- ATBs must be used wisely. The availability of both new and old ATBs of special medical value must be safeguarded.

OBJECTIVES & METHODS

- **Primary objective:** To provide an overview of the current and future antibiotics market in France highlighting AMR's key issues.
- **Methodology:** Descriptive analyses of antibiotics development and access in France from 2013 to 2023 (literature review, Prismaccess®), overview of future antibiotics up to 2030 (PipelineLink®).

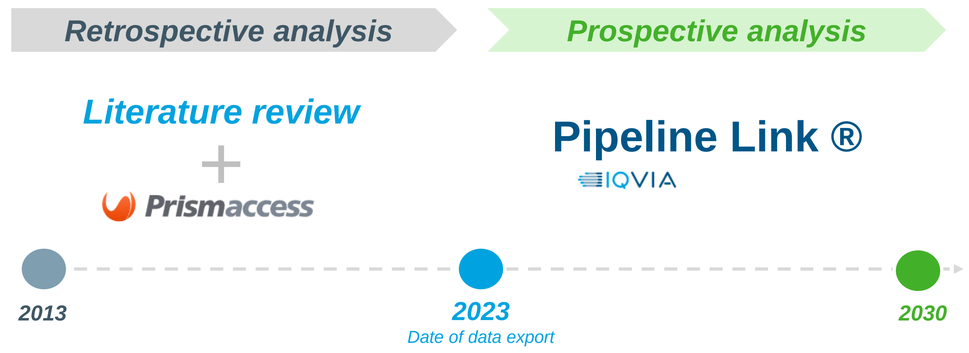


Figure 2 : Methodology

RESULTS

A challenging access to market for ATB[4,5]

- From 2013 to 2022, the French health technology assessment body (HAS) provided 11 opinions for 11 new antibiotics.[4]
- These 11 ATBs target critical and high priority germs from the WHO list.[12]

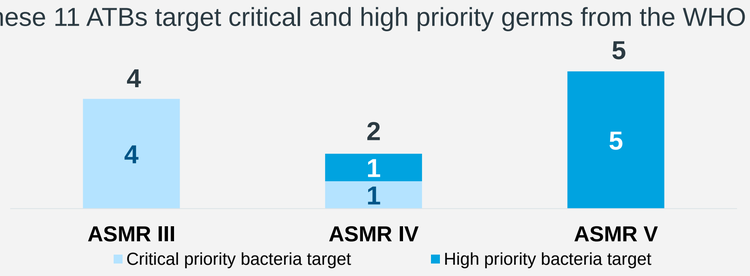


Figure 3 : Level of added clinical value (ASMR) of the 11 new antibiotics

ASMR III: moderate; ASMR IV: minor; ASMRV: no clinical improvement

A declining number of ATBs available

- Between 2000 and 2020, the number of antibiotic substances decreased by over 20%, with 37 antibiotic substances being withdrawn and 15 new substances entering the market. This decline has impacted all antibiotics' classes.[6]
- Additionally, from 2013 to 2022, five newly developed molecules had their European market authorization applications withdrawn, primarily due to commercial reasons (N=3).[7]

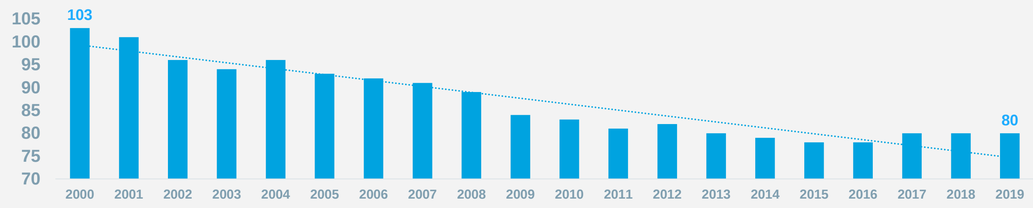


Figure 4 : Evolution of the number of ATB substances on the French market from 2000 to 2019

A decreasing ATB consumption (outpatients and at hospitals)

- From 2011 to 2021, ATB consumption decreased by 21% in volume in outpatient settings, and by 9.1% in hospitals.[4]

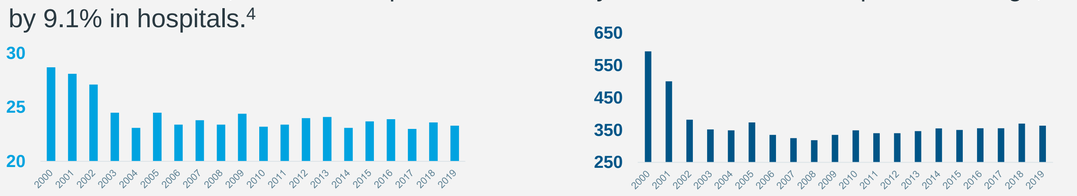


Figure 5 : Evolution of ATB consumption from outpatient settings and hospitals (from 2000 to 2019)

Amongst all drugs, anti-infectives are the main contributor to supply shortages

- Anti-infectives are the most affected by shortages, accounting for 21% of supply pressures. This includes molecules intended for hospital use to treat nosocomial infections.[9,10]

