An Application of Micro Topological Spaces with Decision Making Problem in Dengue Fever

by

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ABSTRACT

Micro topology is a general extension of nano topology. Establishing micro topological spaces in real-life problem analysis. The purpose of this paper is to be used as a concept to reduce conditional features. It is also used to study risk factors for Dengue Fever introduction. The second goal of this paper is to achieve the best possible health care for patients. Sometimes patients may take more than one medication but not recovering with in the allotted time. Therefore, using the micro topological spaces method, it is possible to select the drugs needed to determine the level of health in specific patients.

Keywords: *core, lower approximation, upper approximation, Micro topological spaces.*

INTRODUCTION

Dengue is a debilitating viral fever that is transmitted to humans by Aedes mosquitoes. Dengue is the second most difficult of the international locations and is considered to be a common problem in the miles commonly found in more than one hundred and ten countries. The progression of pollution is divided into three stages: particularly febrile, critical and recovery. The febrile segment has a high temperature and is associated with joint pain and headache. Critical section is plasma leakage from blood vessels, which can be as large as 1 to 2 days. Fluid overload affects the recovery section brain surrounding the country. There are approximately one hundred and fifty million examples of dengue fever, especially in tropical and subtropical regions of Asia, South America and Africa. Signs of dengue fever develop within the first week of contamination. Indicates inflation with temperature inside the frame, headache, muscle aches, joint pains, vomiting and pores and skin rashes. A mosquito can contract the virus by stinging an inflamed man, after which it transmits M. E. Abd El-Monsef, A. M. Kozae, M. K. El-Bably[3] are in proposed On generalizing Cover in approximation Space. A. S. Nawar, M. K. El-Bably, A. E. F. El-Atik[6] are initiated Certain types of coverings based rough sets with application.

S.Mahmood[7]defined ,Decision making using algebraic operations on soft effect matrix as new category of similarity measures and study their application in medical diagnosis problems,M.L.Thivagar[1,5,8] introduced a new idea of nano topology, it was represent in terms of resemblance and boundary region of a subset of a global using an equivalence relation on it. Nano topological spaces with an application in Medical Diagnosis by A..Jayalakshmi and C.Janaki [10]. Chandrasekar [2] introduced the concept of Micro topological space which is a simple extension of nano topology. *R.Bhavani[9]* proposed On Strong Forms of Generalized Closed Sets in Micro Topological Spaces. Shuker Mahmood Khalil,and Nadia M.Ali Abbas introduced by On nano with their applications in medical field[4].The maximal health rate recovery for the patientsis the aim of this work . In this paper we have applied the concept of Micro topological Spaces to find the deciding factors for Dengue Fever . And also the maximal health rate recovery for the patients is the aim of this work. Sometimes the patients may take multiple medications. However, they do not heal With in fixed time.So in this paper ,we will study these medicines that are necessary to health rate recovery for the Patients.In this research ,we study the disease dengue fever and investigate to using the best medicines that are necessary to health rate recovery for the patients .The virus directly to the substitute man or woman when it bites. Some tips are suggested to take care of the disease, stagnant water must be extracted throughout the

residence, mosquitoes must stop their movement and extra precautions should be taken at certain stages during mosquito happy times.

MEDICINES NAME IN DENGUE FEVER

DENGUE FEVER	
Plenty of oral fluids	Paracetamol 500
Trf ns	Rantac150
Ceftriaxone injection	Cetirizine 10mg
Capsule dancycorms	Multivitamin

2. Overtures

Description2.1

Start U as a set of horizontal instruments called the Universe and R as the equivalent relationship with U, which is called the relation of ignorance.

This couple (U,R)is said to be the space of enterprise. Enable X⊆U.

i) The minimum X relative to R is the set of all the details, which is set for the object divided by X relative to R and denoted by $L_R(X)$.That is,

$L_R(X) = \bigcup_{x \in U}^{U}\{R(x): R(x) \subseteq X\}$ where R(x) represents the equivalent class determined by X.

ii) The maximum X value relative to R is $U_R(X) = \bigcup_{x \in U}^{U}\{R(x): R(x) \cap X \neq \phi\}$.

iii) The boundary area of X with respect to R is a set of all objects which is intermediate or

non-X with respect to R and is defined as $B_R(X)$.That is, $B_R(X) = U_R(X) - L_R(X)$.

and their complement is called micro closed sets.

