

Introduction to therapeutics

E O

Clerkship

“Acquiring an MBChB degree does not make you a doctor . Humility ,diligence, honesty and compassion does”

“Every time you step in the ward know that someone's life depend on the choices you make both now and in your future practice “

I'VE ALREADY GOT A DIAGNOSIS FROM
HOMEDOC.COM...BUT I THOUGHT I'D
SEE YOU FOR A SECOND OPINION!



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Strategy to appropriate medicine use

- Must be rational and efficacious
- Safety - limiting toxicity
- Improving quality of care by enhancing appropriate drug selection
- Reducing evolution of treatment failure
- Ensuring cost effectiveness

Antimicrobial stewardship

- Selecting appropriate antibiotic
- Optimising dose and duration of therapy
- Minimising toxicity
- Reducing resistance selection





WHITEWATER: ANGUISH INSIDE THE WHITE HOUSE

Newsweek

November 1994

\$4.50

ANTIBIOTICS

THE END OF MIRACLE DRUGS?

WARNING

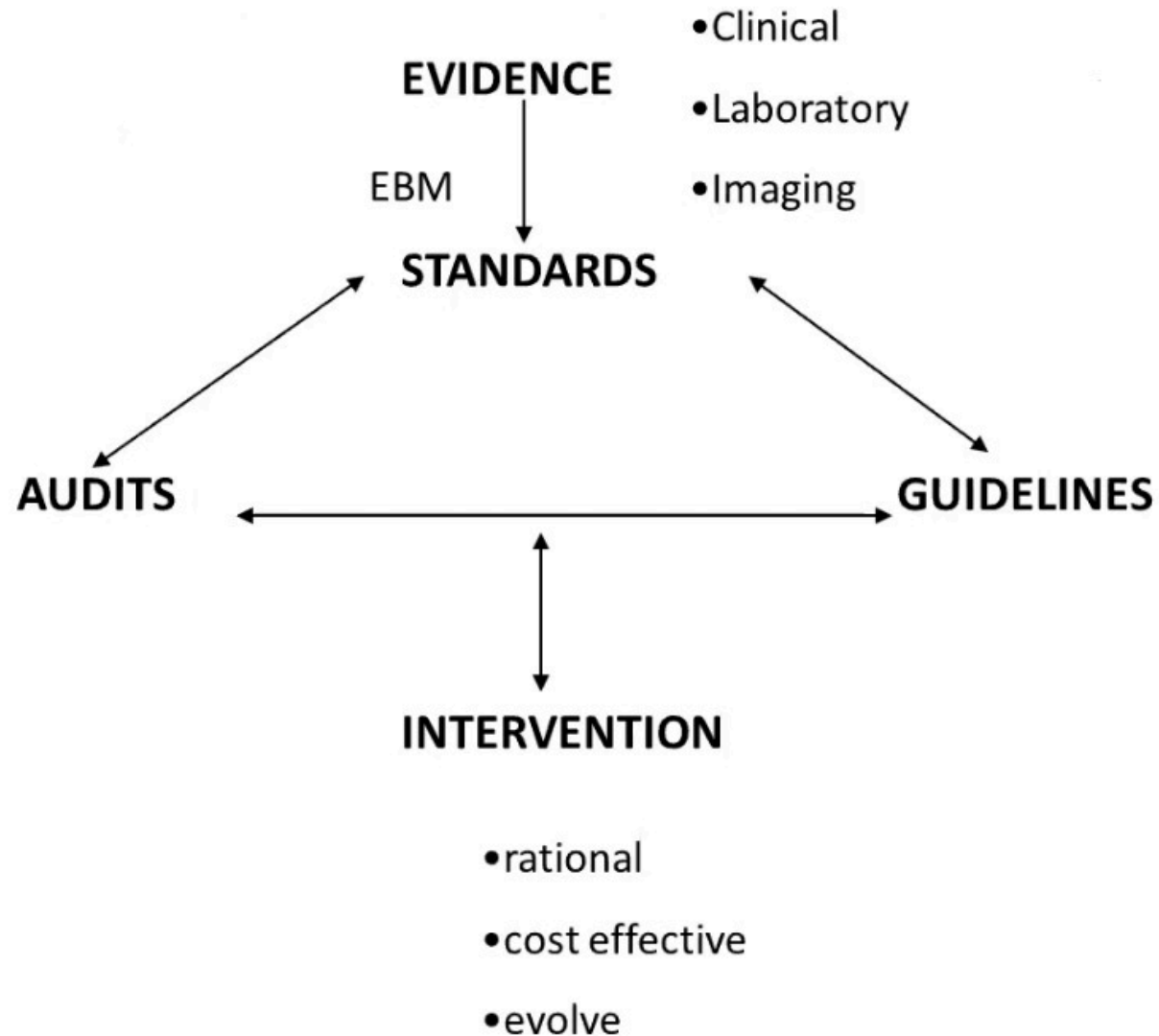
NO LONGER
EFFECTIVE
AGAINST
KILLER
BUGS



Rational drug selection

- Good treatment outcomes
- Low adverse reaction potential
- Cost effective options
- Limit treatment failure
- Recognise collateral damage

Therapeutic options



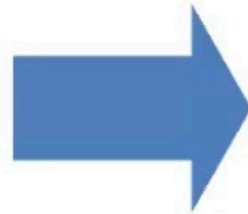
Pressures on the primary care physician

Peer groups / prescribing and pharmacy advisors



Pharmaceutical representatives

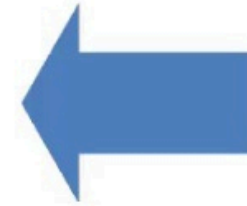
(Industry spends 35% of profits on marketing)



