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A Table of Areas Under Disease Progress Curves

The Texas Agricultural Experiment Station
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A TABLE OF AREAS UNDER DISEASE PROGRESS CURVES

DENNIS A. JOHNSON AND ROY D. WILCOXSON

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A Table of Areas Under Disease Progress Curves

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Introduction

Disease progress curves illustrate epidemics and reflect the effects of the several factors that influence the development of disease. With appropriately planned experiments disease progress curves may be used to compare the effects of cultivars, races of the pathogens, or individual environmental factors by means of probits, infection rates, slopes, areas under the curves, and perhaps with other procedures (9). The purpose of this bulletin is to provide tables of areas under disease progress curves (AUDPC) when the disease progress curves were constructed from different numbers of observations of epidemics at different time intervals. We have also included some examples from our own studies to demonstrate how the values from the AUDPC tables might be employed in a practical manner.

The area under the disease progress curve (AUDPC) has been used: A. To present the development of plant disease epidemics; B. To indicate the slow rusting characteristics or other types of resistance of cultivars infected with various fungi; and C. To study the sporulation of pathogenic fungi in the field. Since AUDPC indicates in a single statistic both the severity of disease, or the abundance of the pathogen, and the rate at which the disease or pathogen increased during the crop season, it should find wide application in plant disease studies.

AUDPC was first used in 1963 by Vanderplank (24) to study losses in yield due to wheat stem rust and has been used in similar studies by Buchenau (2), Schneider, et al. (16), Singleton (21), Romig and Calpouzos (15) and Johnson and Wilcoxson (7). The value of AUDPC in yield loss models has recently been reviewed by Calpouzos et al. (3) and by James and Teng (6). AUDPC has been used to evaluate the slow rusting characteristics of spring wheats and barley infected with several different rust fungi (5, 8, 10, 13, 14, 22). It has also been used to study the inheritance of slow rusting in wheat infected with the stem rust (22) and leaf rust (5) pathogens and in barley infected with the leaf rust pathogen (8). In addition, it has been used in studies on the stability of slow rusting in wheat infected with stem rust (23, 25, 26). AUDPC was used to study the relationship between the morphological characteristics of wheat peduncles and slow rusting of wheat infected with stem rust (11). Area under the curve was used by Shearer and Wilcoxson (18, 19, 20) to summarize data on the sporulation of *Septoria* species in spring and winter wheats and rye and in spring barley.

Despite the fact the AUDPC has been used in several different kinds of studies, its use has not been widely accepted. The difficulty encountered in constructing disease progress curves and calculating the area under these curves may discourage some research workers from using this method of characterizing plant response to disease. AUDPC can be calculated with the aid of computer programs, but some may not be familiar with or have access to a computer or the program. Others may feel they have too few data to warrant the use of computer facilities.

The computer program used for calculating the values of AUDPC shown in this bulletin was selected and checked for accuracy by Shearer (17). The calculation of AUDPC is given by the formula:

$$\text{area} = \int_{t_1}^{t_h} f(x)$$

where t_1 = first sampling date

t_h = last sampling date

$f(x)$ = function describing change of disease with time.

Since $f(x)$ is often not known, AUDPC may be estimated by summing weighted datum observations with the aid of Fortran IV subroutine AREA and the subroutine INVERT of Davies (4). Details on how AREA calculates the areas is given in Bevington (1).

How to Use the Tables

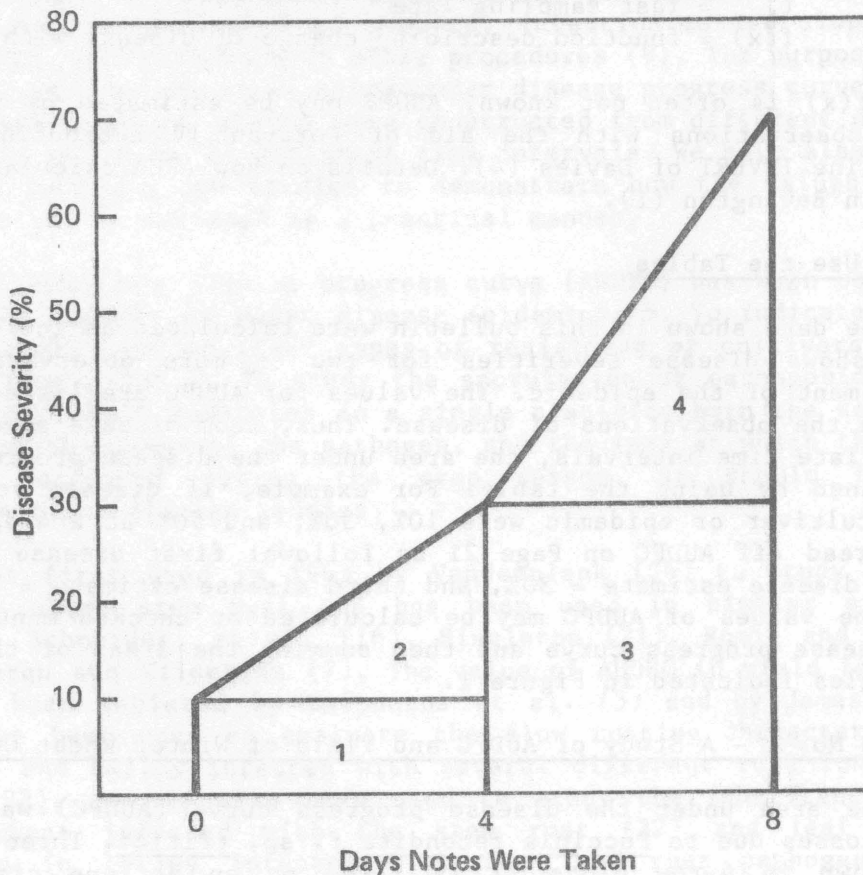
The data shown in this bulletin were calculated as indicated above. The table shows disease severities for two or more observations during the development of the epidemic. The values for AUDPC are listed under the days between the observations of disease. Thus, from disease severities taken at appropriate time intervals, the area under the disease progress curve can be determined by using the table. For example, if disease severities for a given cultivar or epidemic were 10%, 30%, and 70% at a 4-day interval, one would read off AUDPC on Page 21 as follows: first disease estimate = 10%, second disease estimate = 30%, and third disease estimate = 70%, and AUDPC = 280. The values of AUDPC may be calculated or checked manually by drawing the disease progress curve and then summing the areas of the triangles and rectangles indicated in Figure 1.

Example No. 1 - A Study of AUDPC and Yield of Winter Wheat Cultivars

The area under the disease progress curve (AUDPC) was used to study yield losses due to Puccinia recondita f. sp. tritici. Three wheat cultivars were sown in 4-row plots 12 ft. long on an Abilene clay loam soil at Chillicothe, TX. Plots were in a split plot design of 10 replicates. The two border rows of the main plots were inoculated with an oil suspension of urediospores of Puccinia recondita f. sp. tritici (Avirulent/Virulent formula: LR 2A, 2D, 16, 17, 19/LRI, 3, 3B, 9, 10, 11, 18) or the main plots were kept disease-free by spraying plots with Dithane M-45. The subplots were the cultivars. Fungicide spraying began 10 days after inoculation and was continued once a week.

About three weeks after inoculation, rust had developed sufficiently in the two center rows of the inoculated plots to begin a systematic assessment of leaf rust development by estimating leaf rust severity with the modified Cobb's scale (12) at 10 day intervals. The growth stage of the cultivars was recorded using the Romig scale (3). At the end of the epidemic, AUDPC was determined from the Table in this bulletin. Rust did not noticeably increase after the fourth disease severity reading (early dough stage of growth) because of hot and dry weather. The grain ripened soon afterwards and the fourth disease severity reading was the last reading used in determining AUDPC.

Fig. 1 Example of Manual Calculation of Area Under the Disease Progress Curve (AUDPC).



Rectangle or Triangle		Area
1 (4 x 10)	=	40
2 (4 x 20/2)	=	40
3 (4 x 30)	=	120
4 (4 x 40/2)	=	80
AUDPC	=	280

The grain from the two center rows of each plot was harvested when ripe. The yield ratio: weight of yield of disease plot/mean weight of yield of disease-free plots, and the 1000 kernel weight ratio: weight of 1000 kernels of diseased plot/mean weight of 1000 kernels of disease-free plots, were calculated.

The disease progress curves and the growth stage of the cultivars during the epidemic are shown in Figure 2. AUDPC, yield ratio, and 1000 kernel weight ratio of each cultivar are listed in Table 1. Differences among the cultivars were all significant ($P = 0.05$).

TAM W-101 rusted more slowly than Newton. The low AUDPC value of Blueboy II can not be attributable to slow rusting, but to race specific resistance to leaf rust races prevalent during the beginning of the epidemic. A race virulent on Blueboy II infected the plants during the latter part of the epidemic (Figure 2).

Table 1. Mean Area under the Disease Progress Curve, Yield Ratio and 1000-Kernel Weight Ratio of Three Winter Wheat Cultivars Infected with Puccinia recondita f. sp. tritici.

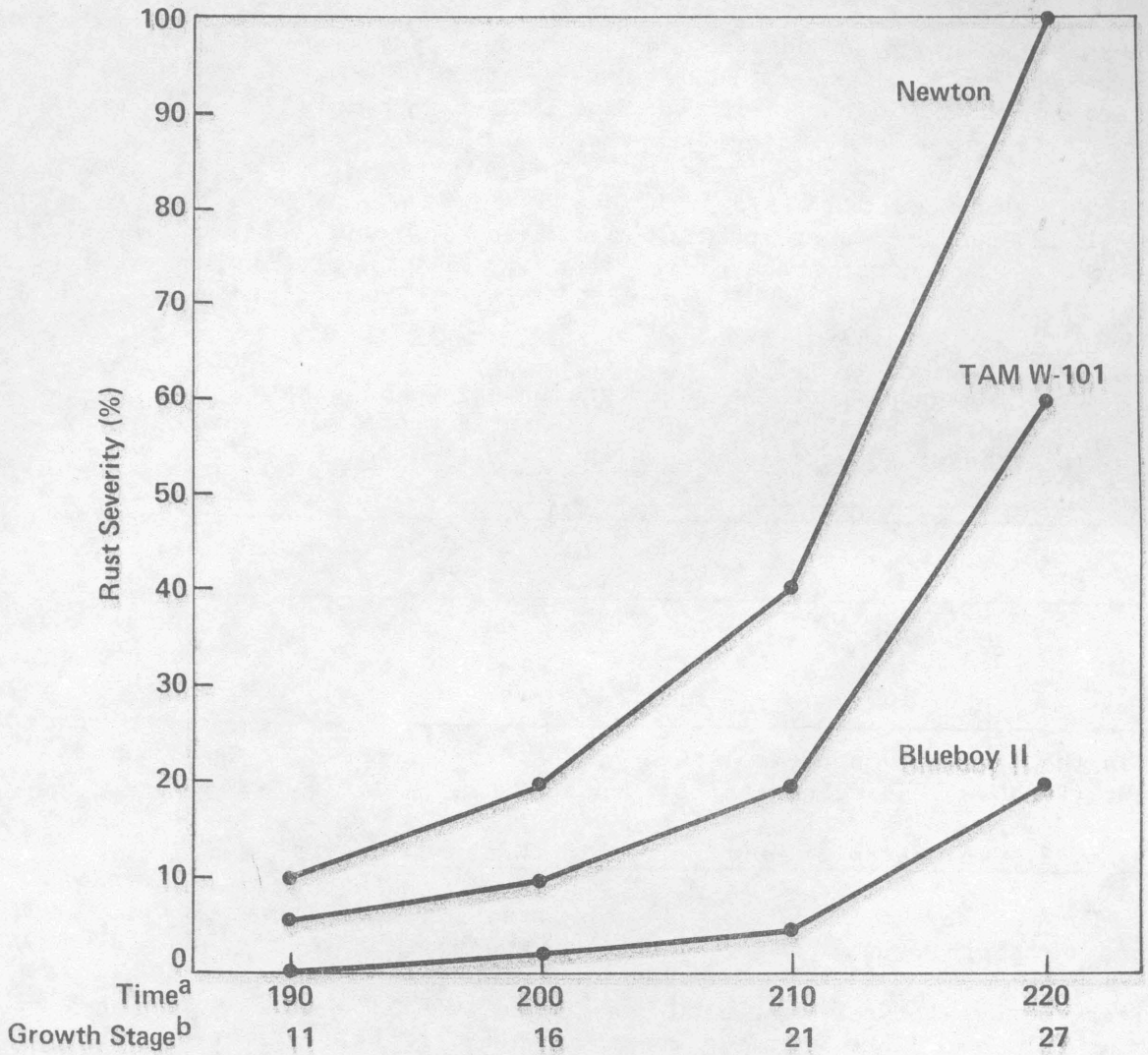
Cultivar	Area	Yield Ratio	Kernel Wt. Ratio
Newton	1150 a	.695 c	.882 c
TAM W-101	625 b	.886 b	.921 b
Blueboy II	160 c	.997 a	.959 a

Values in the same column not followed by the same letter are significantly different ($P = 0.05$) as determined by Duncan's multiple range test.

