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Incentives for Antibiotics development in the USA

A model case for Europe?

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Voucher Programs in the US

- Rare diseases: first to treat a disease
- Rare Pediatric diseases
- Tropical diseases
- *Antibiotics for the treatment of difficult to treat bacterial diseases*

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Commonalities of US voucher programs - history

- 1984: FDA passed the Orphan Drug Act in an effort to push the industry to pursue the treatment of rare diseases that afflict less than 200,000 patients a year in the U.S. Under the original Orphan Drug Act companies were eligible for extra years of marketing exclusivity, without generic competition
- 2007: FDA passed the Food and Drug Administration Amendments Act (FDAAA) and issued a limited number of special “priority review” vouchers
  - drug manufacturers could expedite review of new drug products from a target of 10 months to an expedited six-month review cycle

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Voucher commonalities

- Eligible candidates are granted two vouchers and receive priority review for each voucher: the drug winning a voucher for a neglected or rare disease, and the drug using a voucher for another indication
- By moving a drug to faster review, there is the potential to slow other drugs.
- To provide the FDA with more resources and mitigate this cost, the voucher holder must pay the FDA an additional user fee (around a good 4 Mill USD in 2024). Priority review vouchers (PRVs) do not expire.
- The priority review voucher program for neglected diseases (orpahns) does not sunset

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Vouchers - Value

- A voucher's market value derives from three factors:
  - shifting sales earlier towards "Voucher registration"
  - longer effective patent life due to earlier entry
  - competitive benefits from earlier entry relative to competitors
- Vouchers can be freely traded
  - Value between 300 Mill USD in 2015 to around 70 - 100 Mill USD currently

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Antibiotics program

- Generating Antibiotic Incentives Now (GAIN), part of Food and Drug Administration Safety and Innovation Act (FDASIA),
- GAIN creates incentives for the development of antibacterial and antifungal drug products that treat serious or life-threatening infections.
- Designation of a qualified infectious disease product (QIDP) under GAIN.

GAIN

- **GAIN offers incentives for certain antibacterial and antifungal products**
  - **5-year exclusivity extension for certain applications of drug products that have been designated as a QIDP and approved under section 505 of the Federal Food, Drug, and Cosmetic Act (FD&C Act).**
  - **This 5-year exclusivity extension is added to any exclusivity for which the application qualifies upon approval**
    - Pediatric development
    - Orphan exclusivity
  - **Additionally, it requires FDA to give priority review to the first application submitted for approval for a QIDP**
  - **A QIDP will also receive fast track designation at the sponsor's request**

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What is a ”QIDP”?

- A QIDP is defined “an antibacterial or antifungal drug for human use intended to treat serious or life-threatening infections, including those caused by –
  - an antibacterial or antifungal resistant pathogen, including novel or emerging infectious pathogens
  - qualifying pathogens listed by the Secretary (of health)
  - The Agency has codified the list of qualifying pathogens in 21 CFR 317.2.

QIDP

- For a drug product to be designated a QIDP, the sponsor is required to demonstrate that the drug is an “antibacterial or antifungal drug for human use intended to treat serious or life-threatening infections.”
- What does this mean:
  - It shall directly inhibit replication of, or it kills bacteria or fungi relevant to the proposed indication
- In its designation request, a sponsor requesting a QIDP designation may also include documentation that the product is intended to treat an “antibacterial or antifungal resistant pathogen, including novel or emerging infectious pathogens” or a qualifying pathogen included in 21 CFR 317.2; however, such documentation is not required

Quakifying “bugs”

- **The term "qualifying pathogen" in section 505E(f) of the Federal Food, Drug, and Cosmetic Act is defined to mean any of the following:**
  - (a) Acinetobacter species.
  - (b) Aspergillus species.
  - (c) Burkholderia cepacia complex.
  - (d) Campylobacter species.
  - (e) Candida species.
  - (f) Clostridium difficile.
  - (g) Coccidioides species.
  - (h) Cryptococcus species.
  - (i) Enterobacteriaceae.
  - (j) Enterococcus species.
  - (k) Helicobacter pylori.
  - (l) Mycobacterium tuberculosis complex.
  - (m) Neisseria gonorrhoeae.
  - (n) Neisseria meningitidis.
  - (o) Non-tuberculous mycobacteria species.
  - **(p) Pseudomonas species.**
  - **(q) Staphylococcus aureus.**
  - **(r) Streptococcus agalactiae.**
  - **(s) Streptococcus pneumoniae.**
  - **(t) Streptococcus pyogenes.**
  - (u) Vibrio cholerae.

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Things to be taken into consideration for QIDP

- FDA generally considers the QIDP designation as applying to a specific drug product from a specific sponsor for a specific use for which it is being studied. **The designation is granted only to the sponsor making the request, rather than applying to a drug substance in general or beyond the specified indications.**
- Biologics or devices are excluded from QIDP
- Requests can be made at any time during development

Data requirements

- Good idea that the drug might work:
  - In vitro data, including any available data on mechanism of action
  - Data from animal models of infection
  - Available human data from phase 1, phase 2, or phase 3 studies

Model for the EU?

- **Data protection and data exclusivity available now**
  - **Add on to “everything”**
  - **Duration?**
  - **Type:**
    - Data exclusivity (orphan) vs data protection (8.3)

Thank you

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Granzer Regulatory Consulting & Services GmbH

Kistlerhofstrasse 172 C
81379 München
Phone: +49 89 7806 898 – 0
Fax: +49 89 7806 898 – 15
E-mail: contact@granzer.biz
www.granzer.biz

GRANZER
REGULATORY CONSULTING & SERVICES