Description 2.2

$(U, \tau_R(X))$ is a Nano topological space then $\mu_R(X) = N \cup (N' \cap \mu) : N, N' \in \tau_R(X)$ and called it Micro topology of $\tau_R(X)$ by μ where $\mu \notin \tau_R(X)$.

Description 2.3

Micro topology $\mu_R(X)$ satisfies the following theories

(i)$U, \phi \in \mu_R(X)$

(ii) A combination of any of the elements

The group is $\mu_R(X)$ in $\mu_R(X)$

(iii) The intersection of parcels of any finite subdivision of μ_R (X) in μ_R (X). Also μ_R (X) is called the micro topology in relation to X in U. Triplets (U, τ_R(X), μ_R (X)) are called micro topological spaces and the bases of μ_R (X) are called micro open sets and their complements are called micro closed Sets.

2.4. DENGUE FEVER VITAL FACTOR ALGORITHM

CASE I Cases with dengue fever

Step 1: Find the equal classes of U relative to C.

Step2: Lower expectations, higher expectations and get Boundary region with micro topological Spaces

Step 3: Subtract the features from A to C and get a Low, high estimate balancing and Boundary region for C-A Create micro topological spaces.

Step 4: Check

Step 5: Repeat steps 2 through 4 to get it properties in C.

Step 6: Find the source value from 1 to **5.**

Do the same for cases without **CASE II** dengue fever.

3.Micro Topological Spaces Application in determining the Main Factors of Corona Virus

Patient Survey: Table 1

Where U = $U_{i=1}^{10}$E_i is the set of patients and A is equal to F = fever, HA = headache, A & P = aches and pains, N (OR) V = nausea (or) vomiting, RA = rash, LLBP = low blood platelets, BN (OR) BG = bleeding from the nose (or) gums, FT = feeling tired. Where C is the condition attributes = {F, HA, A & P, N (OR) V, RA, LLBP, BN (OR) BG, FT} and D are referred to as Decision Attributes = {Dengue Fever}.

Table 1

Symptoms / Patients	F	HA	A&P	N(OR)V	RA	LLBP	BN(OR) BG	FT	RESULTS
E_1	√	-	√	√	-	√	-	-	Positive
E_2	√	-	√	√	√	√	√	√	Positive
E_3	√	√	-	-	-	-	-	-	Negative
E_4	√	-	√	√	√	√	√	√	Positive
E_5	√	√	√	√	-	√	-	-	Positive
E_6	√		√	√	-	-	-	-	Negative
E_7		√	√	√	-	-	-	-	Negative
E_8	√	√	√	-	-	-	-	-	Positive
E_9	√	√	√	-	-	-	-	-	Negative
E_{10}	√	-	√	√	-	√	-	-	Positive

CASE I:PATIENTS WITH DENGUE FEVER

Assume I=$\{E_1, E_2, E_4, E_5, E_8, E_{10}\}$ be the set of dengue fever patients then

$\frac{U}{R(C)}(I)$=$\{\{E_1, E_{10}\}$,

$\{E_2, E_4\},\{E_3, E_9\},\{E_5\},\{E_6\},\{E_7\},\{E_8\}\}$, the Nano Topoloy is given by

$\tau_{R(C)}$(I)=$\{\emptyset, U, \{E_1, E_2, E_4, E_5, E_8, E_{10}\}\}$, μ=$\{E_3, E_5\} \notin \tau_{R(C)}$(I).

Hence $\mu_{R(C)}$(I)=$\{\emptyset, U, \{E_5\}, \{E_3, E_5\}, \{E_1, E_2, E_4, E_5, E_8, E_{10}\}, \{E_1, E_2, E_3, E_4, E_5, E_8, E_{10}\}\}$

Step 1: When the characteristic "Fever" is separated from C then

$\frac{U}{R(C-F)}(I)$= $\{\{E_1, E_{10}\},\{E_2, E_4\},\{E_3, E_9\},\{E_5, E_7\},\{E_6\},\{E_8\}\}$, Nano Topology is given by

$\tau_{R(C-F)}$(I)=$\{\emptyset, U, \{E_1, E_2, E_4, E_8, E_{10}\}, \{E_1, E_2, E_4, E_5, E_7, E_8, E_{10}\}, \{E_5, E_7\}$.