Example No. 2. Evaluation of AUDPC of Spring Wheat Cultivars

AUDPC was used to evaluate the slow rusting characteristic of three cultivars of spring wheat in a fertilizer experiment at Rosemount, MN, in 1979. The experiment was located in a field that had been used for a fertilizer factorial experiment each year since 1959. The plots were 7.7 X 19 m in size and there were four replicates with the fertilizers being the main plots and the cultivars the sub plots. In the spring, 363 kg of NH_4NO_3 , 312 kg of P_2O_5 , and 335 kg of K_2O were scattered by hand on the appropriate plots and then the field was disced and planted. The spring wheat (Triticum aestivum L.) cultivars Lee, Marquis, and Thatcher were each planted at the rate of 90 kg of seed per hectare as a strip 2.4 m wide in each fertilizer plot during the first week of May. The cultivars were chosen because Lee was known to rust at a moderate rate with stem rust, Marquis to rust rapidly, and Thatcher to rust slowly. Leaf rust (Puccinia recondita f. sp. tritici) was prevented from developing in the plots by spraying with triazbutil (4-butyl-4H-1,2,4-triazole) (Indar^R, Rohm and Haas Co., Philadelphia, PA 19105) at the rate of 877 ml/ha when plants were 2 weeks old. When plants were in the early boot growth stage, they were inoculated with freshly collected urediospores of Puccinia graminis f. sp. tritici race 15B2-TLM suspended in Soltrol. Stem rust severity was evaluated once weekly beginning about one week before inoculation and then for four weeks after inoculation with the aid of the modified Cobb Scale (12). The rust severity data were converted

Fig. 2 Disease Progress Curves of Three Winter Wheat Cultivars Infected with *Puccinia recondita* f. sp. tritici.



^aDays from planting

^bRomig Scale:

- 11 = Awns just showing
- 16 = Beginning of flowering
- 21 = Kernels near middle of head ½ formed
- 27 = Early dough

to AUDPC from the table in this bulletin. Analysis of variance was used to help interpret AUDPC values in the various treatments.

Stem rust was severe in the fertility plots (Figure 3). In each fertilizer treatment Thatcher rusted slowly, Lee at a moderate rate, and Marquis rapidly (Table 3). These rusting characteristics of the cultivars were readily identified and agreed with previous reports. Of the fertilizer treatments, only nitrogen (NH_4NO_3) significantly affected stem rust development ($P = .05$); it increased the average value of AUDPC from 588 in plots that were not fertilized with NH_4NO_3 to 645 in plots that were fertilized.

Table 2. Mean Area under the Disease Progress Curve When Three Spring Wheat Cultivars Were Grown in Fertilizer Plots and Infected with Puccinia graminis f. sp. tritici.

Fertilizer ^{a/}	Areas/Cultivar ^{b/}		
	Thatcher	Lee	Marquis
N	342	687	910
P	265	653	892
K	258	705	884
NP	387	705	954
NK	366	684	901
PK	314	600	875
NPK	356	579	875
None	278	622	831
Average	321	640	890

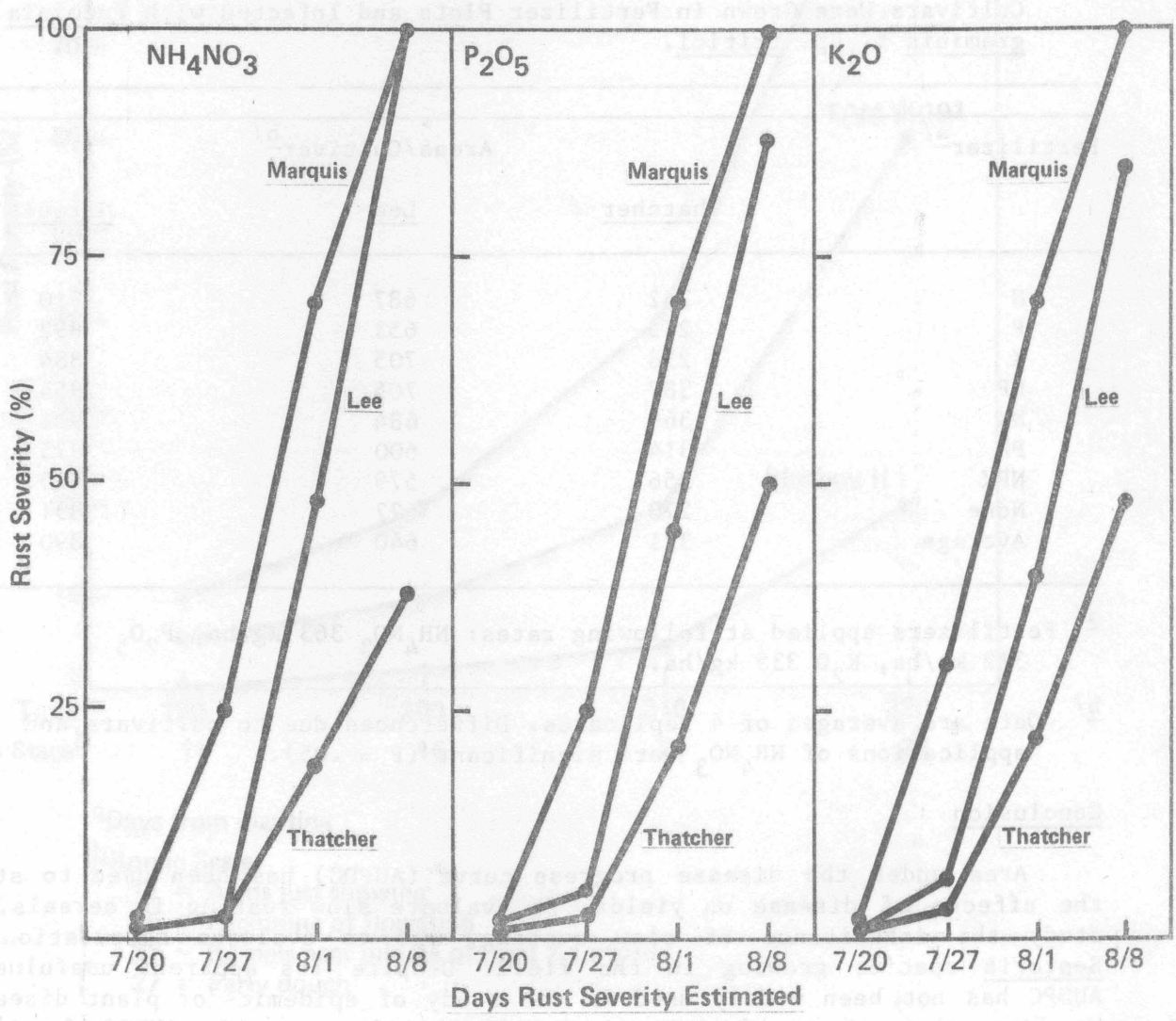
^{a/} Fertilizers applied at following rates: NH_4NO_3 363 kg/ha, P_2O_5 312 kg/ha, K_2O 335 kg/ha.

^{b/} Data are averages of 4 replicates. Differences due to cultivars and applications of NH_4NO_3 were significant ($P = .05$).

Conclusion

Area under the disease progress curve (AUPDC) has been used to study the effects of disease on yields, to evaluate slow rusting in cereals, to study the inheritance of slow rusting, and to evaluate sporulation of Septoria species growing in the field. Despite its apparent usefulness, AUDPC has not been widely used in the study of epidemics of plant disease. We hope that the tables in this bulletin that provide AUDPC for many different epidemics will facilitate a greater use of this useful statistic.

Fig. 3 Disease Progress Curves of Three Spring Wheat Cultivars Infected with *Puccinia graminis* f. sp. *tritici* in Plots Fertilized with NH_4NO_3 , P_2O_5 or K_2O .



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A Table of Areas under Disease Progress Curves when Disease Severities Were Observed Twice During the Epidemic at Different Day Intervals Between Observations.

Disease Severity (%)		Area under the Disease Progress Curve			
Obs. 1*	Obs. 2*	4 day**	7 day**	10 day**	14 day**
0	0.5	1	2	3	4
0	1	2	4	5	7
0	5	10	18	25	35
0	10	20	35	50	70
0	20	40	70	100	140
0	30	60	105	150	210
0	40	80	140	200	280
0	50	100	175	250	350
0	60	120	210	300	420
0	70	140	245	350	490
0	80	160	280	400	560
0	90	180	315	450	630
0	100	200	350	500	700
0.5	0.5	2	4	5	7
0.5	1	3	5	8	11
0.5	5	11	19	28	39
0.5	10	21	37	53	74
0.5	20	41	72	103	144
0.5	30	61	107	153	214
0.5	40	81	142	203	284
0.5	50	101	177	253	354
0.5	60	121	212	303	424
0.5	70	141	247	353	494
0.5	80	161	282	403	564
0.5	90	181	317	453	634
0.5	100	201	352	503	704
1	1	4	7	10	14
1	5	12	21	30	42
1	10	22	39	55	77
1	20	42	74	105	147
1	30	62	109	155	217
1	40	82	144	205	287
1	50	102	179	255	357
1	60	122	214	305	427
1	70	142	249	355	497
1	80	162	284	405	567
1	90	182	319	455	637
1	100	202	354	505	707

*Observation number.

**Time interval between observations.

Disease Severity (%)		Area under the Disease Progress Curve			
Obs. 1*	Obs. 2*	4 day**	7 day**	10 day**	14 day**
5	5	20	35	50	70
5	10	30	53	75	105
5	20	50	88	125	175
5	30	70	123	175	245
5	40	90	158	225	315
5	50	110	193	275	385
5	60	130	228	326	455
5	70	150	263	376	525
5	80	170	298	426	595
5	90	190	333	476	665
5	100	210	368	526	735
10	10	40	70	100	140
10	20	60	105	150	210
10	30	80	140	200	280
10	40	100	175	250	350
10	50	120	210	300	420
10	60	140	245	350	490
10	70	160	280	400	560
10	80	180	315	450	630
10	90	200	350	500	700
10	100	220	385	550	770
20	20	80	140	200	280
20	30	100	175	250	350
20	40	120	210	300	420
20	50	140	245	350	490
20	60	160	280	400	560
20	70	180	315	450	630
20	80	200	350	500	700
20	90	220	385	550	770
20	100	240	420	600	840
30	30	120	210	300	420
30	40	140	245	350	490
30	50	160	280	400	560
30	60	180	315	450	630
30	70	200	350	500	700
30	80	220	385	550	770
30	90	240	420	600	840
30	100	260	455	650	910
40	40	160	280	400	560
40	50	180	315	450	630
40	60	200	350	500	700
40	70	220	385	550	770
40	80	240	420	600	840
40	90	260	455	650	910
40	100	280	490	700	980

Disease Severity (%)		Area under the Disease Progress Curve			
Obs. 1*	Obs. 2*	4 day**	7 day**	10 day**	14 day**
50	50	200	350	500	700
50	60	220	385	550	770
50	70	240	420	600	840
50	80	260	455	650	910
50	90	280	490	700	980
50	100	300	525	750	1050
60	60	240	420	600	840
60	70	260	455	650	910
60	80	280	490	700	980
60	90	300	525	750	1050
60	100	320	560	800	1120
70	70	280	490	700	980
70	80	300	525	750	1050
70	90	320	560	800	1120
70	100	340	595	850	1190
80	80	320	560	800	1120
80	90	340	595	850	1190
80	100	360	630	900	1260
90	90	360	630	900	1260
90	100	380	665	950	1330
90	100	400	700	1000	1400

A Table of Areas under Disease Progress Curves when Disease Severities Were Observed Three Times During the Epidemic at Different Day Intervals Between Observations.

Obs. 1*	Disease Severity (%)		Area under the Disease Progress Curve		
	Obs. 2*	Obs. 3*	4 day**	7 day**	10 day**
0	0.5	0.5	3	5	8
0	0.5	1	4	7	10
0	0.5	5	12	21	30
0	0.5	10	22	39	55
0	0.5	20	42	74	105
0	0.5	30	62	109	155
0	0.5	40	82	144	205
0	0.5	50	102	179	255
0	0.5	60	122	214	305
0	0.5	70	142	249	355
0	0.5	80	162	284	405
0	0.5	90	182	319	455
0	0.5	100	202	354	505
0	1	1	6	11	15
0	1	5	14	25	35
0	1	10	24	42	60
0	1	20	44	77	110
0	1	30	64	112	160
0	1	40	84	147	210
0	1	50	104	182	260
0	1	60	124	217	310
0	1	70	144	252	360
0	1	80	164	287	410
0	1	90	184	322	460
0	1	100	204	357	510
0	5	5	30	53	75
0	5	10	40	70	100
0	5	20	60	105	150
0	5	30	80	140	200
0	5	40	100	175	250
0	5	50	120	210	300
0	5	60	140	245	350
0	5	70	160	280	400
0	5	80	180	315	450
0	5	90	200	350	500
0	5	100	220	385	550
0	10	10	60	105	150
0	10	20	80	140	200
0	10	30	100	175	250
0	10	40	120	210	300
0	10	50	140	245	350
0	10	60	160	280	400
0	10	70	180	315	450
0	10	80	200	350	500
0	10	90	220	385	550
0	10	100	240	420	600

*Observation number.