Regulatory control mechanisms



Patients' and Parent's demands



and

physician aspirations



Hospital experts, formularies and guidelines

Drug Pharmacokinetics

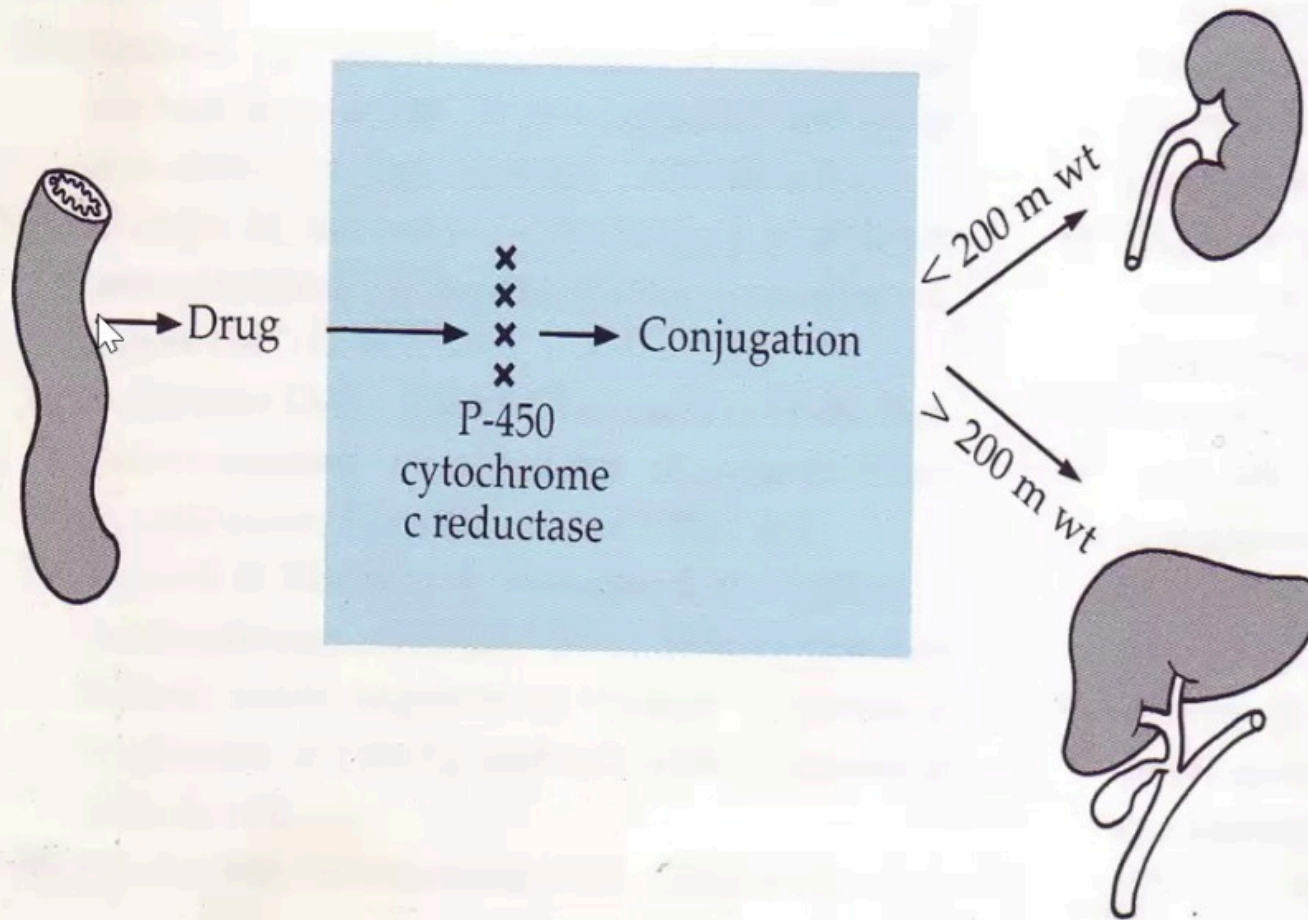
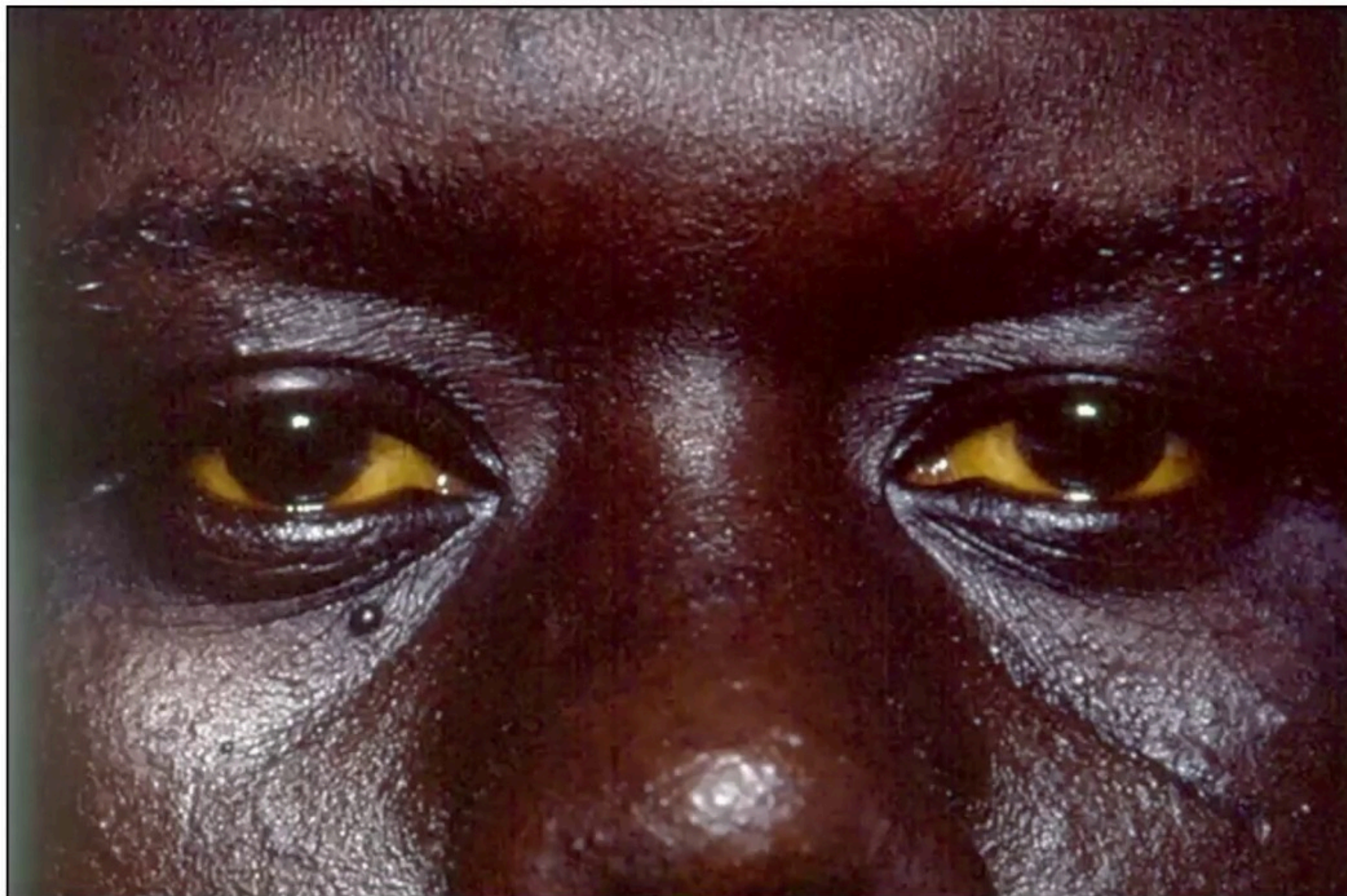
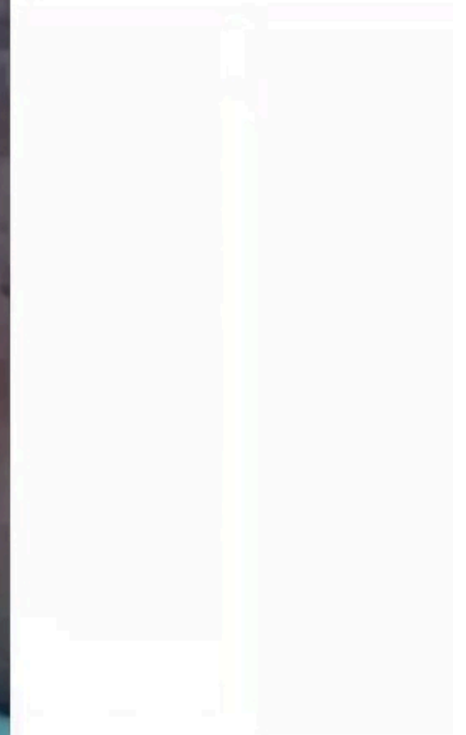