Therefore Micro Topology is given by $\mu_{R(C-F)}$(I)=$\{\emptyset, U, \{E_5\}, \{E_3, E_5\}, \{E_5, E_7\}, \{E_3, E_5, E_7\}$,

$\{E_1, E_2, E_4, E_8, E_{10}\}, \{E_1, E_2, E_3, E_4, E_5, E_8, E_{10}\}, \{E_1, E_2, E_4, E_5, E_8, E_{10}\}$,

$\{E_1, E_2, E_4, E_5, E_7, E_8, E_{10}\}, \{E_1, E_2, E_3, E_4, E_5, E_7, E_8, E_{10}\}\}$.Hence $\mu_{R(C-F)}$(I)≠ $\mu_{R(C)}$(I).

Step 2: When the feature "Head Ache" is take out from C then $\frac{U}{R(C-HA)}(I)$= $\{\{E_1, E_{10}\}$, $\{E_2, E_4\}, \{E_3, E_9\}, \{E_5\}, \{E_6\}, \{E_7\}, \{E_8\}\}$= $\frac{U}{R(C)}(I)$, Hence $\mu_{R(C-HA)}$(I) =$\mu_{R(C)}$(I)

Step 3: When the aspect "Aches and Pains" is separated from C then $\frac{U}{R(C-A\,\&\,P)}(I)$=$\{\{E_1, E_{10}\}, \{E_3, E_9, E_8\}, \{E_2, E_4\}, \{E_5\}, \{E_6\}, \{E_7\}\}$.Therefore Micro Topology is given by $\mu_{R(C-A\&P)}$(I)=$\{\emptyset, U, \{E_1\}, \{E_5\}, \{E_3, E_5\}, \{\{E_3, E_8, E_9\}, \{E_3, E_5, E_8, E_9\}$, $\{E_1, E_2, E_4, E_5, E_{10}\}, \{E_1, E_2, E_3, E_4, E_5, E_{10}\}, \{E_1, E_2, E_3, E_4, E_5, E_8, E_9, E_{10}\}$.Hence $\mu_{R(C-A\&P)}$(I)≠ $\mu_{R(C)}$(I). **Step 4:** When the attributes "Nausea(or)Vomiting" is take out from C then $\frac{U}{R(C-N(OR)V)}(I)$= $\frac{U}{R(C)}(I)$. Hence $\mu_{R(C-N(OR)V)}$(I)=$\{\emptyset, U, \{E_5\}, \{E_3, E_5\}, \{E_1, E_2, E_4, E_5, E_8, E_{10}\}$, $\{E_1, E_2, E_3, E_4, E_5, E_8, E_{10}\}\}$=$\mu_{R(C)}$(I). **Step 5:** When the feature "Rashes" is eliminated from C then $\frac{U}{R(C-RA)}(I)$= $\frac{U}{R(C)}(I)$, Hence $\mu_{R(C-RA)}$(I) =$\mu_{R(C)}$(I). **Step 6:** When the characteristic "Low Blood Plateles" is take away from C then $\frac{U}{R(C-LBP)}(I)$=$\{\{E_1, E_6, E_{10}\}, \{E_2, E_4\}$, $\{E_3, E_9\}, \{E_5\}, \{E_7\}, \{E_8\}\}$.Therefore Micro Topology is given by $\mu_{R(C-LBP)}$(I)=$\{\emptyset, U, \{E_5\}$, $\{E_3, E_5\}, \{E_1, E_6, E_{10}\}, \{E_1, E_5, E_6, E_{10}\}, \{E_1, E_3, E_5, E_6, E_{10}\}, \{E_2, E_4, E_5, E_8\}$, $\{E_2, E_3, E_4, E_5, E_8\}, \{E_1, E_2, E_4, E_5, E_6, E_8, E_{10}\}, \{E_1, E_2, E_3, E_4, E_5, E_6, E_8, E_{10}\}$.Hence $\mu_{R(C-LBP)}$(I)≠ $\mu_{R(C)}$(I). **Step 7:** When the feature "Bleeding from the nose(or) gums" is eliminated from C then $\frac{U}{R(C-BN(OR)BG)}(I)$= $\frac{U}{R(C)}(I)$ .Hence $\mu_{R(C-BN(OR)BG)}$(I)=$\mu_{R(C)}$(I).