**Time interval between observations.

Disease Severity (%)			Area under the Disease Progress Curve		
Obs. 1*	Obs. 2*	Obs. 3*	4 day**	7 day**	10 day**
0	20	20	120	210	300
0	20	30	140	245	350
0	20	40	160	280	400
0	20	50	180	315	450
0	20	60	200	350	500
0	20	70	220	385	550
0	20	80	240	420	600
0	20	90	260	455	650
0	20	100	280	490	700
0	30	30	180	315	450
0	30	40	200	350	500
0	30	50	220	385	550
0	30	60	240	420	600
0	30	70	260	455	650
0	30	80	280	490	700
0	30	90	300	525	750
0	30	100	320	560	800
0	40	40	240	420	600
0	40	50	260	455	650
0	40	60	280	490	700
0	40	70	300	525	750
0	40	80	320	560	800
0	40	90	340	595	850
0	40	100	360	630	900
0	50	50	300	525	750
0	50	60	320	560	800
0	50	70	340	595	850
0	50	80	360	630	900
0	50	90	380	665	950
0	50	100	400	700	1000
0	60	60	360	630	900
0	60	70	380	665	950
0	60	80	400	700	1000
0	60	90	420	735	1050
0	60	100	440	770	1100
0	70	70	420	735	1050
0	70	80	440	770	1100
0	70	90	460	805	1150
0	70	100	480	840	1200
0	80	80	480	840	1200
0	80	90	500	875	1250
0	80	100	520	910	1300
0	90	90	540	945	1350
0	90	100	560	980	1400
0	100	100	600	1050	1500

Disease Severity (%)			Area under the Disease Progress Curve		
Obs. 1	Obs. 2	Obs. 3	4 day	7 day	10 day
0.5	0.5	0.5	4	7	10
0.5	0.5	1	5	9	13
0.5	0.5	5	13	23	33
0.5	0.5	10	23	40	58
0.5	0.5	20	43	75	108
0.5	0.5	30	63	110	158
0.5	0.5	40	83	145	208
0.5	0.5	50	103	180	258
0.5	0.5	60	123	215	308
0.5	0.5	70	143	250	358
0.5	0.5	80	163	285	408
0.5	0.5	90	183	320	458
0.5	0.5	100	203	355	508
0.5	1	1	7	12	18
0.5	1	5	15	26	38
0.5	1	10	25	44	63
0.5	1	20	45	79	113
0.5	1	30	65	114	163
0.5	1	40	85	149	213
0.5	1	50	105	184	263
0.5	1	60	125	219	313
0.5	1	70	145	254	363
0.5	1	80	165	289	413
0.5	1	90	185	324	463
0.5	1	100	205	359	513
0.5	5	5	31	54	78
0.5	5	10	41	72	103
0.5	5	20	61	107	153
0.5	5	30	81	142	203
0.5	5	40	101	177	253
0.5	5	50	121	212	303
0.5	5	60	141	247	353
0.5	5	70	161	282	403
0.5	5	80	181	317	453
0.5	5	90	201	352	503
0.5	5	100	221	387	553
0.5	10	10	61	107	153
0.5	10	20	81	142	203
0.5	10	30	101	177	253
0.5	10	40	121	212	303
0.5	10	50	141	247	353
0.5	10	60	161	282	403
0.5	10	70	181	317	453
0.5	10	80	201	352	503
0.5	10	90	221	387	553
0.5	10	100	241	422	603

Disease Severity (%)			Area under the Disease Progress Curve		
Obs. 1	Obs. 2	Obs. 3	4 day	7 day	10 day
0.5	20	20	121	212	303
0.5	20	30	141	247	353
0.5	20	40	161	282	403
0.5	20	50	181	317	453
0.5	20	60	201	352	503
0.5	20	70	221	387	553
0.5	20	80	241	422	603
0.5	20	90	261	457	653
0.5	20	100	281	492	703
0.5	30	30	181	317	453
0.5	30	40	201	352	503
0.5	30	50	221	387	553
0.5	30	60	241	422	603
0.5	30	70	261	457	653
0.5	30	80	281	492	703
0.5	30	90	301	527	753
0.5	30	100	321	562	803
0.5	40	40	241	422	603
0.5	40	50	261	457	653
0.5	40	60	281	492	703
0.5	40	70	301	527	753
0.5	40	80	321	562	803
0.5	40	90	341	597	853
0.5	40	100	361	632	903
0.5	50	50	301	527	753
0.5	50	60	321	562	803
0.5	50	70	341	597	853
0.5	50	80	361	632	903
0.5	50	90	381	667	953
0.5	50	100	401	702	1003
0.5	60	60	361	632	903
0.5	60	70	381	667	953
0.5	60	80	401	702	1003
0.5	60	90	421	737	1053
0.5	60	100	441	772	1103
0.5	70	70	421	737	1053
0.5	70	80	441	772	1103
0.5	70	90	461	807	1153
0.5	70	100	481	842	1203
0.5	80	80	481	842	1203
0.5	80	90	501	877	1253
0.5	80	100	521	912	1303
0.5	90	90	541	947	1353
0.5	90	100	561	982	1403
0.5	100	100	601	1052	1503

Disease Severity (%)

Area under the Disease Progress Curve

Obs.	Disease Severity (%)			Area under the Disease Progress Curve		
	1	Obs. 2	Obs. 3	4 day	7 day	10 day
1	1	1	1	8	14	20
1	1	1	5	16	28	40
1	1	1	10	26	46	65
1	1	1	20	46	81	115
1	1	1	30	66	116	165
1	1	1	40	86	151	215
1	1	1	50	106	186	265
1	1	1	60	126	221	315
1	1	1	70	146	256	365
1	1	1	80	166	291	415
1	1	1	90	186	326	465
1	1	1	100	206	361	515
1	5	5	5	32	56	80
1	5	5	10	42	74	105
1	5	5	20	62	109	155
1	5	5	30	82	144	205
1	5	5	40	102	179	255
1	5	5	50	122	214	305
1	5	5	60	142	249	355
1	5	5	70	162	284	405
1	5	5	80	182	319	455
1	5	5	90	202	354	505
1	5	5	100	222	389	555
1	10	10	10	62	109	155
1	10	10	20	82	144	205
1	10	10	30	102	179	255
1	10	10	40	122	214	305
1	10	10	50	142	249	355
1	10	10	60	162	284	405
1	10	10	70	182	319	455
1	10	10	80	202	354	505
1	10	10	90	222	389	555
1	10	10	100	242	424	605
1	20	20	20	122	214	305
1	20	20	30	142	249	355
1	20	20	40	162	284	405
1	20	20	50	182	319	455
1	20	20	60	202	354	505
1	20	20	70	222	389	555
1	20	20	80	242	424	605
1	20	20	90	262	459	655
1	20	20	100	282	494	705
1	30	30	30	182	319	455
1	30	30	40	202	354	505
1	30	30	50	222	389	555
1	30	30	60	242	424	605
1	30	30	70	262	459	655
1	30	30	80	282	494	705
1	30	30	90	302	529	755
1	30	30	100	322	564	805

Disease Severity (%)			Area under the Disease Progress Curve		
Obs. 1	Obs. 2	Obs. 3	4 day	7 day	10 day
1	40	40	242	424	605
1	40	50	262	459	655
1	40	60	282	494	705
1	40	70	302	529	755
1	40	80	322	564	805
1	40	90	342	599	855
1	40	100	362	634	905
1	50	50	302	529	755
1	50	60	322	564	805
1	50	70	342	599	855
1	50	80	362	634	905
1	50	90	382	669	955
1	50	100	402	704	1005
1	60	60	362	634	905
1	60	70	382	669	955
1	60	80	402	704	1005
1	60	90	422	739	1055
1	60	100	442	774	1105
1	70	70	422	739	1055
1	70	80	442	774	1105
1	70	90	462	879 809	1155
1	70	100	482	914 844	1205
1	80	80	482	844 844	1205
1	80	90	502	870 879	1255
1	80	100	522	909 914	1305
1	90	90	542	949	1355
1	90	100	562	984	1405
1	100	100	602	1053	1505
5	5	5	40	70	100
5	5	10	50	88	125
5	5	20	70	123	175
5	5	30	90	158	225
5	5	40	110	193	275
5	5	50	130	228	325
5	5	60	150	263	375
5	5	70	170	298	425
5	5	80	190	333	475
5	5	90	210	368	525
5	5	100	230	403	575
5	10	10	70	123	175
5	10	20	90	158	225
5	10	30	110	193	275
5	10	40	130	228	325
5	10	50	150	263	375
5	10	60	170	298	425
5	10	70	190	333	475
5	10	80	210	368	525
5	10	90	230	403	575
5	10	100	250	438	625

Disease Severity (%)				Area under the Disease Progress Curve		
Obs.	1	Obs. 2	Obs. 3	4 day	7 day	10 day
5		20	20	130	228	325
5		20	30	150	263	375
5		20	40	170	298	425
5		20	50	190	333	475
5		20	60	210	368	525
5		20	70	230	403	575
5		20	80	250	438	625
5		20	90	270	473	675
5		20	100	290	508	725
5	30		30	190	333	475
5	30		40	210	368	525
5	30		50	230	403	575
5	30		60	250	438	625
5	30		70	270	473	675
5	30		80	290	508	725
5	30		90	310	543	775
5	30		100	330	578	825
5	40		40	250	438	625
5	40		50	270	473	675
5	40		60	290	508	725
5	40		70	310	543	775
5	40		80	330	578	825
5	40		90	350	613	875
5	40		100	370	648	925
5	50		50	310	543	775
5	50		60	330	578	825
5	50		70	350	613	875
5	50		80	370	648	925
5	50		90	390	683	975
5	50		100	410	718	1025
5	60		60	370	648	925
5	60		70	390	683	975
5	60		80	410	718	1025
5	60		90	430	753	1075
5	60		100	450	788	1125
5	70		70	430	753	1075
5	70		80	450	788	1125
5	70		90	470	823	1175
5	70		100	490	858	1225
5	80		80	490	858	1225
5	80		90	510	893	1275
5	80		100	530	928	1325
5	90		90	550	963	1375
5	90		100	570	998	1425
5	100		100	610	1068	1525

Disease Severity (%)			Area under the Disease Progress Curve		
Obs. 1	Obs. 2	Obs. 3	4 day	7 day	10 day
10	10	10	80	140	200
10	10	20	100	175	250
10	10	30	120	210	300
10	10	40	140	245	350
10	10	50	160	280	400
10	10	60	180	315	450
10	10	70	200	350	500
10	10	80	220	385	550
10	10	90	240	420	600
10	10	100	260	455	650
10	20	20	140	245	350
10	20	30	160	280	400
10	20	40	180	315	450
10	20	50	200	350	500
10	20	60	220	385	550
10	20	70	240	420	600
10	20	80	260	455	650
10	20	90	280	490	700
10	20	100	300	525	750
10	30	30	200	350	500
10	30	40	220	385	550
10	30	50	240	420	600
10	30	60	260	455	650
10	30	70	280	490	700
10	30	80	300	525	750
10	30	90	320	560	800
10	30	100	340	595	850
10	40	40	260	455	650
10	40	50	280	490	700
10	40	60	300	525	750
10	40	70	320	560	800
10	40	80	340	595	850
10	40	90	360	630	900
10	40	100	380	665	950
10	50	50	320	560	800*
10	50	60	340	595	850
10	50	70	360	630	900
10	50	80	380	665	950
10	50	90	400	700	1000
10	50	100	420	735	1050
10	60	60	380	665	950
10	60	70	400	700	1000
10	60	80	420	735	1050
10	60	90	440	770	1100
10	60	100	460	805	1150
10	70	70	440	770	1100
10	70	80	460	805	1150
10	70	90	480	840	1200
10	70	100	500	875	1250

Disease Severity (%)			Area under the Disease Progress Curve		
Obs. 1	Obs. 2	Obs. 3	4 day	7 day	10 day
10	80	80	500	875	1250
10	80	90	520	910	1300
10	80	100	540	945	1350
10	90	90	560	980	1400
10	90	100	580	1015	1450
10	100	100	620	1085	1550
20	20	20	160	280	400
20	20	30	180	315	450
20	20	40	200	350	500
20	20	50	220	385	550
20	20	60	240	420	600
20	20	70	260	455	650
20	20	80	280	490	700
20	20	90	300	525	750
20	20	100	320	560	800
20	30	30	220	385	550
20	30	40	240	420	600
20	30	50	260	455	650
20	30	60	280	490	700
20	30	70	300	525	750
20	30	80	320	560	800
20	30	90	340	595	850
20	30	100	360	630	900
20	40	40	280	490	700
20	40	50	300	525	750
20	40	60	320	560	800
20	40	70	340	595	850
20	40	80	360	630	900
20	40	90	380	665	950
20	40	100	400	700	1000
20	50	50	340	595	850
20	50	60	360	630	900
20	50	70	380	665	950
20	50	80	400	700	1000
20	50	90	420	735	1050
20	50	100	440	770	1100
20	60	60	400	700	1000
20	60	70	420	735	1050
20	60	80	440	770	1100
20	60	90	460	805	1150
20	60	100	480	840	1200
20	70	70	460	805	1150
20	70	80	480	840	1200
20	70	90	500	875	1250
20	70	100	520	910	1300

Disease Severity (%)			Area under the Disease Progress Curve		
Obs. 1	Obs. 2	Obs. 3	4 day	7 day	10 day
20	80	80	520	910	1300
20	80	90	540	945	1350
20	80	100	560	980	1400
20	90	90	580	1015	1450
20	90	100	600	1050	1500
20	100	100	640	1120	1600
30	30	30	240	420	600
30	30	40	260	455	650
30	30	50	280	490	700
30	30	60	300	525	750
30	30	70	320	560	800
30	30	80	340	595	850
30	30	90	360	630	900
30	30	100	380	665	950
30	40	40	300	525	750
30	40	50	320	560	800
30	40	60	340	595	850
30	40	70	360	630	900
30	40	80	380	665	950
30	40	90	400	700	1000
30	40	100	420	735	1050
30	50	50	360	630	900
30	50	60	380	665	950
30	50	70	400	700	1000
30	50	80	420	735	1050
30	50	90	440	770	1100
30	50	100	460	805	1150
30	60	60	420	735	1050
30	60	70	440	770	1100
30	60	80	460	805	1150
30	60	90	480	840	1200
30	60	100	500	875	1250
30	70	70	480	840	1200
30	70	80	500	875	1250
30	70	90	520	910	1300
30	70	100	540	945	1350
30	80	80	540	945	1350
30	80	90	560	980	1400
30	80	100	580	1015	1450
30	90	90	600	1050	1500
30	90	100	620	1085	1550
30	100	100	660	1155	1650