Fig. 18.1. Hepatic drug metabolism (Sherlock, 1979).

What influences drug choice ?

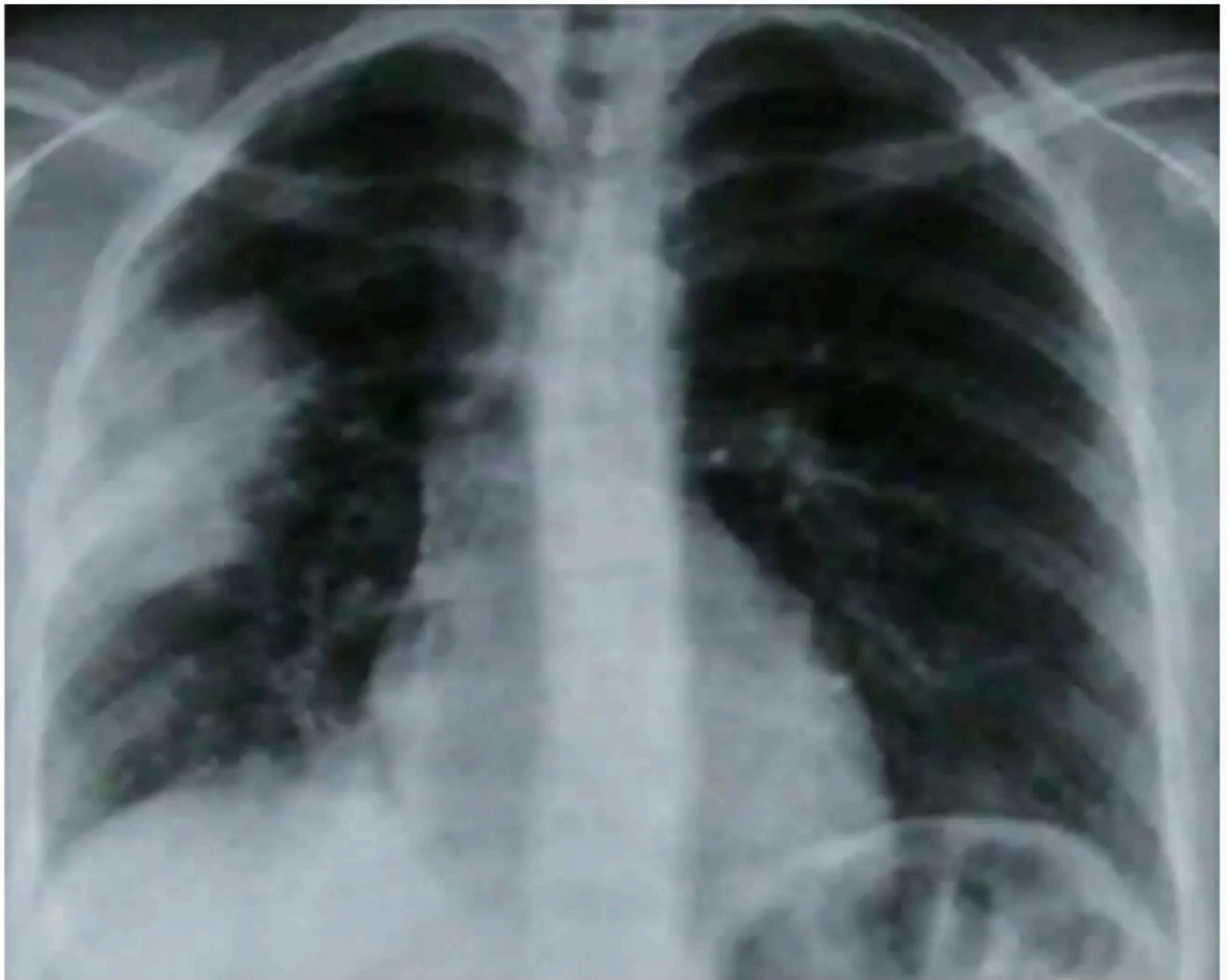
- Efficacy
- Safety
- Tolerability
- Convenience
- Cost effectiveness
- Cost