Step 8: When the aspect "Feeling Tired" is removed from C then $\frac{U}{R(C-FT)}(I)$= $\frac{U}{R(C)}(I)$.

Hence $\mu_{R(C-FT)}$(I) = $\mu_{R(C)}$(I).

Therefore CORE = {FEVER, ACHES AND PAINS,LOW BLOOD PLATELES}

CASE II:PATIENTS WITHOUT DENGUE FEVER

Assume I=$\{E_3, E_6, E_7, E_9\}$ be the set of patients without dengue fever patients then $\frac{U}{R(C)}(I)$= $\{E_1, E_{10}\},\{E_2, E_4\},\{E_3, E_9\},\{E_5\},\{E_6\}, \{E_7\} ,\{E_8\}\}$, here the lower approximation, upper approximation and boundary region are given by $L_{R(C)}(I)$= $\{E_3, E_6, E_7, E_9\}$, $U_{R(C)}(I)$=$\{E_3, E_6, E_7, E_9\}$, $B_{R(C)}(I)$= φ,Nano Topology is given by $\tau_{R(C)}$(I)=$\{\emptyset, U,$ $\{E_3, E_6, E_7, E_9\}\}$, $\mu = \{E_3, E_5\}$ and Micro Topology is given by $\mu_{R(C)}$(I)=$\{\emptyset, U,\{E_3\},$ $\{E_3, E_5\},\{E_3, E_6, E_7, E_9\}, \{E_3, E_5, E_6, E_7, E_9\}\}$.**Step1:**When the aspect "Fever" is take out from C then $\frac{U}{R(C-F)}(I)$=$\{\{E_1, E_{10}\},\{E_2, E_4\},\{E_3, E_9\},\{E_5, E_7\},\{E_6\},\{E_8\}\}$.The Nano Topology is given by $\tau_{R(C-F)}$(I)=$\{\emptyset, U,\{E_3, E_6, E_9\},\{E_5, E_7\},\{E_3, E_5, E_6, E_7, E_9\}\}$and Micro Topology is given by $\mu_{R(C-F)}$(I)=$\{\emptyset, U,\{E_3\},\{E_5\},\{E_3, E_5\},\{E_3, E_6, E_9\},\{E_3, E_5, E_6, E_9\},\{E_5, E_7\},\{E_3, E_5, E_7\},$ $\{E_3, E_5, E_6, E_7, E_9\}\}$.Hence $\mu_{R(C-F)}$(I)$\neq$ $\mu_{R(C)}$(I).**Step 2:** When the aspect "Head Ache" is separated from C then $\frac{U}{R(C-HA)}(I)$= $\frac{U}{R(C)}(I)$, Nano Topology is given by $\tau_{R(C-HA)}$(I)=$\{\emptyset, U,$ $\{E_3, E_6, E_7, E_9\}\}$, $\mu = \{E_3, E_5\}$.So $\mu_{R(C-HA)}$(I)= $\mu_{R(C)}$(I).**Step 3:** When the feature "Aches and Pains" is take out from C then $\frac{U}{R(C-A\,\&\,P)}(I)$=$\{\{E_1, E_{10}\},\{E_2, E_4\},\{E_3, E_8, E_9\},\{E_5\},$ $\{E_6\},\{E_7\}\}$.

The Nano Topology is given by $\tau_{R(C-A\&P)}$(I)= $\{\varphi, U,\{E_6, E_7\},\{E_3, E_6, E_7, E_8, E_9\},\{E_3, E_8, E_9\}\}$.