Disease Severity (%)			Area under the Disease Progress Curve		
Obs. 1	Obs. 2	Obs. 3	4 day	7 day	10 day
40	40	40	320	560	800
40	40	50	340	595	850
40	40	60	360	630	900
40	40	70	380	665	950
40	40	80	400	700	1000
40	40	90	420	735	1050
40	40	100	440	770	1100
40	50	50	380	665	950
40	50	60	400	700	1000
40	50	70	420	735	1050
40	50	80	440	770	1100
40	50	90	460	805	1150
40	50	100	480	840	1200
40	60	60	440	770	1100
40	60	70	460	805	1150
40	60	80	480	840	1200
40	60	90	500	875	1250
40	60	100	520	910	1300
40	70	70	500	875	1250
40	70	80	520	910	1300
40	70	90	540	945	1350
40	70	100	560	980	1400
40	80	80	560	980	1400
40	80	90	580	1015	1450
40	80	100	600	1050	1500
40	90	90	620	1085	1550
40	90	100	640	1120	1600
40	100	100	680	1190	1700
50	50	50	400	700	1000
50	50	60	420	735	1050
50	50	70	440	770	1100
50	50	80	460	805	1150
50	50	90	480	840	1200
50	50	100	500	875	1250
50	60	60	460	805	1150
50	60	70	480	840	1200
50	60	80	500	875	1250
50	60	90	520	910	1300
50	60	100	540	945	1350
50	70	70	520	910	1300
50	70	80	540	945	1350
50	70	90	560	980	1400
50	70	100	580	1015	1450
50	80	80	580	1015	1450
50	80	90	600	1050	1500
50	80	100	620	1085	1550

Disease Severity (%)			Area under the Disease Progress Curve		
Obs. 1	Obs. 2	Obs. 3	4 day	7 day	10 day
50	90	90	640	1120	1600
50	90	100	660	1155	1650
50	100	100	700	1225	1750
60	60	60	480	840	1200
60	60	70	500	875	1250
60	60	80	520	910	1300
60	60	90	540	945	1350
60	60	100	560	980	1400
60	70	70	540	945	1350
60	70	80	560	980	1400
60	70	90	580	1015	1450
60	70	100	600	1050	1500
60	80	80	600	1050	1500
60	80	90	620	1085	1550
60	80	100	640	1120	1600
60	90	90	660	1155	1650
60	90	100	680	1190	1700
60	100	100	720	1260	1800
70	70	70	560	980	1400
70	70	80	580	1015	1450
70	70	90	600	1050	1500
70	70	100	620	1085	1550
70	80	80	620	1085	1550
70	80	90	640	1120	1600
70	80	100	660	1155	1650
70	90	90	680	1190	1700
70	90	100	700	1225	1750
70	100	100	740	1295	1850
80	80	80	640	1120	1600
80	80	90	660	1155	1650
80	80	100	680	1190	1700
80	90	90	700	1225	1750
80	90	100	720	1260	1800
80	100	100	760	1330	1900
90	90	90	720	1260	1800
90	90	100	740	1295	1850
90	100	100	780	1365	1950
100	100	100	800	1400	2000

A Table of Areas under Disease Progress Curves when Disease Severities were Observed Four Times During the Epidemic at Different Day Intervals Between Observations.

Obs. 1*	Disease Severity (%)			Area under the Disease Progress Curve		
	Obs. 2*	Obs. 3*	Obs. 4*	4 day**	7 day**	10 day**
0	0	0	0.5	1	2	3
0	0	0	1	2	4	5
0	0	0	5	10	18	25
0	0	0	10	20	35	50
0	0	0	20	40	70	100
0	0	0	30	60	105	150
0	0	0	40	80	140	200
0	0	0	50	100	175	250
0	0	0	60	120	210	300
0	0	0	70	140	245	350
0	0	0	80	160	280	400
0	0	0	90	180	315	450
0	0	0	100	200	350	500
0	0	0.5	0.5	3	5	8
0	0	0.5	1	4	7	10
0	0	0.5	5	12	21	30
0	0	0.5	10	22	39	55
0	0	0.5	20	42	74	105
0	0	0.5	30	62	109	155
0	0	0.5	40	82	144	205
0	0	0.5	50	102	179	255
0	0	0.5	60	122	214	305
0	0	0.5	70	142	249	355
0	0	0.5	80	162	284	405
0	0	0.5	90	182	319	455
0	0	0.5	100	202	354	505
0	0	1	1	6	11	15
0	0	1	5	14	25	35
0	0	1	10	24	42	60
0	0	1	20	44	77	110
0	0	1	30	64	112	160
0	0	1	40	84	147	210
0	0	1	50	104	182	260
0	0	1	60	124	217	310
0	0	1	70	144	252	360
0	0	1	80	164	287	410
0	0	1	90	184	322	460
0	0	1	100	204	357	510
0	0	5	5	30	53	75
0	0	5	10	40	70	100
0	0	5	20	60	105	150
0	0	5	30	80	140	200
0	0	5	40	100	175	250
0	0	5	50	120	210	300
0	0	5	60	140	245	350
0	0	5	70	160	280	400
0	0	5	80	180	315	450
0	0	5	90	200	350	500
0	0	5	100	220	385	550

*Observation number.

**Time interval between observations.

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0	0	10	10	60	105	150
0	0	10	20	80	140	200
0	0	10	30	100	175	250
0	0	10	40	120	210	300
0	0	10	50	140	245	350
0	0	10	60	160	280	400
0	0	10	70	180	315	450
0	0	10	80	200	350	500
0	0	10	90	220	385	550
0	0	10	100	240	420	600
0	0	20	20	120	210	300
0	0	20	30	140	245	350
0	0	20	40	160	280	400
0	0	20	50	180	315	450
0	0	20	60	200	350	500
0	0	20	70	220	385	550
0	0	20	80	240	420	600
0	0	20	90	260	455	650
0	0	20	100	280	490	700
0	0	30	30	180	315	450
0	0	30	40	200	350	500
0	0	30	50	220	385	550
0	0	30	60	240	420	600
0	0	30	70	260	455	650
0	0	30	80	280	490	700
0	0	30	90	300	525	750
0	0	30	100	320	560	800
0	0	40	40	240	420	600
0	0	40	50	260	455	650
0	0	40	60	280	490	700
0	0	40	70	300	525	750
0	0	40	80	320	560	800
0	0	40	90	340	595	850
0	0	40	100	360	630	900
0	0	50	50	300	525	750
0	0	50	60	320	560	800
0	0	50	70	340	595	850
0	0	50	80	360	630	900
0	0	50	90	380	665	950
0	0	50	100	400	700	1000
0	0	60	60	360	630	900
0	0	60	70	380	665	950
0	0	60	80	400	700	1000
0	0	60	90	420	735	1050
0	0	60	100	440	770	1100

Disease Severity (%)

Area under the Disease Progress Curve

Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
0	0	70	70	420	735	1050
0	0	70	80	440	770	1100
0	0	70	90	460	805	1150
0	0	70	100	480	840	1200
0	0	80	80	480	840	1200
0	0	80	90	500	875	1250
0	0	80	100	520	910	1300
0	0	90	90	540	945	1230
0	0	90	100	560	980	1400
0	0	100	100	600	1050	1500
0	0.5	0.5	0.5	5	9	13
0	0.5	0.5	1	6	11	15
0	0.5	0.5	5	14	25	35
0	0.5	0.5	10	24	42	60
0	0.5	0.5	20	44	77	110
0	0.5	0.5	30	64	112	160
0	0.5	0.5	40	84	147	210
0	0.5	0.5	50	104	182	260
0	0.5	0.5	60	124	217	310
0	0.5	0.5	70	144	252	360
0	0.5	0.5	80	164	287	410
0	0.5	0.5	90	184	322	460
0	0.5	0.5	100	204	357	510
0	0.5	1	5	16	28	40
0	0.5	1	10	26	46	65
0	0.5	1	20	46	81	115
0	0.5	1	30	66	116	165
0	0.5	1	40	86	151	215
0	0.5	1	50	106	186	265
0	0.5	1	60	126	221	315
0	0.5	1	70	146	256	365
0	0.5	1	80	166	291	415
0	0.5	1	90	186	326	465
0	0.5	1	100	206	361	515
0	0.5	5	5	32	56	80
0	0.5	5	10	42	74	105
0	0.5	5	20	62	109	155
0	0.5	5	30	82	144	205
0	0.5	5	40	102	179	255
0	0.5	5	50	122	214	305
0	0.5	5	60	142	249	355
0	0.5	5	70	162	284	405
0	0.5	5	80	182	319	455
0	0.5	5	90	202	354	505
0	0.5	5	100	222	389	555

1350

Disease Severity (%)Area under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0	0.5	10	10	62	109	155
0	0.5	10	20	82	144	205
0	0.5	10	30	102	179	255
0	0.5	10	40	122	214	305
0	0.5	10	50	142	249	355
0	0.5	10	60	162	284	405
0	0.5	10	70	182	319	455
0	0.5	10	80	202	354	505
0	0.5	10	90	222	389	555
0	0.5	10	100	242	424	605
0	0.5	20	20	122	214	305
0	0.5	20	30	142	249	355
0	0.5	20	40	162	284	405
0	0.5	20	50	182	319	455
0	0.5	20	60	202	354	505
0	0.5	20	70	222	389	555
0	0.5	20	80	242	424	605
0	0.5	20	90	262	459	655
0	0.5	20	100	282	494	705
0	0.5	30	30	182	319	455
0	0.5	30	40	202	354	505
0	0.5	30	50	222	389	555
0	0.5	30	60	242	424	605
0	0.5	30	70	262	459	655
0	0.5	30	80	282	494	705
0	0.5	30	90	302	529	755
0	0.5	30	100	322	564	805
0	0.5	40	40	242	424	605
0	0.5	40	50	262	459	655
0	0.5	40	60	282	494	705
0	0.5	40	70	302	529	755
0	0.5	40	80	322	564	805
0	0.5	40	90	342	599	855
0	0.5	40	100	362	634	905
0	0.5	50	50	302	529	755
0	0.5	50	60	322	564	805
0	0.5	50	70	342	599	855
0	0.5	50	80	362	634	905
0	0.5	50	90	382	669	955
0	0.5	50	100	402	704	1055
0	0.5	60	60	362	634	905
0	0.5	60	70	382	669	955
0	0.5	60	80	402	704	1005
0	0.5	60	90	422	739	1055
0	0.5	60	100	442	774	1105

Disease Severity (%)				Area under the Disease Progress Curve		
Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
0	0.5	70	70	422	739	1055
0	0.5	70	80	442	774	1105
0	0.5	70	90	462	809	1155
0	0.5	70	100	482	844	1205
0	0.5	80	80	482	844	1205
0	0.5	80	90	502	879	1255
0	0.5	80	100	522	914	1305
0	0.5	90	90	542	949	1355
0	0.5	90	100	562	984	1405
0	0.5	100	100	602	1054	1505
0	1	1	1	10	18	25
0	1	1	5	18	32	45
0	1	1	10	28	49	70
0	1	1	20	48	84	120
0	1	1	30	68	119	170
0	1	1	40	88	154	220
0	1	1	50	108	189	270
0	1	1	60	128	224	320
0	1	1	70	148	259	370
0	1	1	80	168	294	420
0	1	1	90	188	329	470
0	1	1	100	208	364	520
0	1	5	5	34	60	85
0	1	5	10	44	77	110
0	1	5	20	64	112	160
0	1	5	30	84	147	210
0	1	5	40	104	182	260
0	1	5	50	124	217	310
0	1	5	60	144	252	360
0	1	5	70	164	287	410
0	1	5	80	184	322	460
0	1	5	90	204	357	510
0	1	5	100	224	392	560
0	1	10	10	64	112	160
0	1	10	20	84	147	210
0	1	10	30	104	182	260
0	1	10	40	124	217	310
0	1	10	50	144	252	360
0	1	10	60	164	287	410
0	1	10	70	184	322	460
0	1	10	80	204	357	510
0	1	10	90	224	392	560
0	1	10	100	244	427	610

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0	1	20	20	124	217	310
0	1	20	30	144	252	360
0	1	20	40	164	287	410
0	1	20	50	184	322	460
0	1	20	60	204	357	510
0	1	20	70	224	392	560
0	1	20	80	244	427	610
0	1	20	90	264	462	660
0	1	20	100	284	497	710
0	1	30	30	184	322	460
0	1	30	40	204	357	510
0	1	30	50	224	392	560
0	1	30	60	244	427	610
0	1	30	70	264	462	660
0	1	30	80	284	497	710
0	1	30	90	304	532	760
0	1	30	100	324	567	810
0	1	40	40	244	427	610
0	1	40	50	264	462	660
0	1	40	60	284	497	710
0	1	40	70	304	532	760
0	1	40	80	324	567	810
0	1	40	90	344	602	860
0	1	40	100	364	637	910
0	1	50	50	304	532	760
0	1	50	60	324	567	810
0	1	50	70	344	602	860
0	1	50	80	364	637	910
0	1	50	90	384	672	960
0	1	50	100	404	707	1010
0	1	60	60	364	637	910
0	1	60	70	384	672	960
0	1	60	80	404	707	1010
0	1	60	90	424	742	1060
0	1	60	100	444	777	1110
0	1	70	70	424	742	1060
0	1	70	80	444	777	1110
0	1	70	90	464	812	1160
0	1	70	100	484	847	1210
0	1	80	80	484	847	1210
0	1	80	90	504	882	1260
0	1	80	100	524	917	1310