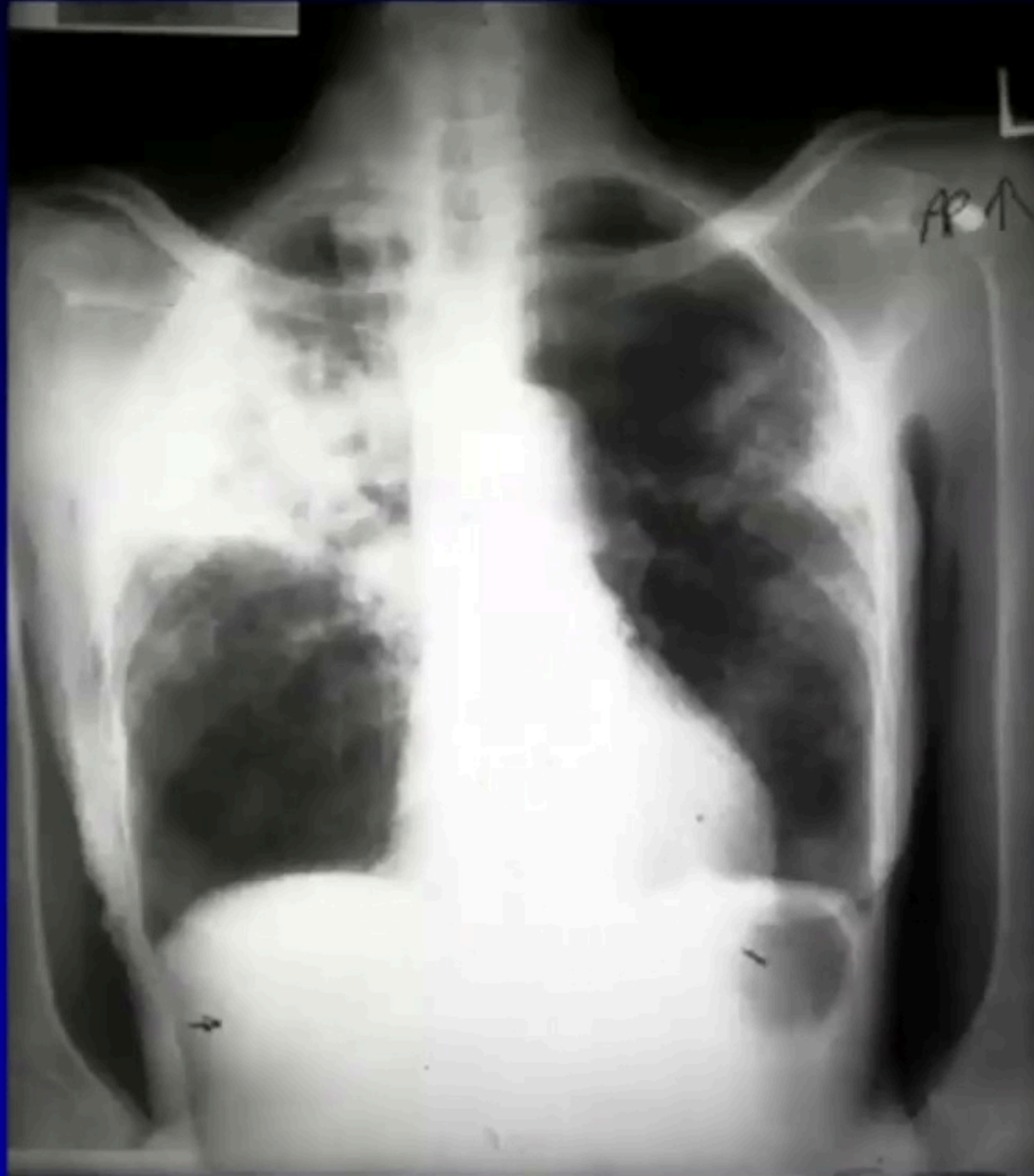


FDA Pregnancy categories

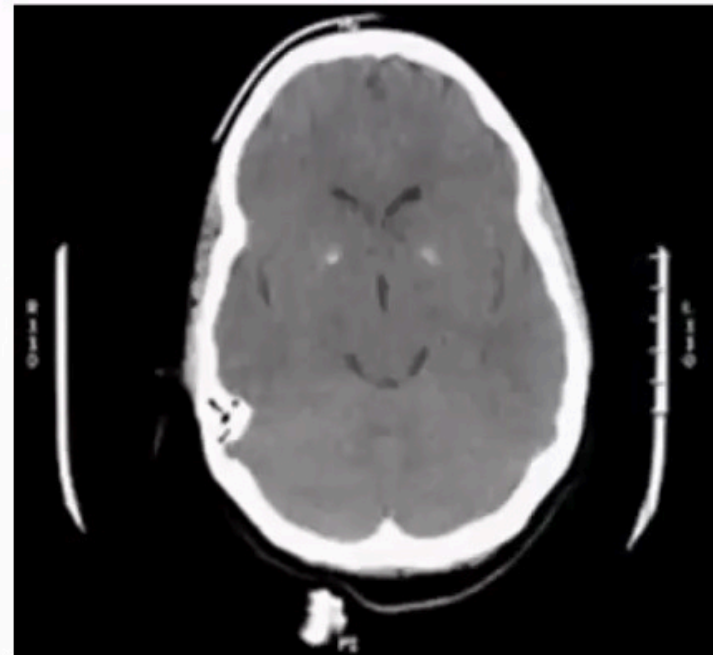
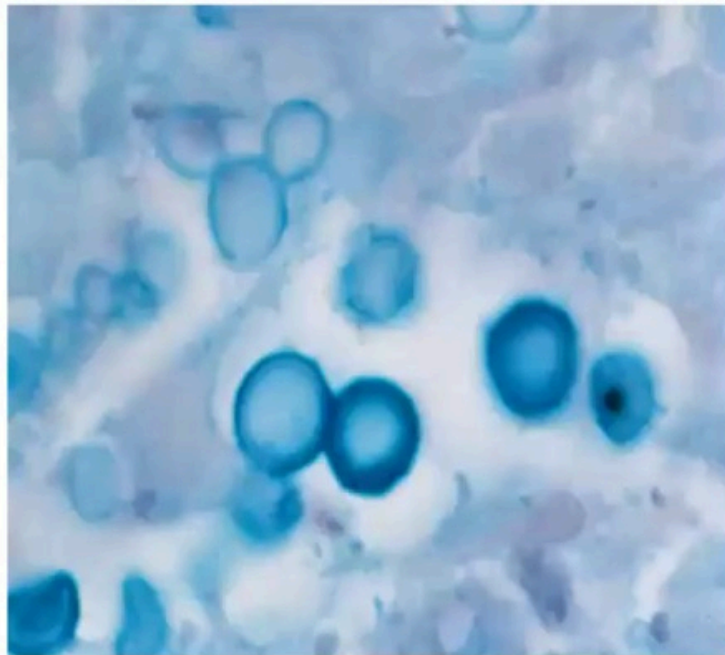
Pregnancy category	Description
A	Controlled studies in humans .No risk in 1 st trimester. No evidence of later harm
B	Human data reassuring
C	Human data lacking
D	Human data shows risks
X	Animal and human data positive



