

## **ABSTRACT**

### **MODELING ON CLINICAL GROUP DECISION SUPPORT SYSTEM AS A TOOL FOR DIAGNOSING PATIENTS WITH ACUTE RESPIRATORY INFECTIONS**

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Decision making is a crucial medical action carried out by medical personnel, notably Emergency Room (ER) in which children and toddlers with Acute Respiratory Infection (ARI) are treated. In such process there are still patients who are not handled quickly and appropriately, because of the doctors absence and limited knowledge of medical personnel.

This study is conducted to develop Clinical Model Group Decision Support System (GDSS) as a tool of ARI diagnosis. This model is able to accommodate the presumptive identification process at the screening stage up to the work diagnosis process. The presumptive identification process is done using Case Based Reasoning (CBR). This model assists medical personnel such as nurses, physicians, and general practitioners. Meanwhile, the work diagnosis process is completed with the GDSS. This process accommodates the need for joint decision making involving the Decision Maker (DM) group consists of pediatricians and pediatric lung specialists.

The result of this study is a Clinical GDSS model is named KLISPA model. Stages of completion of KLISPA model include presumptive identification process using CBR based on Nearest Neighbor method. The work diagnostic process is completed by GDSS modeling using Eckenrode, Extended TOPSIS and BoostVote methods. The Eckenrode method is utilized to calculate the weight value, Extended TOPSIS is applied for alternative decision rankings, and BoostVote is used for voting. Tests on the KLISPA Model resulted in an average accuracy score (accuracy in identifying ill persons correctly diagnosed with ARD) by 95%. The results of sensitivity (the ability to diagnose patients with positive results and true suffering from ARI) by 91%. The results of specificity (the ability to diagnose patients with negative and true results did not suffer from ARD) by 93%.

**Keywords:** ARI, CBR, GDSS, Eckenrode, Extended TOPSIS, BoostVote.

## INTISARI

### PEMODELAN SISTEM PENDUKUNG KEPUTUSAN KELOMPOK KLINIS SEBAGAI ALAT BANTU DIAGNOSIS PASIEN ISPA

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Pengambilan keputusan merupakan peristiwa tindakan medis yang dilakukan oleh tenaga medis, terutama pada Instalasi Gawat Darurat (IGD) yang menangani pasien Infeksi Saluran Pernafasan Akut (ISPA) bagi anak dan balita. Pada proses tersebut masih ditemui kasus pasien yang tidak tertangani dengan cepat dan tepat, dikarenakan dokter jaga tidak berada ditempat dan keterbatasan pengetahuan tenaga medis.

Penelitian ini dilakukan untuk mengembangkan model Sistem Pendukung Keputusan Kelompok (SPKK) Klinis sebagai alat bantu diagnosis ISPA. Model ini dapat mengakomodasi proses identifikasi presumtif pada *screening* sampai dengan proses diagnosis kerja. Proses identifikasi presumtif diselesaikan dengan *Case Based Reasoning* (CBR), proses ini digunakan untuk membantu tenaga medis seperti perawat, dokter muda, dan dokter umum. Sementara itu, proses diagnosis kerja diselesaikan dengan SPKK. Proses ini mengakomodasi kebutuhan pengambilan keputusan bersama yang melibatkan kelompok *Decision Maker* (DM) antara lain dokter spesialis paru anak dan dokter spesialis anak.

Hasil penelitian ini berupa model SPKK Klinis yang diberi nama model KLISPA. Tahapan penyelesaian model KLISPA meliputi proses identifikasi presumtif diselesaikan dengan CBR menggunakan metode *Nearest Neighbor*. Proses diagnosis kerja diselesaikan dengan pemodelan SPKK menggunakan metode *Eckenrode*, *Extended TOPSIS* dan *BoostVote*. Metode *Eckenrode* digunakan untuk menghitung nilai bobot, *Extended TOPSIS* digunakan untuk perankingan alternatif keputusan, dan *BoostVote* digunakan untuk voting. Pengujian terhadap Model KLISPA menghasilkan nilai rata-rata *accuracy* (ketepatan dalam mengidentifikasi orang sakit benar terdiagnosis sakit ISPA) sebesar 95%. Hasil sensitivitas (kemampuan dalam mendiagnosis pasien dengan hasil positif dan benar menderita sakit ISPA) sebesar 91%. Hasil spesifisitas (kemampuan mendiagnosis pasien dengan hasil negatif dan benar tidak menderita sakit ISPA) sebesar 93%.

Kata kunci : ISPA, CBR, SPKK, *Eckenrode*, *Extended TOPSIS*, *BoostVote*.