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0	1	90	90	544	952	1360
0	1	90	100	564	987	1410
0	1	100	100	604	1057	1510
0	5	5	5	50	88	125
0	5	5	10	60	105	150
0	5	5	20	80	140	200
0	5	5	30	100	175	250
0	5	5	40	120	210	300
0	5	5	50	140	245	350
0	5	5	60	160	280	400
0	5	5	70	180	315	450
0	5	5	80	200	350	500
0	5	5	90	220	385	550
0	5	5	100	240	420	600
0	5	10	10	80	140	200
0	5	10	20	100	175	250
0	5	10	30	120	210	300
0	5	10	40	140	245	350
0	5	10	50	160	280	400
0	5	10	60	180	315	450
0	5	10	70	200	350	500
0	5	10	80	220	385	550
0	5	10	90	240	420	600
0	5	10	100	260	455	650
0	5	20	20	140	245	350
0	5	20	30	160	280	400
0	5	20	40	180	315	450
0	5	20	50	200	350	500
0	5	20	60	220	385	550
0	5	20	70	240	420	600
0	5	20	80	260	455	650
0	5	20	90	280	490	700
0	5	20	100	300	525	750
0	5	30	30	200	350	500
0	5	30	40	220	385	550
0	5	30	50	240	420	600
0	5	30	60	260	455	650
0	5	30	70	280	490	700
0	5	30	80	300	525	750
0	5	30	90	320	560	800
0	5	30	100	340	595	850
0	5	40	40	260	455	650
0	5	40	50	280	490	700
0	5	40	60	300	525	750
0	5	40	70	320	560	800
0	5	40	80	340	595	850
0	5	40	90	360	630	900
0	5	40	100	380	665	950

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0	5	50	50	320	560	800
0	5	50	60	340	595	850
0	5	50	70	360	630	900
0	5	50	80	380	665	950
0	5	50	90	400	700	1000
0	5	50	100	420	735	1050
0	5	60	60	380	665	950
0	5	60	70	400	700	1000
0	5	60	80	420	735	1050
0	5	60	90	440	770	1100
0	5	60	100	460	805	1150
0	5	70	70	440	770	1100
0	5	70	80	460	805	1150
0	5	70	90	480	840	1200
0	5	70	100	500	875	1250
0	5	80	80	500	875	1250
0	5	80	90	520	910	1300
0	5	80	100	540	945	1350
0	5	90	90	560	980	1400
0	5	90	100	580	1015	1450
0	5	100	100	620	1085	1550
0	10	10	10	100	175	250
0	10	10	20	120	210	300
0	10	10	30	140	245	350
0	10	10	40	160	280	400
0	10	10	50	180	315	450
0	10	10	60	200	350	500
0	10	10	70	220	385	550
0	10	10	80	240	420	600
0	10	10	90	260	455	650
0	10	10	100	280	490	700
0	10	20	20	160	280	400
0	10	20	30	180	315	450
0	10	20	40	200	350	500
0	10	20	50	220	385	550
0	10	20	60	240	420	600
0	10	20	70	260	455	650
0	10	20	80	280	490	700
0	10	20	90	300	525	750
0	10	20	100	320	560	800

Disease Severity (%)

Area Under The Disease Progress Curve

Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
0	10	30	30	220	385	550
0	10	30	40	240	420	600
0	10	30	50	260	455	650
0	10	30	60	280	490	700
0	10	30	70	300	525	750
0	10	30	80	320	560	800
0	10	30	90	340	595	850
0	10	30	100	360	630	900
0	10	40	40	280	490	700
0	10	40	50	300	525	750
0	10	40	60	320	560	800
0	10	40	70	340	595	850
0	10	40	80	360	630	900
0	10	40	90	380	665	950
0	10	40	100	400	700	1000
0	10	50	50	340	595	850
0	10	50	60	360	630	900
0	10	50	70	380	665	950
0	10	50	80	400	700	1000
0	10	50	90	420	735	1050
0	10	50	100	440	770	1100
0	10	60	60	400	700	1000
0	10	60	70	420	735	1050
0	10	60	80	440	770	1100
0	10	60	90	460	805	1150
0	10	60	100	480	840	1200
0	10	70	70	460	805	1150
0	10	70	80	480	840	1200
0	10	70	90	500	875	1250
0	10	70	100	520	910	1300
0	10	80	80	520	910	1300
0	10	80	90	540	945	1350
0	10	80	100	560	980	1400
0	10	90	90	580	1015	1450
0	10	90	100	600	1050	1500
0	10	100	100	640	1120	1600
0	20	20	20	200	350	500
0	20	20	30	220	385	550
0	20	20	40	240	420	600
0	20	20	50	260	455	650
0	20	20	60	280	490	700
0	20	20	70	300	525	750
0	20	20	80	320	560	800
0	20	20	90	340	595	850
0	20	20	100	360	630	900

<u>Disease Severity (%)</u>				<u>Area Under The Disease Progress Curve</u>		
<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0	20	30	30	260	455	650
0	20	30	40	280	490	700
0	20	30	50	300	525	750
0	20	30	60	320	560	800
0	20	30	70	340	595	850
0	20	30	80	360	630	900
0	20	30	90	380	665	950
0	20	30	100	400	700	1000
0	20	40	40	320	560	800
0	20	40	50	340	595	850
0	20	40	60	360	630	900
0	20	40	70	380	665	950
0	20	40	80	400	700	1000
0	20	40	90	420	735	1050
0	20	40	100	440	770	1100
0	20	50	50	380	665	950
0	20	50	60	400	700	1000
0	20	50	70	420	735	1050
0	20	50	80	440	770	1100
0	20	50	90	460	805	1150
0	20	50	100	480	840	1200
0	20	60	60	440	770	1100
0	20	60	70	460	805	1150
0	20	60	80	480	840	1200
0	20	60	90	500	875	1250
0	20	60	100	520	910	1300
0	20	70	70	500	875	1250
0	20	70	80	520	910	1300
0	20	70	90	540	945	1350
0	20	70	100	560	980	1400
0	20	80	80	560	980	1400
0	20	80	90	580	1015	1450
0	20	80	100	600	1050	1500
0	20	90	90	620	1085	1550
0	20	90	100	640	1120	1600
0	20	100	100	680	1190	1700
0	30	30	30	300	525	750
0	30	30	40	320	560	800
0	30	30	50	340	595	850
0	30	30	60	360	630	900
0	30	30	70	380	665	950
0	30	30	80	400	700	1000
0	30	30	90	420	735	1050
0	30	30	100	440	770	1100

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0	30	40	40	360	630	900
0	30	40	50	380	665	950
0	30	40	60	400	700	1000
0	30	40	70	420	735	1050
0	30	40	80	440	770	1100
0	30	40	90	460	805	1150
0	30	40	100	480	840	1200
0	30	50	50	420	735	1050
0	30	50	60	440	770	1100
0	30	50	70	460	805	1150
0	30	50	80	480	840	1200
0	30	50	90	500	875	1250
0	30	50	100	520	910	1300
0	30	60	60	480	840	1200
0	30	60	70	500	875	1250
0	30	60	80	520	910	1300
0	30	60	90	540	945	1350
0	30	60	100	560	980	1400
0	30	70	70	540	945	1350
0	30	70	80	560	980	1400
0	30	70	90	580	1015	1450
0	30	70	100	600	1050	1500
0	30	80	80	600	1050	1500
0	30	80	90	620	1085	1550
0	30	80	100	640	1120	1600
0	30	90	90	660	1155	1650
0	30	90	100	680	1190	1700
0	30	100	100	720	1260	1800
0	40	40	40	400	700	1000
0	40	40	50	420	735	1050
0	40	40	60	440	770	1100
0	40	40	70	460	805	1150
0	40	40	80	480	840	1200
0	40	40	90	500	875	1250
0	40	40	100	520	910	1300
0	40	50	50	460	805	1150
0	40	50	60	480	840	1200
0	40	50	70	500	875	1250
0	40	50	80	520	910	1300
0	40	50	90	540	945	1350
0	40	50	100	560	980	1400

Disease Severity (%)

Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0	40	60	60	520	910	1300
0	40	60	70	540	945	1350
0	40	60	80	560	980	1400
0	40	60	90	580	1015	1450
0	40	60	100	600	1050	1500
0	40	70	70	580	1015	1450
0	40	70	80	600	1050	1500
0	40	70	90	620	1085	1550
0	40	70	100	640	1120	1600
0	40	80	80	640	1120	1600
0	40	80	90	660	1155	1650
0	40	80	100	680	1190	1700
0	40	90	90	700	1225	1750
0	40	90	100	720	1260	1800
0	40	100	100	760	1330	1900
0	50	50	50	500	875	1250
0	50	50	60	520	910	1300
0	50	50	70	540	945	1350
0	50	50	80	560	980	1400
0	50	50	90	580	1015	1450
0	50	50	100	600	1050	1500
0	50	60	60	560	980	1400
0	50	60	70	580	1015	1450
0	50	60	80	600	1050	1500
0	50	60	90	620	1085	1550
0	50	60	100	640	1120	1600
0	50	70	70	620	1085	1550
0	50	70	80	640	1120	1600
0	50	70	90	660	1155	1650
0	50	70	100	680	1190	1700
0	50	80	80	680	1190	1700
0	50	80	90	700	1225	1750
0	50	80	100	720	1260	1800
0	50	90	90	740	1295	1850
0	50	90	100	760	1330	1900
0	50	100	100	800	1400	2000
0	60	60	60	600	1050	1500
0	60	60	70	620	1085	1550
0	60	60	80	640	1120	1600
0	60	60	90	660	1155	1650
0	60	60	100	680	1190	1700

Disease Severity (%)

Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0	60	70	70	660	1155	1650
0	60	70	80	680	1190	1700
0	60	70	90	700	1225	1750
0	60	70	100	720	1260	1800
0	60	80	80	720	1260	1800
0	60	80	90	740	1295	1850
0	60	80	100	760	1330	1900
0	60	90	90	780	1365	1950
0	60	90	100	800	1400	2000
0	60	100	100	840	1470	2100
0	70	70	70	700	1225	1750
0	70	70	80	720	1260	1800
0	70	70	90	740	1295	1850
0	70	70	100	760	1330	1900
0	70	80	80	760	1330	1900
0	70	80	90	780	1365	1950
0	70	80	100	800	1400	2000
0	70	90	90	820	1435	2050
0	70	90	100	840	1470	2100
0	70	100	100	880	1540	2200
0	80	80	80	800	1400	2000
0	80	80	90	820	1435	2050
0	80	80	100	840	1470	2100
0	80	90	90	860	1505	2150
0	80	90	100	880	1540	2200
0	80	100	100	920	1610	2300
0	90	90	90	900	1575	2250
0	90	90	100	920	1610	2300
0	90	100	100	960	1680	2400
0	100	100	100	1000	1750	2500
0.5	0.5	0.5	0.5	6	11	15
0.5	0.5	0.5	1	7	12	18
0.5	0.5	0.5	5	15	26	38
0.5	0.5	0.5	10	25	44	63
0.5	0.5	0.5	20	45	79	113
0.5	0.5	0.5	30	65	114	163
0.5	0.5	0.5	40	85	149	213
0.5	0.5	0.5	50	105	184	263
0.5	0.5	0.5	60	125	219	313
0.5	0.5	0.5	70	145	254	363
0.5	0.5	0.5	80	165	289	413
0.5	0.5	0.5	90	185	324	463
0.5	0.5	0.5	100	205	359	513

Disease Severity (%)

Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0.5	0.5	1	1	9	16	23
0.5	0.5	1	5	17	30	43
0.5	0.5	1	10	27	47	68
0.5	0.5	1	20	47	82	118
0.5	0.5	1	30	67	117	168
0.5	0.5	1	40	87	152	218
0.5	0.5	1	50	107	187	268
0.5	0.5	1	60	127	222	318
0.5	0.5	1	70	147	257	368
0.5	0.5	1	80	167	292	418
0.5	0.5	1	90	187	327	468
0.5	0.5	1	100	207	362	518
0.5	0.5	5	5	33	58	83
0.5	0.5	5	10	43	75	108
0.5	0.5	5	20	63	110	158
0.5	0.5	5	30	83	145	208
0.5	0.5	5	40	103	180	258
0.5	0.5	5	50	123	215	308
0.5	0.5	5	60	143	250	358
0.5	0.5	5	70	163	285	408
0.5	0.5	5	80	183	320	458
0.5	0.5	5	90	203	355	508
0.5	0.5	5	100	223	390	558
0.5	0.5	10	10	63	110	158
0.5	0.5	10	20	83	145	208
0.5	0.5	10	30	103	180	258
0.5	0.5	10	40	123	215	308
0.5	0.5	10	50	143	250	358
0.5	0.5	10	60	163	285	408
0.5	0.5	10	70	183	320	458
0.5	0.5	10	80	203	355	508
0.5	0.5	10	90	223	390	558
0.5	0.5	10	100	243	425	608
0.5	0.5	20	20	123	215	308
0.5	0.5	20	30	143	250	358
0.5	0.5	20	40	163	285	408
0.5	0.5	20	50	183	320	458
0.5	0.5	20	60	203	355	508
0.5	0.5	20	70	223	390	558
0.5	0.5	20	80	243	425	608
0.5	0.5	20	90	263	460	658
0.5	0.5	20	100	283	495	708
0.5	0.5	30	30	183	320	458
0.5	0.5	30	40	203	355	508
0.5	0.5	30	50	223	390	558
0.5	0.5	30	60	243	425	608
0.5	0.5	30	70	263	460	658
0.5	0.5	30	80	283	495	708
0.5	0.5	30	90	303	530	758
0.5	0.5	30	100	323	565	808