The Micro Topology is given by $\mu_{R(C-A\&P)}$(I)=$\{\varphi, U, \{E_3\},\{E_3, E_5\},\{E_6, E_7\},\{E_3, E_6, E_7\},$ $\{E_3, E_5, E_6, E_7\}, \{E_3, E_8, E_9\},\{E_3, E_5, E_8, E_9\},\{E_3, E_6, E_7, E_8, E_9\},\{E_3, E_5, E_6, E_7, E_8, E_9\}\}$.

Hence $\mu_{R(C-A\&P)}$(I)$\neq$ $\mu_{R(C)}$(I).**Step 4:** When the characteristic "Nausea(or)Vomiting" is eliminated from C then $\frac{U}{R(C-N(OR)V)}(I)$= $\frac{U}{R(C)}(I)$ .So $\mu_{R(C-N(OR)V)}$(I)= $\{\emptyset, U,\{E_3\},\{E_3, E_5\},$

$\{E_3, E_6, E_7, E_9\}, \{E_3, E_5, E_6, E_7, E_9\}\}$= $\mu_{R(C)}$(I).**Step 5:** When the attributes "Rashes" is take away from C then $\frac{U}{R(C-RA)}(I)$= $\frac{U}{R(C)}(I)$ .So $\mu_{R(C-RA)}$(I)= $\{\emptyset, U, \{E_3\}, \{E_3, E_5\}, \{E_3, E_6, E_7, E_9\},$

$\{E_3, E_5, E_6, E_7, E_9\}\}$= $\mu_{R(C)}$(I).**Step 6:** When the feature "Low Blood Plateles" is eliminated from C then $\frac{U}{R(C-LBP)}(I)$=$\{E_1, E_6, E_{10}\}, \{E_2, E_4\}, \{E_3, E_9\}, \{E_5\}, \{E_7\}, \{E_8\}\}$,

$\mu_{R(C-LBP)}$(I)=$\{\varphi, U, \{E_3\},$

$\{E_3, E_5\}, \{E_3, E_7, E_9\}, \{E_3, E_5, E_7, E_9\}, \{E_1, E_6, E_{10}\}, \{E_1, E_3, E_6, E_{10}\}, \{E_1, E_3, E_5, E_6, E_{10}\},$

$\{E_1, E_3, E_6, E_7, E_9, E_{10}\}, \{E_1, E_3, E_5, E_6, E_7, E_9, E_{10}\}\}$.Hence $\mu_{R(C-LBP)}$(I)$\neq$ $\mu_{R(C)}$(I).

Step 7: When the aspect "Bleeding from the nose(or) gums" is removed from C then $\frac{U}{R(C-BN(OR)BG)}(I)$=$\frac{U}{R(C)}(I)$.So $\mu_{R(C-BN(OR)BG)}$(I)= $\{\emptyset, U, \{E_3\}, \{E_3, E_5\}, \{E_3, E_6, E_7, E_9\},$

$\{E_3, E_5, E_6, E_7, E_9\}\}$= $\mu_{R(C)}$(I).**Step 8:** When the characteristic "Feeling Tired" is take away from C then $\frac{U}{R(C-FT)}(I)$= $\frac{U}{R(C)}(I)$. So $\mu_{R(C-FT)}$(I)=$\mu_{R(C)}$(I).

Therefore CORE = {FEVER, ACHES AND PAINS,LOW BLOOD PLATELES}

OBSERVATION

From the above 3 cases, the primary outcome is noticeable such as fever, aches and pains, low platelets in the blood. We have confirmed that the above symptoms are due to dengue attack

4.MICRO TOPOLOGY WITH ITS APPLICATION OF MEDICINES FOR DENGUE FEVER

Patients Survey :Table 2

Some medications for dengue fever include Plenty of oral fluids ,Trf ns, Ceftriaxone injection, capsule damcy corms, Paracetamol 500, Rantac 150, Cetorizine 10mg, Multivitamin and so on. However, these drugs may or may not be effective if patients take

some of these at different rates. Data for 10 patients are described in Table 4. and this Show what each of them has a

usage rate of Set N= {{POF, TFN, CFI, CDC, PR500, RT, CT10, MV} there are 8 drugs in it, see Table 4.