Patient with Nonresponsive RUL Pneumonia



Cryptococcal meningitis



anti-malarial drugs blood elimination half-life

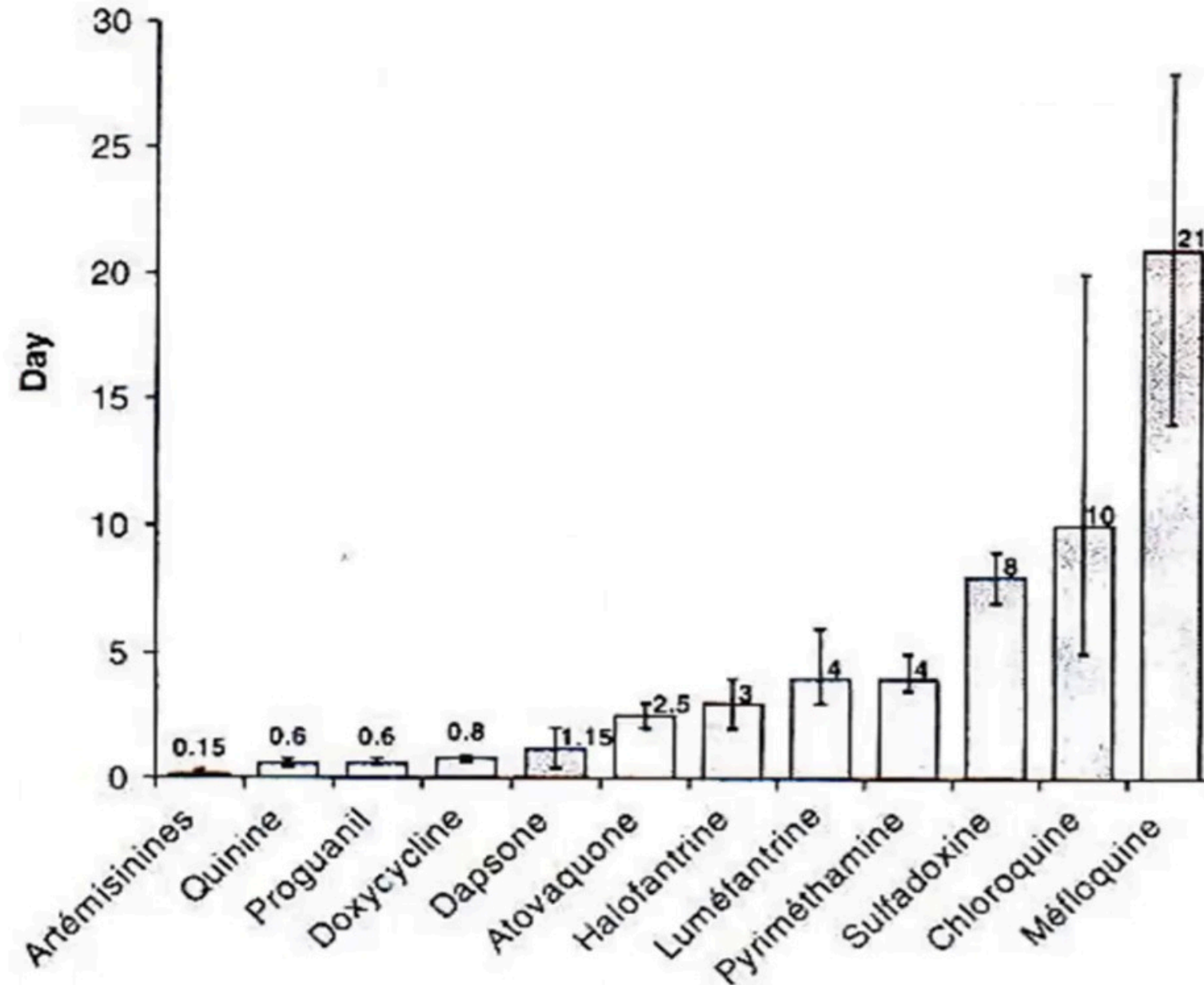


Figure 1 Antimalarial blood elimination half-life.

Metabolism

- Hepatic
- Renal
- GIT
- Enzyme systems- MFO
 - CYP 450