Disease Severity (%)

Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0.5	0.5	40	40	243	425	608
0.5	0.5	40	50	263	460	658
0.5	0.5	40	60	283	495	708
0.5	0.5	40	70	303	530	758
0.5	0.5	40	80	323	565	808
0.5	0.5	40	90	343	600	858
0.5	0.5	40	100	363	635	908
0.5	0.5	50	50	303	530	758
0.5	0.5	50	60	323	565	808
0.5	0.5	50	70	343	600	858
0.5	0.5	50	80	363	635	908
0.5	0.5	50	90	383	670	958
0.5	0.5	50	100	403	705	1008
0.5	0.5	60	60	363	635	908
0.5	0.5	60	70	383	670	958
0.5	0.5	60	80	403	705	1008
0.5	0.5	60	90	423	740	1058
0.5	0.5	60	100	443	775	1108
0.5	0.5	70	70	423	740	1058
0.5	0.5	70	80	443	775	1108
0.5	0.5	70	90	463	810	1158
0.5	0.5	70	100	483	845	1208
0.5	0.5	80	80	483	845	1208
0.5	0.5	80	90	503	880	1258
0.5	0.5	80	100	523	915	1308
0.5	0.5	90	90	543	950	1358
0.5	0.5	90	100	563	985	1408
0.5	0.5	100	100	603	1055	1508
0.5	1	1	1	11	19	28
0.5	1	1	5	19	33	48
0.5	1	1	10	29	51	73
0.5	1	1	20	49	86	123
0.5	1	1	30	69	121	173
0.5	1	1	40	89	156	223
0.5	1	1	50	109	191	273
0.5	1	1	60	129	226	323
0.5	1	1	70	149	261	373
0.5	1	1	80	169	296	423
0.5	1	1	90	189	331	473
0.5	1	1	100	209	366	523

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0.5	1	5	5	35	61	88
0.5	1	5	10	45	79	113
0.5	1	5	20	65	114	163
0.5	1	5	30	85	149	213
0.5	1	5	40	105	184	263
0.5	1	5	50	125	219	313
0.5	1	5	60	145	254	363
0.5	1	5	70	165	289	413
0.5	1	5	80	185	324	463
0.5	1	5	90	205	359	513
0.5	1	5	100	225	394	563
0.5	1	10	10	65	114	163
0.5	1	10	20	85	149	213
0.5	1	10	30	105	184	263
0.5	1	10	40	125	219	313
0.5	1	10	50	145	254	363
0.5	1	10	60	165	289	413
0.5	1	10	70	185	324	463
0.5	1	10	80	205	359	513
0.5	1	10	90	225	394	563
0.5	1	10	100	245	429	613
0.5	1	20	20	125	219	313
0.5	1	20	30	145	254	363
0.5	1	20	40	165	289	413
0.5	1	20	50	185	324	463
0.5	1	20	60	205	359	513
0.5	1	20	70	225	394	563
0.5	1	20	80	245	429	613
0.5	1	20	90	265	464	663
0.5	1	20	100	285	499	713
0.5	1	30	30	185	324	463
0.5	1	30	40	205	359	513
0.5	1	30	50	225	394	563
0.5	1	30	60	245	429	613
0.5	1	30	70	265	464	663
0.5	1	30	80	285	499	713
0.5	1	30	90	305	534	763
0.5	1	30	100	325	569	813
0.5	1	40	40	245	429	613
0.5	1	40	50	265	464	663
0.5	1	40	60	285	499	713
0.5	1	40	70	305	534	763
0.5	1	40	80	325	569	813
0.5	1	40	90	345	604	863
0.5	1	40	100	365	639	913
0.5	1	50	50	305	534	763
0.5	1	50	60	325	569	813
0.5	1	50	70	345	604	863
0.5	1	50	80	365	639	913
0.5	1	50	90	385	674	963
0.5	1	50	100	405	709	1013

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0.5	1	60	60	365	639	913
0.5	1	60	70	385	674	963
0.5	1	60	80	405	709	1013
0.5	1	60	90	425	744	1063
0.5	1	60	100	445	779	1113
0.5	1	70	70	425	744	1063
0.5	1	70	80	445	779	1113
0.5	1	70	90	465	814	1163
0.5	1	70	100	485	849	1213
0.5	1	80	80	485	849	1213
0.5	1	80	90	505	884	1263
0.5	1	80	100	525	919	1313
0.5	1	90	90	545	954	1363
0.5	1	90	100	565	989	1413
0.5	1	100	100	605	1059	1513
0.5	5	5	5	51	89	128
0.5	5	5	10	61	107	153
0.5	5	5	20	81	142	203
0.5	5	5	30	101	177	253
0.5	5	5	40	121	212	303
0.5	5	5	50	141	247	353
0.5	5	5	60	161	282	403
0.5	5	5	70	181	317	453
0.5	5	5	80	201	352	503
0.5	5	5	90	221	387	553
0.5	5	5	100	241	422	603
0.5	5	10	10	81	142	203
0.5	5	10	20	101	177	253
0.5	5	10	30	121	212	303
0.5	5	10	40	141	247	353
0.5	5	10	50	161	282	403
0.5	5	10	60	181	317	453
0.5	5	10	70	201	352	503
0.5	5	10	80	221	387	553
0.5	5	10	90	241	422	603
0.5	5	10	100	261	457	653
0.5	5	20	20	141	247	353
0.5	5	20	30	161	282	403
0.5	5	20	40	181	317	453
0.5	5	20	50	201	352	503
0.5	5	20	60	221	387	553
0.5	5	20	70	241	422	603
0.5	5	20	80	261	457	653
0.5	5	20	90	281	492	703
0.5	5	20	100	301	527	753

Disease Severity (%)

Area Under the Disease Progress Curve

Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
0.5	5	30	30	201	352	503
0.5	5	30	40	221	387	553
0.5	5	30	50	241	422	603
0.5	5	30	60	261	457	653
0.5	5	30	70	281	492	703
0.5	5	30	80	301	527	753
0.5	5	30	90	321	562	803
0.5	5	30	100	341	597	853
0.5	5	40	40	261	457	653
0.5	5	40	50	281	492	703
0.5	5	40	60	301	527	753
0.5	5	40	70	321	562	803
0.5	5	40	80	341	597	853
0.5	5	40	90	361	632	903
0.5	5	40	100	381	667	953
0.5	5	50	50	321	562	803
0.5	5	50	60	341	597	853
0.5	5	50	70	361	632	903
0.5	5	50	80	381	667	953
0.5	5	50	90	401	702	1003
0.5	5	50	100	421	737	1053
0.5	5	60	60	381	667	953
0.5	5	60	70	401	702	1003
0.5	5	60	80	421	737	1053
0.5	5	60	90	441	772	1103
0.5	5	60	100	461	807	1153
0.5	5	70	70	441	772	1103
0.5	5	70	80	461	807	1153
0.5	5	70	90	481	842	1203
0.5	5	70	100	501	877	1253
0.5	5	80	80	501	877	1253
0.5	5	80	90	521	912	1303
0.5	5	80	100	541	947	1353
0.5	5	90	90	561	982	1403
0.5	5	90	100	581	1017	1453
0.5	5	100	100	621	1087	1553
0.5	10	10	10	101	177	253
0.5	10	10	20	121	212	303
0.5	10	10	30	141	247	353
0.5	10	10	40	161	282	403
0.5	10	10	50	181	317	453
0.5	10	10	60	201	352	503
0.5	10	10	70	221	387	553
0.5	10	10	80	241	422	603
0.5	10	10	90	261	457	653
0.5	10	10	100	281	492	703

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0.5	10	20	20	161	282	403
0.5	10	20	30	181	317	453
0.5	10	20	40	201	352	503
0.5	10	20	50	221	387	553
0.5	10	20	60	241	422	603
0.5	10	20	70	261	457	653
0.5	10	20	80	281	492	703
0.5	10	20	90	301	527	753
0.5	10	20	100	321	562	803
0.5	10	30	30	221	387	553
0.5	10	30	40	241	422	603
0.5	10	30	50	261	457	653
0.5	10	30	60	281	492	703
0.5	10	30	70	301	527	753
0.5	10	30	80	321	562	803
0.5	10	30	90	341	597	853
0.5	10	30	100	361	632	903
0.5	10	40	40	281	492	703
0.5	10	40	50	301	527	753
0.5	10	40	60	321	562	803
0.5	10	40	70	341	597	853
0.5	10	40	80	361	632	903
0.5	10	40	90	381	667	953
0.5	10	40	100	401	702	1003
0.5	10	50	50	341	597	853
0.5	10	50	60	361	632	903
0.5	10	50	70	381	667	953
0.5	10	50	80	401	702	1003
0.5	10	50	90	421	737	1053
0.5	10	50	100	441	772	1103
0.5	10	60	60	401	702	1003
0.5	10	60	70	421	737	1053
0.5	10	60	80	441	772	1103
0.5	10	60	90	461	807	1153
0.5	10	60	100	481	842	1203
0.5	10	70	70	461	807	1153
0.5	10	70	80	481	842	1203
0.5	10	70	90	501	877	1253
0.5	10	70	100	521	912	1303
0.5	10	80	80	521	912	1303
0.5	10	80	90	541	947	1353
0.5	10	80	100	561	982	1403
0.5	10	90	90	581	1017	1453
0.5	10	90	100	601	1052	1503
0.5	10	100	100	641	1122	1603

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0.5	20	20	20	201	352	503
0.5	20	20	30	221	387	553
0.5	20	20	40	241	422	603
0.5	20	20	50	261	457	653
0.5	20	20	60	281	492	703
0.5	20	20	70	301	527	753
0.5	20	20	80	321	562	803
0.5	20	20	90	341	597	853
0.5	20	20	100	361	632	903
0.5	20	30	30	261	457	653
0.5	20	30	40	281	492	703
0.5	20	30	50	301	527	753
0.5	20	30	60	321	562	803
0.5	20	30	70	341	597	853
0.5	20	30	80	361	632	903
0.5	20	30	90	381	667	953
0.5	20	30	100	401	702	1003
0.5	20	40	40	321	562	803
0.5	20	40	50	341	597	853
0.5	20	40	60	361	632	903
0.5	20	40	70	381	667	953
0.5	20	40	80	401	702	1003
0.5	20	40	90	421	737	1053
0.5	20	40	100	441	772	1103
0.5	20	50	50	381	667	953
0.5	20	50	60	401	702	1003
0.5	20	50	70	421	737	1053
0.5	20	50	80	441	772	1103
0.5	20	50	90	461	807	1153
0.5	20	50	100	481	842	1203
0.5	20	60	60	441	772	1103
0.5	20	60	70	461	807	1153
0.5	20	60	80	481	842	1203
0.5	20	60	90	501	877	1253
0.5	20	60	100	521	912	1303
0.5	20	70	70	501	877	1253
0.5	20	70	80	521	912	1303
0.5	20	70	90	541	947	1353
0.5	20	70	100	561	982	1403
0.5	20	80	80	561	982	1403
0.5	20	80	90	581	1017	1453
0.5	20	80	100	601	1052	1503
0.5	20	90	90	621	1087	1553
0.5	20	90	100	641	1122	1603
0.5	20	100	100	681	1192	1703

Disease Severity (%)

Area Under the Disease Progress Curve

Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
0.5	30	30	30	301	527	753
0.5	30	30	40	321	562	803
0.5	30	30	50	341	597	853
0.5	30	30	60	361	632	903
0.5	30	30	70	381	667	953
0.5	30	30	80	401	702	1003
0.5	30	30	90	421	737	1053
0.5	30	30	100	441	772	1103
0.5	30	40	40	361	632	903
0.5	30	40	50	381	667	953
0.5	30	40	60	401	702	1003
0.5	30	40	70	421	737	1053
0.5	30	40	80	441	772	1103
0.5	30	40	90	461	807	1153
0.5	30	40	100	481	842	1203
0.5	30	50	50	421	737	1053
0.5	30	50	60	441	772	1103
0.5	30	50	70	461	807	1153
0.5	30	50	80	481	842	1203
0.5	30	50	90	501	877	1253
0.5	30	50	100	521	912	1303
0.5	30	60	60	481	842	1203
0.5	30	60	70	501	877	1253
0.5	30	60	80	521	912	1303
0.5	30	60	90	541	947	1353
0.5	30	60	100	561	982	1403
0.5	30	70	70	541	947	1353
0.5	30	70	80	561	982	1403
0.5	30	70	90	581	1017	1453
0.5	30	70	100	601	1052	1503
0.5	30	80	80	601	1052	1503
0.5	30	80	90	621	1087	1553
0.5	30	80	100	641	1122	1603
0.5	30	90	90	661	1157	1653
0.5	30	90	100	681	1192	1703
0.5	30	100	100	721	1262	1803
0.5	40	40	40	401	702	1003
0.5	40	40	50	421	737	1053
0.5	40	40	60	441	772	1103
0.5	40	40	70	461	807	1153
0.5	40	40	80	481	842	1203
0.5	40	40	90	501	877	1253
0.5	40	40	100	521	912	1303