Figure 6 : Share of total stock shortages and pressure in France by therapeutic classes (TOP 5)

A sparse pipeline of antibacterial molecules (Prospective analysis of ATB under development for potential marketing authorization by 2030)

- Currently, 22 antibacterial molecules are in development in phases II and III.[11]
- According to the WHO, the clinical pipeline remains largly insufficient to tackle the challenge of the increasing emergence and spread of AMR.[18]

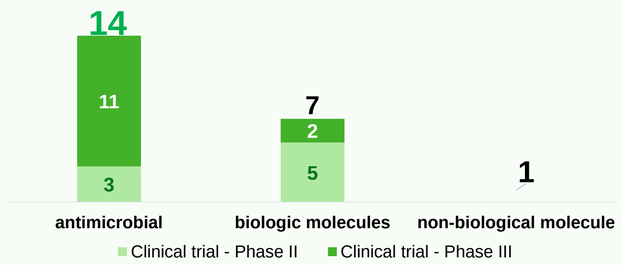


Figure 7 : Nature and stage of ATBs under development

Focus on the 14 antimicrobial under development[11]

Only 5 of them belong to new classes of antibiotics

7 target WHO critical priority bacteria[12]
(European level)

2 have received an orphan drug status
(both in phase II)

Increasing the ATB market attractiveness : Some examples of innovative financing models

The German health technology assessment agency (IQWiG) has created a reserve antibiotic status. Under this status, companies could apply through a simplified process. This status is similar to that of orphan drugs and allows the authorities to restrict prescriptions to ensure proper use.[13]

Leveraging on results from a 2019 joint pilot, NHS England and NICE developed a new antimicrobial subscription model in 2024. The resulting contracts between the NHS and companies will delink payments from the volume effectively used while guaranteeing local supply.[14]

From 2020 to 2022, the Swedish Public Health Agency experimented a new model to maintain approved antibiotics of special medical value on the market. This reimbursement model ensures a guaranteed minimum annual revenue to pharmaceutical companies in exchange for stockpiling and delivering a specified amount of antibiotics within set time limits.[15]

- Governments use "push" incentives, such as grants and tax credits, to support the research and development of antibiotics, and "pull" incentives, such as market guarantees and patent extensions, to ensure public access to these medications in the face of growing antibiotic resistance.[16]

CONCLUSION

The **decreasing number of marketed antibiotics** in a context of **sustained and ever growing AMR** emphasizes the **urgent need for innovation** and **secured access**. However, the **lack of market attractiveness** hinders this evolution. A **coordinated European strategy** to stimulate investment and support research and development is essential, as is the creation of **a last-resort antibiotic status**, akin to the orphan drug one, to **safeguard their use** and ensure **attractive funding**. Additionally, **European level initiatives** could be amplified by targeted local evaluation and funding mechanisms and some of them could be usefully **explored in France**.

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ABREVIATIONS:

AMR: Antimicrobial Resistance; ASMR: added clinical value ; ATB: Antimicrobial; HAS: the French health technology assessment body; NICE: National Institute for Health and Care Excellence (UK) ; WHO: Wolrd health Organisation;

REFERENCES:

1. Commission européenne. Action de l'UE pour combattre la résistance aux antimicrobiens. 2022
2. HAS. Lutte contre l'antibiorésistance : choix et durée de prescription des antibiotiques dans les infections bactériennes courantes. 2021.
3. Santé Publique France. Dossier Résistance aux antibiotiques. 2022.
4. Prismaccess data extraction
5. HAS. Avis de CT de FETCROJA, RECARBRIO, VABOREM, ZAVICEFTA, ZERBAXA, QUOFENIX, XYDALBA, ORBACTIV, ZINFORO, MABELIO, SIVEXTRO
6. ANSM. Rapport sur la consommation des antibiotiques entre 2000 et 2020. 2023
7. EMA. Medicine data basis, withdrawn applications. 2022 Update
8. Assurance Maladie. Base des Médicaments et Informations Tarifaires. 2022
9. Leem. Tensions et risque de ruptures des médicaments L'urgence de la sécurisation des approvisionnements. 2021.
10. ANSM. Liste des medicaments en rupture de stock. 2023 Update
11. Pipeline Link data extraction (export completed in July 2023)
12. WHO. Bacterial priority pathogens list. 2024
13. HAS, Comission de la CT. Evaluation des antibiotiques actifs sur des bactéries hautement résistantes : réflexions pour l'élaboration d'une doctrine de la Commission de la Transparence en vue du remboursement. 2023
14. NICE. A new model for evaluating and purchasing antimicrobials in the UK. 2024
15. Public Health Agency of Sweden. Availability of antibiotics. 2024
16. Bpi France. « La résisance aux antibiotiques: Un enjeu de santé publique et économique ». 2018
17. Commission européenne. Action de l'UE pour combattre la résistance aux antimicrobiens. 2022.
18. WHO. 2019 Antibacterial agents in clinical development. 2019
19. The Lancet. Global burden of bacterial antimicrobial resistance 1990–2021: a systematic analysis with forecasts to 2050. 2024