



Summary brief

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Increasing use of injectable antibiotics in Patan Hospital: a cause for concern!

Reference: Baral P, Hann K, Pokhrel B, Koirala T, Bijukchhe S, Khogali M. Annual consumption of parenteral antibiotics in a tertiary hospital of Nepal (2017-2019): A cross sectional study. Public Health Action. (In press)

Contact information:

Pinky Baral

baralpinky@gmail.com

Key Messages

- Overconsumption of parenteral antibiotics is the main driver for AMR in health care settings.
- Increasing trend in the consumption of parenteral antibiotics has been observed in Patan Hospital, and is not explained by increased patient volumes.
- Highest consumption seen among broad-spectrum antibiotics and those which should have higher levels of safeguarding.
- Strong antibiotic stewardship, including the implementation of antibiotic use guidelines, strengthening laboratory services by the Hospital Management Committee and surveillance of consumption by National AMR Committee are needed.

What is the problem and why is it important?

Inappropriate antibiotic consumption has been identified as the main driver of antimicrobial resistance (AMR). Overconsumption antibiotics which require higher levels of safeguarding is commonly seen in developing countries like Nepal due to lack of hospital protocol and proper surveillance on consumption patterns. Overconsumption of such injectable antibiotics not only causes adverse side effects and increased costs for patients, because they tend to cost more, but also increases the risk of antimicrobial resistance.

How did we measure it?

We extracted all data on injectable antibiotics dispensed from the pharmacy department of Patan hospital from 2017 to 2019. We calculated their consumption using a standard measure for consumption (Defined Daily Dose (DDD)), a measure adjusted for patient volume (DDD per 100 hospital admissions), and expenditure on parenteral antibiotics as a proportion of total patient expenditure on all drugs and consumables. We used WHO classification for steward groups of antibiotics (AWaRe) and a standard WHO classification for medications (Anatomical Therapeutic Chemical (ATC)) to determine patterns of consumption using frequency, percentage and proportions.

Defined Daily Dose (DDD): average assumed maintenance dose per day for a drug used for its main indication in adults.

DDD per 100 hospital admissions: this represents the total DDD of antibiotic consumed, adjusted for patient volumes.

WHO AWaRe stewardship categories of antibiotics

‘Access’: used against a wide range of commonly encountered susceptible pathogens with lower resistance potential

‘Watch’: should not be used as long as ‘Access’ antibiotics are effective.

‘Reserve’: antibiotics to be used as last resort.

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What did we find?

- Total DDD of the injectable antibiotic increased by 23% and DDD/100 hospital admission increased by 10% during the study period.
- ‘Watch’ category of antibiotics were the most consumed, with an increasing trend in ‘Reserve’ and decrease in the use of ‘Access’ category.
- Ceftriaxone was the most consumed parenteral antibiotic.
- Patient expenditure on injectable antibiotics increased two-fold.

Implications and recommendations:

- The increasing consumption of parenteral antibiotics has potential to lead to antimicrobial resistance. The Hospital Management Committee needs to develop a protocol for antibiotic treatment guidelines for the hospital, supported by capacity building.
- Over use of ‘Watch’ and ‘Reserve’ antibiotics increases the financial burden on patients and the risk of AMR. The Management Committee needs to develop a comprehensive antibiotic stewardship programme, including the requirement for approval of an infectious disease expert before using such antibiotics in the protocol.
- The Management Committee needs to strengthen laboratory systems in the hospital, specifically making point-of-care tests available; to differentiate bacterial from non-bacterial causes of illness which can limit unnecessary antibiotics prescription.
- The procurement committee in the hospital should aim for the procurement of simple, yet effective, and cheap antibiotics to limit the supply of antibiotics with higher safeguarding requirements, and hence the consumption.
- The National AMR Committee should ensure a functional antimicrobial surveillance system to determine consumption patterns of antibiotics in health care settings is justified by resistance patterns.