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0.5	40	50	50	461	807	1153
0.5	40	50	60	481	842	1203
0.5	40	50	70	501	877	1253
0.5	40	50	80	521	912	1303
0.5	40	50	90	541	947	1353
0.5	40	50	100	561	982	1403
0.5	40	60	60	521	912	1303
0.5	40	60	70	541	947	1353
0.5	40	60	80	561	982	1403
0.5	40	60	90	581	1017	1453
0.5	40	60	100	601	1052	1503
0.5	40	70	70	581	1017	1453
0.5	40	70	80	601	1052	1503
0.5	40	70	90	621	1087	1553
0.5	40	70	100	641	1122	1603
0.5	40	80	80	641	1122	1603
0.5	40	80	90	661	1157	1653
0.5	40	80	100	681	1192	1703
0.5	40	90	90	701	1227	1753
0.5	40	90	100	721	1262	1803
0.5	40	100	100	761	1232	1903
0.5	50	50	50	501	877	1253
0.5	50	50	60	521	912	1303
0.5	50	50	70	541	947	1353
0.5	50	50	80	561	982	1403
0.5	50	50	90	581	1017	1453
0.5	50	50	100	601	1052	1503
0.5	50	60	60	561	982	1403
0.5	50	60	70	581	1017	1453
0.5	50	60	80	601	1052	1503
0.5	50	60	90	621	1087	1553
0.5	50	60	100	641	1122	1603
0.5	50	70	70	621	1087	1553
0.5	50	70	80	641	1122	1603
0.5	50	70	90	661	1157	1653
0.5	50	70	100	681	1192	1703
0.5	50	80	80	681	1192	1703
0.5	50	80	90	701	1227	1753
0.5	50	80	100	721	1262	1803
0.5	50	90	90	741	1297	1853
0.5	50	90	100	761	1332	1903
0.5	50	100	100	801	1402	2003
0.5	60	60	60	601	1052	1503
0.5	60	60	70	621	1087	1553
0.5	60	60	80	641	1122	1603
0.5	60	60	90	661	1157	1653
0.5	60	60	100	681	1192	1703

Disease Severity (%)

Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
0.5	60	70	70	661	1157	1653
0.5	60	70	80	681	1192	1703
0.5	60	70	90	701	1227	1753
0.5	60	70	100	721	1262	1803
0.5	60	80	80	721	1262	1803
0.5	60	80	90	741	1297	1853
0.5	60	80	100	761	1332	1903
0.5	60	90	90	781	1367	1953
0.5	60	90	100	801	1402	2003
0.5	60	100	100	841	1472	2103
0.5	70	70	70	701	1227	1753
0.5	70	70	80	721	1262	1803
0.5	70	70	90	741	1297	1853
0.5	70	70	100	761	1332	1903
0.5	70	80	80	761	1332	1903
0.5	70	80	90	781	1367	1953
0.5	70	80	100	801	1402	2003
0.5	70	90	90	821	1437	2053
0.5	70	90	100	841	1472	2103
0.5	70	100	100	881	1542	2203
0.5	80	80	80	801	1402	2003
0.5	80	80	90	821	1437	2053
0.5	80	80	100	841	1472	2103
0.5	80	90	90	861	1507	2153
0.5	80	90	100	881	1542	2203
0.5	80	100	100	921	1612	2303
0.5	90	90	90	901	1577	2253
0.5	90	90	100	921	1612	2303
0.5	90	100	100	961	1682	2403
0.5	100	100	100	1001	1752	2503
1	1	1	1	12	21	30
1	1	1	5	20	35	50
1	1	1	10	30	53	75
1	1	1	20	50	88	125
1	1	1	30	70	123	175
1	1	1	40	90	158	225
1	1	1	50	110	193	275
1	1	1	60	130	228	325
1	1	1	70	150	263	375
1	1	1	80	170	298	425
1	1	1	90	190	333	475
1	1	1	100	201	368	525

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
1	1	5	5	36	63	90
1	1	5	10	46	81	115
1	1	5	20	66	116	165
1	1	5	30	86	151	215
1	1	5	40	106	186	265
1	1	5	50	126	221	315
1	1	5	60	146	256	365
1	1	5	70	166	291	415
1	1	5	80	186	326	465
1	1	5	90	206	361	515
1	1	5	100	226	396	565
1	1	10	10	66	116	165
1	1	10	20	86	151	215
1	1	10	30	106	186	265
1	1	10	40	126	221	315
1	1	10	50	146	256	365
1	1	10	60	166	291	415
1	1	10	70	186	326	465
1	1	10	80	206	361	515
1	1	10	90	226	396	565
1	1	10	100	246	431	615
1	1	20	20	126	221	315
1	1	20	30	146	256	365
1	1	20	40	166	291	415
1	1	20	50	186	326	465
1	1	20	60	206	361	515
1	1	20	70	226	396	565
1	1	20	80	246	431	615
1	1	20	90	266	466	665
1	1	20	100	286	501	715
1	1	30	30	186	326	465
1	1	30	40	206	361	515
1	1	30	50	226	396	565
1	1	30	60	246	431	615
1	1	30	70	266	466	665
1	1	30	80	286	501	715
1	1	30	90	306	536	765
1	1	30	100	326	571	815
1	1	40	40	246	431	615
1	1	40	50	266	466	665
1	1	40	60	286	501	715
1	1	40	70	306	536	765
1	1	40	80	326	571	815
1	1	40	90	346	606	865
1	1	40	100	366	641	915

Disease Severity (%)

Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
1	1	50	50	306	536	765
1	1	50	60	326	571	815
1	1	50	70	346	606	865
1	1	50	80	366	641	915
1	1	50	90	386	676	965
1	1	50	100	406	711	1015
1	1	60	60	366	641	915
1	1	60	70	386	676	965
1	1	60	80	406	711	1015
1	1	60	90	426	746	1065
1	1	60	100	446	781	1115
1	1	70	70	426	746	1065
1	1	70	80	446	781	1115
1	1	70	90	466	816	1165
1	1	70	100	486	851	1215
1	1	80	80	486	851	1215
1	1	80	90	506	886	1265
1	1	80	100	526	921	1315
1	1	90	90	546	956	1365
1	1	90	100	566	991	1415
1	1	100	100	606	1061	1515
1	5	5	5	52	91	130
1	5	5	10	62	109	155
1	5	5	20	82	144	205
1	5	5	30	102	179	255
1	5	5	40	122	214	305
1	5	5	50	142	249	355
1	5	5	60	162	284	405
1	5	5	70	182	319	455
1	5	5	80	202	354	505
1	5	5	90	222	389	555
1	5	5	100	242	424	605
1	5	10	10	82	144	205
1	5	10	20	102	179	255
1	5	10	30	122	214	305
1	5	10	40	142	249	355
1	5	10	50	162	284	405
1	5	10	60	182	319	455
1	5	10	70	202	354	505
1	5	10	80	222	389	555
1	5	10	90	242	424	605
1	5	10	100	262	459	655

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
1	5	20	20	142	249	355
1	5	20	30	162	284	405
1	5	20	40	182	319	455
1	5	20	50	202	354	505
1	5	20	60	222	389	555
1	5	20	70	242	424	605
1	5	20	80	262	459	655
1	5	20	90	282	494	705
1	5	20	100	302	529	755
1	1	30	30	202	354	505
1	1	30	40	222	389	555
1	1	30	50	242	424	605
1	1	30	60	262	459	655
1	1	30	70	282	494	705
1	1	30	80	302	529	755
1	1	30	90	322	564	805
1	1	30	100	342	599	855
1	1	40	40	262	459	655
1	1	40	50	282	494	705
1	1	40	60	302	529	755
1	1	40	70	322	564	805
1	1	40	80	342	599	855
1	1	40	90	362	634	905
1	1	40	100	382	669	955
1	1	50	50	322	564	805
1	1	50	60	342	599	855
1	1	50	70	362	634	905
1	1	50	80	382	669	955
1	1	50	90	402	704	1005
1	1	50	100	422	739	1055
1	1	60	60	382	669	955
1	1	60	70	402	704	1005
1	1	60	80	422	739	1055
1	1	60	90	442	774	1105
1	1	60	100	462	809	1155
1	1	70	70	442	774	1105
1	1	70	80	462	809	1155
1	1	70	90	482	844	1205
1	1	70	100	502	879	1255
1	1	80	80	502	879	1255
1	1	80	90	522	914	1305
1	1	80	100	542	949	1355
1	1	90	90	562	984	1405
1	1	90	100	582	1019	1455
1	1	100	100	622	1089	1555

Disease Severity (%)

Area Under the Disease Progress Curve

Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
1	10	10	10	102	179	255
1	10	10	20	122	214	305
1	10	10	30	142	249	355
1	10	10	40	162	284	405
1	10	10	50	182	319	455
1	10	10	60	202	354	505
1	10	10	70	222	389	555
1	10	10	80	242	424	605
1	10	10	90	262	459	655
1	10	10	100	282	494	705
1	10	20	20	162	284	405
1	10	20	30	182	319	455
1	10	20	40	202	354	505
1	10	20	50	222	389	555
1	10	20	60	242	424	605
1	10	20	70	262	459	655
1	10	20	80	282	494	705
1	10	20	90	302	529	755
1	10	20	100	322	564	805
1	10	30	30	222	389	555
1	10	30	40	242	424	605
1	10	30	50	262	459	655
1	10	30	60	282	494	705
1	10	30	70	302	529	755
1	10	30	80	322	564	805
1	10	30	90	342	599	855
1	10	30	100	362	634	905
1	10	40	40	282	494	705
1	10	40	50	302	529	755
1	10	40	60	322	564	805
1	10	40	70	342	599	855
1	10	40	80	362	634	905
1	10	40	90	382	669	955
1	10	40	100	402	704	1005
1	10	50	50	342	599	855
1	10	50	60	362	634	905
1	10	50	70	382	669	955
1	10	50	80	402	704	1005
1	10	50	90	422	739	1055
1	10	50	100	442	774	1105
1	10	60	60	402	704	1005
1	10	60	70	422	739	1055
1	10	60	80	442	774	1105
1	10	60	90	462	809	1155
1	10	60	100	482	844	1205

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
1	10	70	70	462	809	1155
1	10	70	80	482	844	1205
1	10	70	90	502	879	1255
1	10	70	100	522	914	1305
1	10	80	80	522	914	1305
1	10	80	90	542	949	1355
1	10	80	100	562	984	1405
1	10	90	90	582	1019	1455
1	10	90	100	602	1054	1505
1	10	100	100	642	1124	1605
1	20	20	20	202	354	505
1	20	20	30	222	389	555
1	20	20	40	242	424	605
1	20	20	50	262	459	655
1	20	20	60	282	494	705
1	20	20	70	302	529	755
1	20	20	80	322	564	805
1	20	20	90	342	599	855
1	20	20	100	362	634	905
1	20	30	30	262	459	655
1	20	30	40	282	494	705
1	20	30	50	302	529	755
1	20	30	60	322	564	805
1	20	30	70	342	599	855
1	20	30	80	362	634	905
1	20	30	90	382	669	955
1	20	30	100	402	704	1005
1	20	40	40	322	564	805
1	20	40	50	342	599	855
1	20	40	60	362	634	905
1	20	40	70	382	669	955
1	20	40	80	402	704	1005
1	20	40	90	422	739	1055
1	20	40	100	442	774	1105
1	20	50	50	382	669	955
1	20	50	60	402	704	1005
1	20	50	70	422	739	1055
1	20	50	80	442	774	1105
1	20	50	90	462	809	1155
1	20	50	100	482	844	1205
1	20	60	60	442	774	1105
1	20	60	70	462	809	1155
1	20	60	80	482	844	1205
1	20	60	90	502	879	1255
1	20	60	100	522	914	1305

Disease Severity (%)

Area Under the Disease Progress Cu

Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
1	20	70	70	502	879	1255
1	20	70	80	522	914	1305
1	20	70	90	542	949	1355
1	20	70	100	562	984	1405
1	20	80	80	562	984	1405
1	20	80	90	582	1019	1455
1	20	80	100	602	1054	1505
1	20	90	90	622	1089	1555
1	20	90	100	642	1124	1605
1	20	100	100	682	1194	1705
1	30	30	30	302	529	755
1	30	30	40	322	564	805
1	30	30	50	342	599	855
1	30	30	60	362	634	905
1	30	30	70	382	669	955
1	30	30	80	402	704	1005
1	30	30	90	422	739	1055
1	30	30	100	442	774	1105
1	30	40	40	362	634	905
1	30	40	50	382	669	955
1	30	40	60	402	704	1005
1	30	40	70	422	739	1055
1	30	40	80	442	774	1105
1	30	40	90	462	809	1155
1	30	40	100	482	844	1205
1	30	50	50	422	739	1055
1	30	50	60	442	774	1105
1	30	50	70	462	809	1155
1	30	50	80	482	844	1205
1	30	50	90	502	879	1255
1	30	50	100	522	914	1305
1	30	60	60	482	844	1205
1	30	60	70	502	879	1255
1	30	60	80	522	914	1305
1	30	60	90	542	949	1355
1	30	60	100	562	984	1405
1	30	70	70	542	949	1355
1	30	70	80	562	984	1405
1	30	70	90	582	1019	1455
1	30	70	100	602	1054	1505
1	30	80	80	602	1054	1505
1	30	80	90	622	1089	1555
1	30	80	100	642	1124	1605
1	30	90	90	662	1159	1655
1	30	90	100	682	1194	1705
1	30	100	100	722	1264	1805

