

## Development of Generally Applicable Intravenous to Oral Antibiotic Switch Therapy Criteria

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**Abstract :** Background: A timely switch from intravenous to oral antibiotic therapy has many advantages, such as reduced incidence of IV-line related infections, a decreased hospital length of stay and less workload for healthcare professionals with equivalent patient safety. Additionally, numerous studies have demonstrated significant decreases in costs of a timely intravenous to oral antibiotic therapy switch, while maintaining efficacy and safety. However, a considerable variation in iv to oral antibiotic switch therapy criteria has been described in literature. Here, we report the development of a set of iv to oral switch criteria that are generally applicable in all hospitals. Material/methods: A RAND-modified Delphi procedure, which was composed of 3 rounds, was used. This Delphi procedure is a widely used structured process to develop consensus using multiple rounds of questionnaires within a qualified panel of selected experts. The international expert panel was multidisciplinary and composed out of clinical microbiologists, infectious disease consultants and clinical pharmacists. This panel of 19 experts appraised 6 major intravenous to oral antibiotic switch therapy criteria and operationalized these criteria using 41 measurable conditions extracted from the literature. The procedure to select a concise set of iv to oral switch criteria included 2 questionnaire rounds and a face-to-face meeting. Results: The procedure resulted in the selection of 16 measurable conditions, which operationalize 6 major intravenous to oral antibiotic switch therapy criteria. The following 6 major switch therapy criteria were selected: (1) Vital signs should be good or improving when bad. (2) Signs and symptoms related to the infection have to be resolved or improved. (3) The gastrointestinal tract has to be intact and functioning. (4) The oral route should not be compromised. (5) Absence of contra-indicated infections. (6) An oral variant of the antibiotic with good bioavailability has to exist. Conclusions: This systematic stepwise method which combined evidence and expert opinion resulted in a feasible set of 6 major intravenous to oral antibiotic switch therapy criteria operationalized by 16 measurable conditions. This set of early antibiotic iv to oral switch criteria can be used in daily practice in all adult hospital patients. Future use in audits and as rules in computer assisted decision support systems will lead to improvement of antimicrobial stewardship programs.

**Keywords :** antibiotic resistance, antibiotic stewardship, intravenous to oral, switch therapy

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