Table 2

Patients / ***Medicines***	***POF***	***TFN***	***CFI***	***CDC***	***PR500***	***RT***	***CT10***	***MV***	***Health Rate Recovery***
G_1	100%	75%	100%	80%	100%	75%	75%	80%	100%
G_2	100%	75%	100%	80%	100%	100%	75%	80%	100%
G_3	75%	75%	75%	80%	100%	100%	75%	80%	75%
G_4	100%	75%	100%	80%	100%	100%	75%	80%	100%
G_5	100%	75%	75%	80%	100%	75%	75%	80%	75%
G_6	100%	75%	75%	80%	100%	75%	75%	50%	75%
G_7	100%	75%	75%	80%	75%	75%	75%	80%	75%
G_8	100%	75%	75%	80%	100%	75%	75%	80%	100%
G_9	100%	100%	100%	75%	100%	100%	80%	80%	100%
G_{10}	100%	100%	100%	75%	100%	100%	80%	80%	100%

The columns clarify the attributes (health rate restoration) and the rows clarify the patients in the table. U = {G_1, G_2, G_3, G_4, G_5, G_6, G_7, G_8, G_9, G_10} and then:

State I: **Health Rate Recovery (100%) in Dengue Fever Patients**

Set Q for patients with Q = {G_1, G_2, G_4, G_8.G_9, G_10} (100%) health rate recovery.

Suppose R is U (NR) on U with respect to a set of drugs. (NC) related R to

U / (R (C)) (Q) =$\{\{G_1, G_2, G_4\},\{G_9, G_{10}\},\{G_3\},\{G_6\},\{G_5, G_8\},\{G_7\}\}$,So $\mu_{R(C)}$(Q) =$\{\emptyset, U,\{G_2, G_9\},\{G_5, G_8\},\{G_5, G_2, G_8, G_9\},\{G_1, G_2, G_4, G_9, G_{10}\}\}$.If we tear out the medicine "POF" we obtain , U / (R (C-POF))(Q)=$\{\{G_1, G_2, G_3, G_4\},\{G_9, G_{10}\},\{G_6\},\{G_5, G_8\},\{G_7\}\}$ and $\mu_{R(C-POF)}$(Q)=$\{\emptyset, U,\{G_2, G_9\},\{G_9\},\{G_2\},\{G_9, G_{10}\},\{G_2, G_9, G_{10}\},\{G_1, G_2, G_4, G_5, G_8\}$,

$\{G_1, G_2, G_4, G_5, G_8, G_9\}, \{G_1, G_2, G_4, G_5, G_7, G_8, G_9\}, \{G_1, G_2, G_4, G_5, G_8, G_9\},$

$\{G_1, G_2, G_4, G_5, G_8, G_9, G_{10}\}\}$.So $\mu_{R(C-POF)}(Q) \neq \mu_{R(C)}(Q)$.If we tear out the medicine "TFN" we obtain U / (R (C-TFN)) (Q) = $\{\{G_1, G_2, G_3, G_4\}, \{G_9, G_{10}\}, \{G_6\}, \{G_5, G_8\}, \{G_7\}\}$,

So $\mu_{R(C-TFN)}(Q) = \{\emptyset, U, \{G_2, G_9\}, \{G_5, G_8\}, \{G_5, G_2, G_8, G_9\}, \{G_1, G_2, G_4, G_9, G_{10}\}\} = \mu_{R(C)}(Q)$.

If we tear out the medicine "CFI" we obtain U / (R (C-CFI)) (Q) =$\{\{G_1, G_2, G_4, G_5, G_8\}, \{G_9, G_{10}\}, \{G_3\}, \{G_6\}, \{G_7\}\}$. So $\mu_{R(C-CFI)}(Q) \neq \mu_{R(C)}(Q)$.If we tear out the medicine "CDC" we obtain U / (R (C-CDC)) (Q) = U / (R (C)) (Q) .So $\mu_{R(C-CDC)}(Q) = \mu_{R(C)}(Q)$.