 - cytochrome reductase

- Clinical outcomes
- Individualisation of PK/PD
- Age
- Organ function
- Drug interaction
- Tolerance

PK/PD Parameters For Predicting In Vivo Bactericidal Efficacy

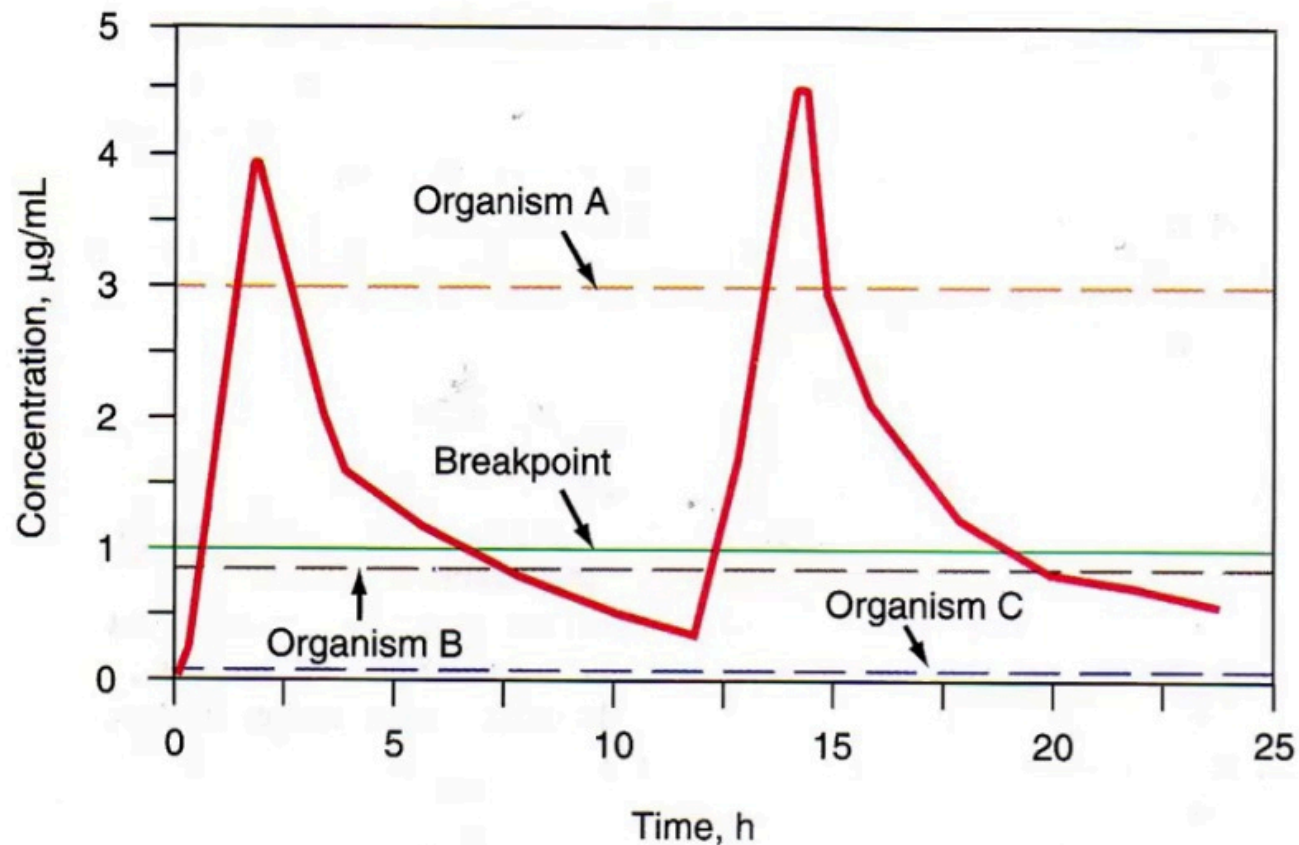
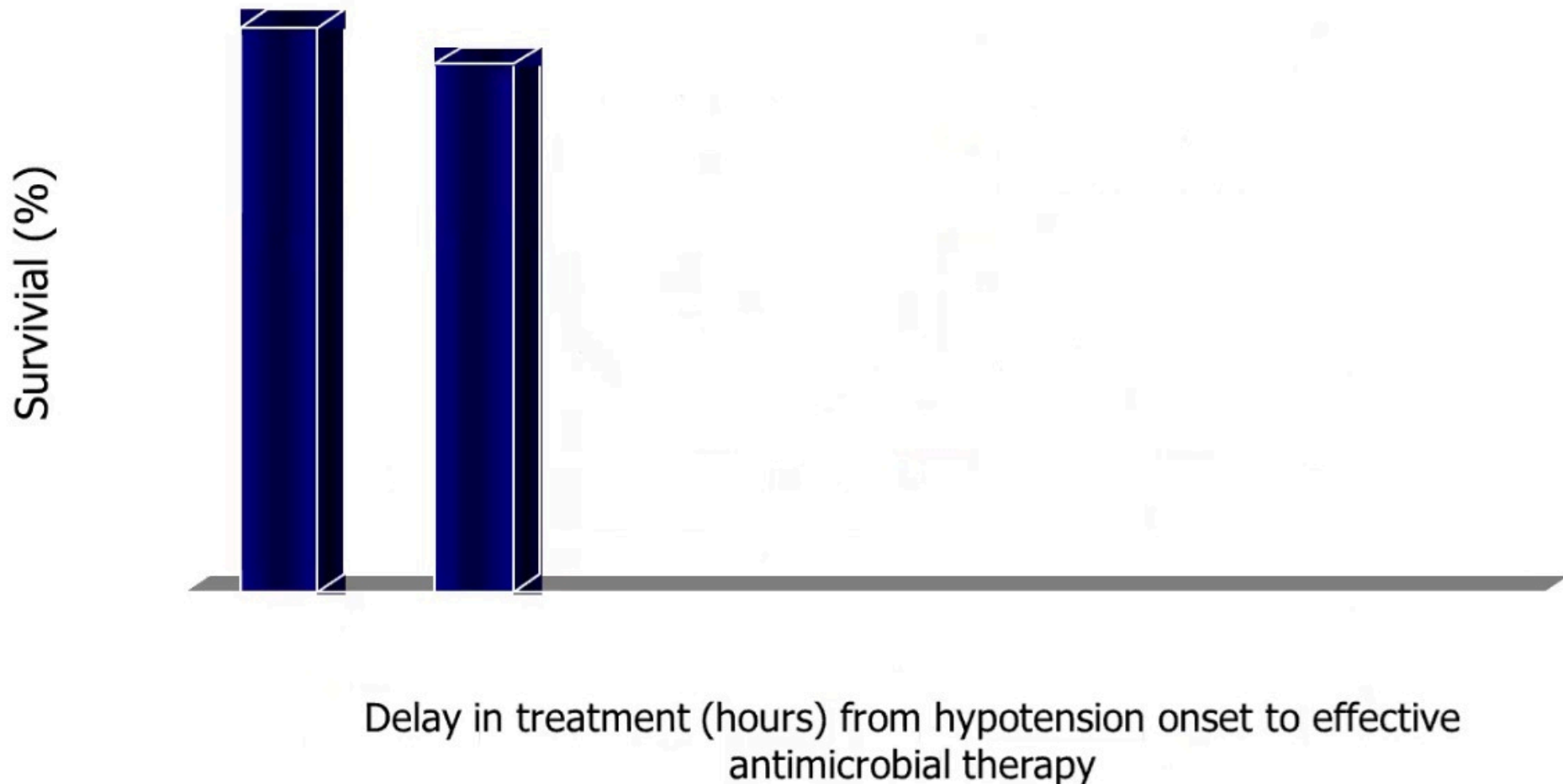


