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Concept Mapping to Reach Consensus on an Antibiotic Smart Use Strategy Model to Promote and Support Appropriate Antibiotic Prescribing in a Hospital, Thailand

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Abstract : Inappropriate use of antibiotics has happened in several hospitals, Thailand. Drug use evaluation (DUE) is one strategy to overcome this difficulty. However, most community hospitals still encounter incomplete evaluation resulting overuse of antibiotics with high cost. Consequently, drug-resistant bacteria have been rising due to inappropriate antibiotic use. The aim of this study was to involve stakeholders in conceptualizing, developing, and prioritizing a feasible intervention strategy to promote and support appropriate antibiotic prescribing in a community hospital, Thailand. Study antibiotics included four antibiotics such as Meropenem, Piperacillin/tazobactam, Amoxicillin/clavulanic acid, and Vancomycin. The study was conducted for the 1-year period between March 1, 2018, and March 31, 2019, in a community hospital in the northeastern part of Thailand. Concept mapping was used in a purposive sample, including doctors (one was an administrator), pharmacists, and nurses who involving drug use evaluation of antibiotics. In-depth interviews for each participant and survey research were conducted to seek the problems for inappropriate use of antibiotics based on drug use evaluation system. Seventy-seven percent of DUE reported appropriate antibiotic prescribing, which still did not reach the goal of 80 percent appropriateness. Meropenem led other antibiotics for inappropriate prescribing. The causes of the unsuccessful DUE program were classified into three themes such as personnel, lack of public relation and communication, and unsupported policy and impractical regulations. During the first meeting, stakeholders (n = 21) expressed the generation of interventions. During the second meeting, participants who were almost the same group of people in the first meeting (n = 21) were requested to independently rate the feasibility and importance of each idea and to categorize them into relevant clusters to facilitate multidimensional scaling and hierarchical cluster analysis. The outputs of analysis included the idealist, cluster list, point map, point rating map, cluster map, and cluster rating map. All of these were distributed to participants (n = 21) during the third meeting to reach consensus on an intervention model. The final proposed intervention strategy included 29 feasible and crucial interventions in seven clusters: development of information technology system, establishing policy and taking it into the action plan, proactive public relations of the policy, action plan and workflow, in cooperation of multidisciplinary teams in drug use evaluation, work review and evaluation with performance reporting, promoting and developing professional and clinical skill for staff with training programs, and developing practical drug use evaluation guideline for antibiotics. These interventions are relevant and fit to several intervention strategies for antibiotic stewardship program in many international organizations such as participation of the multidisciplinary team, developing information technology to support antibiotic smart use, and communication. These interventions were prioritized for implementation over a 1-year period. Once the possibility of each activity or plan is set up, the proposed program could be applied and integrated into hospital policy after evaluating plans. Effectiveness of each intervention could be promoted to other community hospitals to promote and support antibiotic smart use.

Keywords : antibiotic, concept mapping, drug use evaluation, multidisciplinary teams
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