If we tear out the medicine "PR500" we obtain U / (R (C-PR500))(Q)= $\{\{\emptyset, U, \{G_1, G_2, G_4\}, \{G_3\}, \{G_5, G_7, G_8\}, \{G_6\}, \{G_9, G_{10}\}\}$, Nano Topology is given by

$\tau_{R(C-PR500)}(I) = \{\emptyset, U, \{G_1, G_2, G_4, G_9, G_{10}\}, \{G_1, G_2, G_4, G_5, G_7, G_8, G_9, G_{10}\}, \{G_5, G_7, G_8\}\}$.

Hence $\mu_{R(C-PR500)}(Q) \neq \mu_{R(C)}(Q)$. If we tear out the medicine "RT 150" we obtain U / (R (C-RT150)(Q)= U / (R (C)) (Q).Hence $\mu_{R(C-RT150)}(Q) = \mu_{R(C)}(Q)$.

If we tear out the medicine "CT 10" we obtain U / (R (C-CT 10)(Q)= U / (R (C)) (Q).

Hence $\mu_{R(C-CT10)}(Q) = \{\emptyset, U, \{G_2, G_9\}, \{G_5, G_8\}, \{G_5, G_2, G_8, G_9\}, \{G_1, G_2, G_4, G_9, G_{10}\}\} = \mu_{R(C)}(Q)$.

If we tear out the medicine "MV" we obtain U / (R (C- MV))(Q)=$\{\{G_1, G_2, G_4\}, \{G_3\}, \{G_5, G_6, G_8\}, \{G_7\}, \{G_9, G_{10}\}\}$,Nano Topology is given by

$\tau_{R(C-MV)}(Q) = \{\emptyset, U, \{G_1, G_2, G_4, G_9, G_{10}\}, \{G_1, G_2, G_6, G_4, G_5, G_8, G_9, G_{10}\}, \{G_5, G_6, G_8\}\}$.

$\mu_{R(C-MV)}(Q)=\{\emptyset, U, \{G_2, G_9\}, \{G_5, G_6, G_8\}, \{G_5, G_6, G_8, G_9, G_2\}, \{G_5, G_6, G_7, G_8, G_9\}, \{G_1, G_2, G_4, G_9, G_{10}\}, \{G_1, G_2, G_4, G_5, G_6, G_8, G_9, G_{10}\}\}$.Hence $\mu_{R(C-MV)}(Q) \neq \mu_{R(C)}(Q)$.

From State I we obtain Core(R)={POF,CFI,PR500,MV}.

State II: Health Rate Recovery (75%) in Dengue Fever Patients

Let Set Q for patients with Q = {G_3, G_5, G_6, G_7} (75%) health rate recovery.

Suppose R is U (NR) on U with respect to a set of drugs. (NC) related R to

U / (R (C)) (Q)={{G_1, G_2, G_4},{G_9, G_{10}},{G_3},{G_6},{G_5, G_8},{G_7}}, here the lower approximation,upper approximation and boundary region are given by $L_{R(C)}(Q)$= {G_3, G_6, G_7},

$U_{R(C)}(Q)$={G_3, G_5, G_6, G_7, G_8}, $B_{R(C)}(Q)$= {G_5, G_8}$and\ \mu$ ={G_3, G_5} and

Nano Topology is given by $\tau_{R(C)}(Q) = \{\emptyset, U, \{G_3, G_6, G_7\}, \{G_3, G_5, G_6, G_7, G_8\}, \{G_5, G_8\}\}$.So

$\mu_{R(C)}$(Q)={{$\emptyset, U, \{G_3\}, \{G_5\}\{G_3, G_5\}, \{G_5, G_8\}, \{G_3, G_5, G_8\}, \{G_3, G_6, G_7\}, \{G_3, G_5, G_6, G_7\}$, $\{G_3, G_5, G_6, G_7, G_8\}$}}.If we tear out the medicine “POF” we obtain , U / (R (C-POF)) (Q) = {{G_1, G_2, G_3, G_4},{G_9, G_{10}},{G_6},{G_5, G_8},{G_7}}, Micro topology is given by