FIGURE 118-2 Relationship between pharmacokinetics of an antibiotic and susceptibility. Organism A is resistant, organism B is moderately susceptible, and organism C is very susceptible.

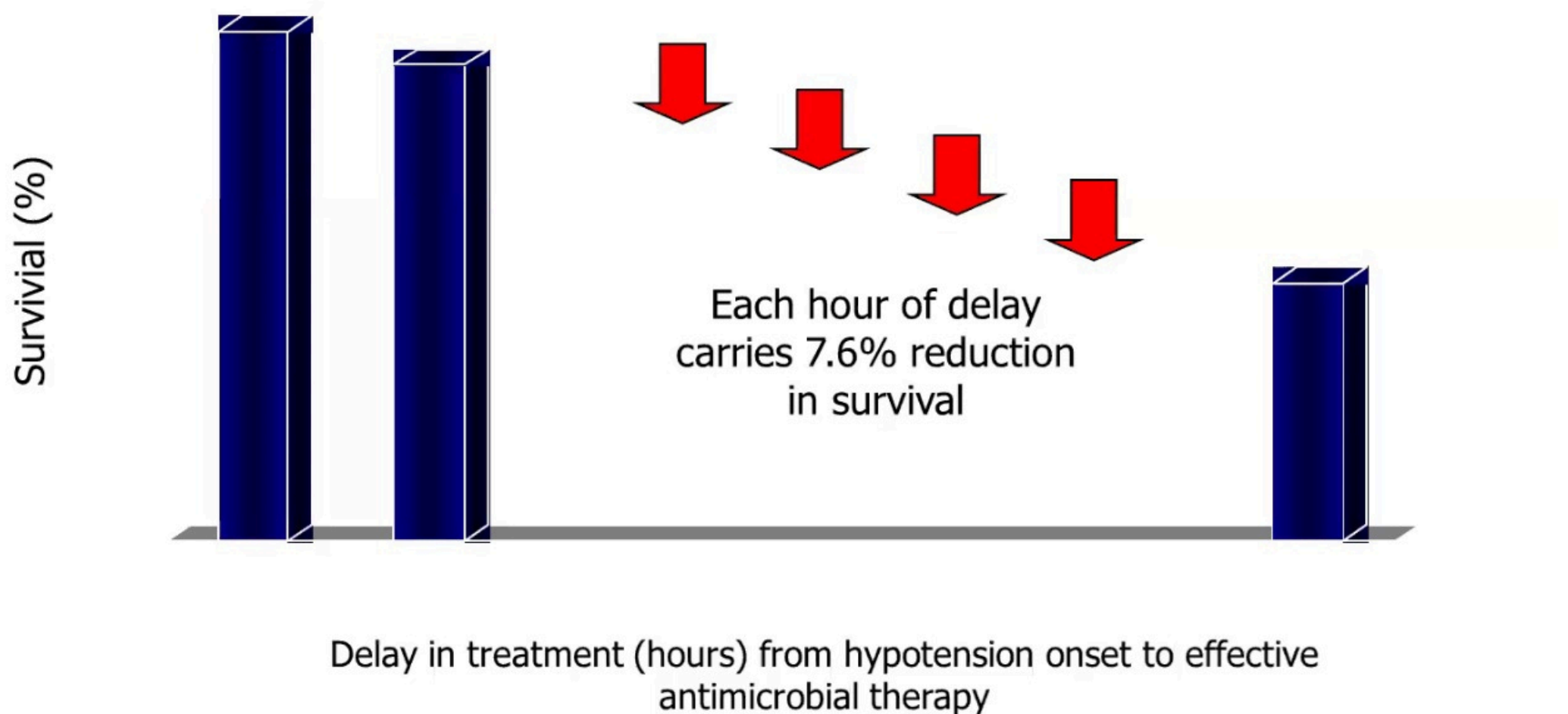
Not Just Appropriate Therapy: RAPID Therapy in Septic Shock

2154 patients with septic shock
78.9% got effective antimicrobial therapy

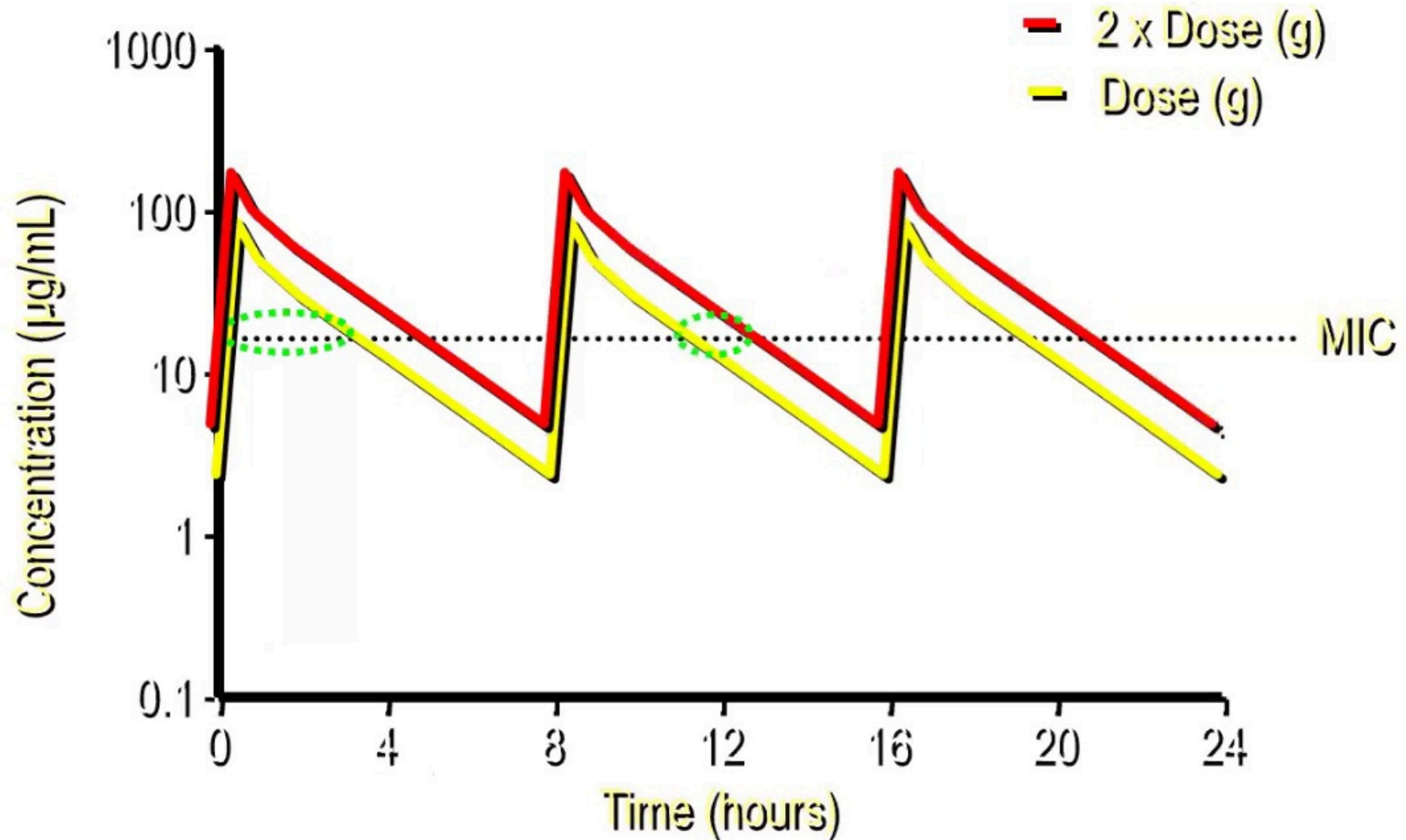


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Strategies to Improve Efficacy: Dose Escalation



Strategies to Improve Efficacy and Limit Resistance for β -Lactams