$\mu_{R(C-POF)}$(Q)={$\emptyset, U, \{G_3, G_5\}, \{G_6, G_7\}, \{G_3, G_5, G_6, G_7\}, \{G_1, G_2, G_3, G_4, G_5, G_8\}$, $\{G_1, G_2, G_3, G_4, G_5, G_6, G_{7,} G_8\}$}. So $\mu_{R(C-POF)}$(Q)≠ $\mu_{R(C)}$(Q).If we tear out the medicine “TFN” we obtain U / (R (C-TFN)) (Q) = {{G_1, G_2, G_3, G_4},{G_9, G_{10}},{G_6},{G_5, G_8},{G_7}}. So $\mu_{R(C-TFN)}$(Q)= = $\mu_{R(C)}$(Q). If we tear out the medicine “CFI” we obtain U / (R (C-CFI)) (Q) = { {{$G_1, G_2, G_4, G_{5,} G_8$},{$G_9, G_{10}$},{$G_3$},{$G_6$},{$G_7$}}, $\mu_{R(C-CFI)}$(Q)={ $\emptyset, U$,{G_3},{G_5}, $\{G_3, G_5, G_6\}, \{G_1, G_2, G_4, G_5, G_7, G_8\}, \{G_1, G_2, G_3, G_4, G_5, G_7, G_8\}, \{G_1, G_2, G_3, G_5, G_7, G_8\}$, $\{G_1, G_2, G_3, G_4, G_5, G_6, G_7, G_8\}$}}.So $\mu_{R(C-CFI)}$(Q)≠ $\mu_{R(C)}$(Q). If we tear out the medicine “CDC” we obtain U / (R (C-CDC)) (Q) = U / (R (C)) (Q),So $\mu_{R(C-CDC)}$(Q)= $\mu_{R(C)}$(Q).

If we tear out the medicine “PR500” we obtain U / (R (C-PR500)) (Q)={∅,U,{G_1, G_2, G_4},{G_3}, $\{G_5, G_7, G_8\}, \{G_6\}, \{G_9, G_{10}\}$},$\mu_{R(C-PR500)}$(Q)={ ∅,U,{$G_3$},{$G_5$}, {$G_3, G_6$},{$G_3, G_5$},{$G_3, G_5, G_6$}, $\{G_5, G_7, G_8\}, \{G_3, G_5, G_7, G_8\}, \{G_3, G_5, G_6, G_7, G_8\}$.Hence $\mu_{R(C-PR500)}$(Q)≠ $\mu_{R(C)}$(Q).

If we tear out the medicine “CT10” we obtain U / (R (C-CT10)) (Q) = U / (R (C)) (Q),

So $\mu_{R(C-CT10)}$(Q)= $\mu_{R(C)}$(Q). If we tear out the medicine “RT 150” we obtain

U / (R (C-RT150)(Q)= U / (R (C)) (Q),So $\mu_{R(C-RT150)}$(Q)= $\mu_{R(C)}$(Q).If we tear out the

medicine "MV" we obtain U / (R (C-MV))(Q)={$\{G_1, G_2, G_4\}, \{G_3\}, \{G_5, G_6, G_8\}, \{G_7\}, \{G_9, G_{10}\}\}$, $\mu_{R(C-MV)}$(Q)={$\emptyset, U, \{G_3\}, \{G_5\}\{G_3, G_5\}, \{G_3, G_7\}, \{G_3, G_5, G_7\}, \{G_5, G_6, G_8\}, \{G_3, G_5, G_6, G_8\}$, $\{G_3, G_5, G_6, G_7, G_8\}\}$.Hence $\mu_{R(C-MV)}$(Q)≠ $\mu_{R(C)}$(Q).

From State II we obtain Core(R)={POF,CFI,PR500,MV}.

OBSERVATION: From the two states above, we consider that "POF", ''CFI", ''PR500", ''MV" with their using rates are necessary to determine a patient has (100%) health rate recovery when she selects the medicines ''POF" , ''CFI , ''PR500 , ''MV".

CONCLUSION

In this paper , FEVER,ACHES AND PAINS,LOW PLATELETS IN THE BLOOD are the most crucial factors for dengue fever with another concluding statement by the reduction of the micro topological space and the closing declaration guide by the micro topological space speculation "POF", "CFI". , "PR500" and "MV" require their utilization rates to ensure patient (100%) health rate recovery. It can be used in various fields namely Medical Field, Marketing Field, Business Sectors and more.

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