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
1	40	40	40	402	704	1005
1	40	40	50	422	739	1055
1	40	40	60	442	774	1105
1	40	40	70	462	809	1155
1	40	40	80	482	844	1205
1	40	40	90	502	879	1255
1	40	40	100	522	914	1305
1	40	50	50	462	809	1155
1	40	50	60	482	844	1205
1	40	50	70	502	879	1255
1	40	50	80	522	914	1305
1	40	50	90	542	949	1355
1	40	50	100	562	984	1405
1	40	60	60	522	914	1305
1	40	60	70	542	949	1355
1	40	60	80	562	984	1405
1	40	60	90	582	1019	1455
1	40	60	100	602	1054	1505
1	40	70	70	582	1019	1455
1	40	70	80	602	1054	1505
1	40	70	90	622	1089	1555
1	40	70	100	642	1124	1605
1	40	80	80	642	1124	1605
1	40	80	90	662	1159	1655
1	40	80	100	682	1194	1705
1	40	90	90	702	1229	1755
1	40	90	100	722	1264	1805
1	40	100	100	762	1334	1905
1	50	50	50	502	879	1255
1	50	50	60	522	914	1305
1	50	50	70	542	949	1355
1	50	50	80	562	984	1405
1	50	50	90	582	1019	1455
1	50	50	100	602	1054	1505
1	50	60	60	562	984	1405
1	50	60	70	582	1019	1455
1	50	60	80	602	1054	1505
1	50	60	90	622	1089	1555
1	50	60	100	642	1124	1605
1	50	70	70	622	1089	1555
1	50	70	80	642	1124	1605
1	50	70	90	662	1159	1655
1	50	70	100	682	1194	1705

<u>Disease Severity (%)</u>				<u>Area Under the Disease Progress Cu</u>		
<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
1	50	80	80	682	1194	1705
1	50	80	90	702	1229	1755
1	50	80	100	722	1264	1805
1	50	90	90	742	1299	1855
1	50	90	100	762	1334	1905
1	50	100	100	802	1404	2005
1	60	60	60	602	1054	1505
1	60	60	70	622	1089	1555
1	60	60	80	642	1124	1605
1	60	60	90	662	1159	1655
1	60	60	100	682	1194	1705
1	60	70	70	662	1159	1655
1	60	70	80	682	1194	1705
1	60	70	90	702	1229	1755
1	60	70	100	722	1264	1805
1	60	80	80	722	1264	1805
1	60	80	90	742	1299	1855
1	60	80	100	762	1334	1905
1	60	90	90	782	1369	1955
1	60	90	100	802	1404	2005
1	60	100	100	842	1474	2105
1	70	70	70	702	1229	1755
1	70	70	80	722	1264	1805
1	70	70	90	742	1299	1855
1	70	70	100	762	1334	1905
1	70	80	80	762	1334	1905
1	70	80	90	782	1369	1955
1	70	80	100	802	1404	2005
1	70	90	90	822	1439	2055
1	70	90	100	842	1474	2105
1	70	100	100	882	1544	2205
1	80	80	80	802	1404	2005
1	80	80	90	822	1439	2055
1	80	80	100	842	1474	2105
1	80	90	90	862	1509	2155
1	80	90	100	882	1544	2205
1	80	100	100	922	1614	2305
1	90	90	90	902	1579	2255
1	90	90	100	922	1614	2305
1	90	100	100	962	1684	2405
1	100	100	100	1002	1754	2505

Disease SeverityArea Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
5	5	5	5	60	105	150
5	5	5	10	70	123	175
5	5	5	20	90	158	225
5	5	5	30	110	193	275
5	5	5	40	130	228	325
5	5	5	50	150	263	375
5	5	5	60	170	298	425
5	5	5	70	190	333	475
5	5	5	80	210	368	525
5	5	5	90	230	403	575
5	5	5	100	250	438	625
5	5	10	10	90	158	225
5	5	10	20	110	193	275
5	5	10	30	130	228	325
5	5	10	40	150	263	375
5	5	10	50	170	298	425
5	5	10	60	190	333	475
5	5	10	70	210	368	525
5	5	10	80	230	403	575
5	5	10	90	250	438	625
5	5	10	100	270	473	675
5	5	20	20	150	263	375
5	5	20	30	170	298	425
5	5	20	40	190	333	475
5	5	20	50	210	368	525
5	5	20	60	230	403	575
5	5	20	70	250	438	625
5	5	20	80	270	473	675
5	5	20	90	290	508	725
5	5	20	100	310	543	775
5	5	30	30	210	368	525
5	5	30	40	230	403	575
5	5	30	50	250	438	625
5	5	30	60	270	473	675
5	5	30	70	290	508	725
5	5	30	80	310	543	775
5	5	30	90	330	578	825
5	5	30	100	350	613	875
5	5	40	40	270	473	675
5	5	40	50	290	508	725
5	5	40	60	310	543	775
5	5	40	70	330	578	825
5	5	40	80	350	613	875
5	5	40	90	370	648	925
5	5	40	100	390	683	975

Disease Severity (%)

Area Under the Disease Progress Curve

Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
5	5	50	50	330	578	825
5	5	50	60	350	613	875
5	5	50	70	370	648	925
5	5	50	80	390	683	975
5	5	50	90	410	718	1025
5	5	50	100	430	753	1075
5	5	60	60	390	683	975
5	5	60	70	410	718	1025
5	5	60	80	430	753	1075
5	5	60	90	450	788	1125
5	5	60	100	470	823	1175
5	5	70	70	450	788	1125
5	5	70	80	470	823	1175
5	5	70	90	490	858	1225
5	5	70	100	510	893	1275
5	5	80	80	510	893	1275
5	5	80	90	530	928	1325
5	5	80	100	550	963	1375
5	5	90	90	570	998	1425
5	5	90	100	590	1033	1475
5	5	100	100	630	1103	1575
5	10	10	10	110	193	275
5	10	10	20	130	228	325
5	10	10	30	150	263	375
5	10	10	40	170	298	425
5	10	10	50	190	333	475
5	10	10	60	210	368	525
5	10	10	70	230	403	575
5	10	10	80	250	438	625
5	10	10	90	270	473	675
5	10	10	100	290	508	725
5	10	20	20	170	298	425
5	10	20	30	190	333	475
5	10	20	40	210	368	525
5	10	20	50	230	403	575
5	10	20	60	250	438	625
5	10	20	70	270	473	675
5	10	20	80	290	508	725
5	10	20	90	310	543	775
5	10	20	100	330	578	825

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
5	10	30	30	230	403	575
5	10	30	40	250	438	625
5	10	30	50	270	473	675
5	10	30	60	290	508	725
5	10	30	70	310	543	775
5	10	30	80	330	578	825
5	10	30	90	350	613	875
5	10	30	100	370	648	925
5	10	40	40	290	508	725
5	10	40	50	310	543	775
5	10	40	60	330	578	825
5	10	40	70	350	613	875
5	10	40	80	370	648	925
5	10	40	90	390	683	975
5	10	40	100	410	718	1025
5	10	50	50	350	613	875
5	10	50	60	370	648	925
5	10	50	70	390	683	975
5	10	50	80	410	718	1025
5	10	50	90	430	753	1075
5	10	50	100	450	788	1125
5	10	60	60	410	718	1025
5	10	60	70	430	753	1075
5	10	60	80	450	788	1125
5	10	60	90	470	823	1175
5	10	60	100	490	858	1225
5	10	70	70	470	823	1175
5	10	70	80	490	858	1225
5	10	70	90	510	893	1275
5	10	70	100	530	928	1325
5	10	80	80	530	928	1325
5	10	80	90	550	963	1375
5	10	80	100	570	998	1425
5	10	90	90	590	1033	1475
5	10	90	100	610	1068	1525
5	10	100	100	650	1138	1625
5	20	20	20	210	368	525
5	20	20	30	230	403	575
5	20	20	40	250	438	625
5	20	20	50	270	473	675
5	20	20	60	290	508	725
5	20	20	70	310	543	775
5	20	20	80	330	578	825
5	20	20	90	350	613	875
5	20	20	100	370	648	925

Disease Severity (%)				Area Under the Disease Progress Curve		
Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
5	20	30	30	270	473	675
5	20	30	40	290	508	725
5	20	30	50	310	543	775
5	20	30	60	330	578	825
5	20	30	70	350	613	875
5	20	30	80	370	648	925
5	20	30	90	390	683	975
5	20	30	100	410	718	1025
5	20	40	40	330	578	825
5	20	40	50	350	613	875
5	20	40	60	370	648	925
5	20	40	70	390	683	975
5	20	40	80	410	718	1025
5	20	40	90	430	753	1075
5	20	40	100	450	788	1125
5	20	50	50	390	683	975
5	20	50	60	410	718	1025
5	20	50	70	430	753	1075
5	20	50	80	450	788	1125
5	20	50	90	470	823	1175
5	20	50	100	490	858	1225
5	20	60	60	450	788	1125
5	20	60	70	470	823	1175
5	20	60	80	490	858	1225
5	20	60	90	510	893	1275
5	20	60	100	530	928	1325
5	20	70	70	510	893	1275
5	20	70	80	530	928	1325
5	20	70	90	550	963	1375
5	20	70	100	570	998	1425
5	20	80	80	570	998	1425
5	20	80	90	590	1033	1475
5	20	80	100	610	1068	1525
5	20	90	90	630	1103	1575
5	20	90	100	650	1138	1625
5	20	100	100	690	1208	1725
5	30	30	30	310	543	775
5	30	30	40	330	578	825
5	30	30	50	350	613	875
5	30	30	60	370	648	925
5	30	30	70	390	683	975
5	30	30	80	410	718	1025
5	30	30	90	430	753	1075
5	30	30	100	450	788	1125

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
5	30	40	40	370	648	925
5	30	40	50	390	683	977 975
5	30	40	60	410	718	1025
5	30	40	70	430	753	1075
5	30	40	80	450	788	1125
5	30	40	90	470	823	1175
5	30	40	100	490	858	1225
5	30	50	50	430	753	1075
5	30	50	60	450	788	1125
5	30	50	70	470	823	1175
5	30	50	80	490	858	1225
5	30	50	90	510	893	1275
5	30	50	100	530	928	1325
5	30	60	60	490	858	1225
5	30	60	70	510	893	1275
5	30	60	80	530	928	1325
5	30	60	90	550	963	1375
5	30	60	100	570	998	1425
5	30	70	70	550	963	1375
5	30	70	80	570	998	1425
5	30	70	90	590	1033	1475
5	30	70	100	610	1068	1525
5	30	80	80	610	1068	1525
5	30	80	90	630	1103	1575
5	30	80	100	650	1138	1625
5	30	90	90	670	1173	1675
5	30	90	100	690	1208	1725
5	30	100	100	730	1278	1825
5	40	40	40	410	718	1025
5	40	40	50	430	753	1075
5	40	40	60	450	788	1125
5	40	40	70	470	823	1175
5	40	40	80	490	858	1225
5	40	40	90	510	893	1275
5	40	40	100	530	928	1325
5	40	50	50	470	823	1175
5	40	50	60	490	858	1225
5	40	50	70	510	893	1275
5	40	50	80	530	928	1325
5	40	50	90	550	963	1375
5	40	50	100	570	998	1425
5	40	60	60	530	928	1325
5	40	60	70	550	963	1375
5	40	60	80	570	998	1425
5	40	60	90	590	1033	1475
5	40	60	100	610	1068	1525

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
5	40	70	70	590	1033	1475
5	40	70	80	610	1068	1525
5	40	70	90	630	1103	1575
5	40	70	100	650	1138	1625
5	40	80	80	650	1138	1625
5	40	80	90	670	1173	1675
5	40	80	100	690	1208	1725
5	40	90	90	710	1243	1775
5	40	90	100	730	1278	1825
5	40	100	100	770	1348	1925
5	50	50	50	510	893	1275
5	50	50	60	530	928	1325
5	50	50	70	550	963	1375
5	50	50	80	570	998	1425
5	50	50	90	590	1033	1475
5	50	50	100	610	1068	1525
5	50	60	60	570	998	1425
5	50	60	70	590	1033	1475
5	50	60	80	610	1068	1525
5	50	60	90	630	1103	1575
5	50	60	100	650	1138	1625
5	50	70	70	630	1103	1575
5	50	70	80	650	1138	1625
5	50	70	90	670	1173	1675
5	50	70	100	690	1208	1725
5	50	80	80	690	1208	1725
5	50	80	90	710	1243	1775
5	50	80	100	730	1278	1825
5	50	90	90	750	1313	1875
5	50	90	100	770	1348	1925
5	50	100	100	810	1418	2025
5	60	60	60	610	1068	1525
5	60	60	70	630	1103	1575
5	60	60	80	650	1138	1625
5	60	60	90	670	1173	1675
5	60	60	100	690	1208	1725
5	60	70	70	670	1173	1675
5	60	70	80	690	1208	1725
5	60	70	90	710	1243	1775
5	60	70	100	730	1278	1825

Disease Severity (%)Area Under the Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
5	60	80	80	730	1278	1825
5	60	80	90	750	1313	1875
5	60	80	100	770	1348	1925
5	60	90	90	790	1383	1975
5	60	90	100	810	1418	2025
5	60	100	100	850	1487	2125
5	70	70	70	710	1243	1775
5	70	70	80	730	1278	1825
5	70	70	90	750	1313	1875
5	70	70	100	770	1348	1925
5	70	80	80	770	1348	1925
5	70	80	90	790	1383	1975
5	70	80	100	810	1418	2025
5	70	90	90	830	1453	2075
5	70	90	100	850	1487 1488	2125 2125
5	70	100	100	890	1558	2225
5	80	80	80	810	1418	2025
5	80	80	90	830	1453	2075
5	80	80	100	850	1488	2125
5	80	90	90	870	1523	2175
5	80	90	100	890	1558	2225
5	80	100	100	930	1628	2325
5	90	90	90	910	1593	2275
5	90	90	100	930	1628	2325
5	90	100	100	970	1698	2425
5	100	100	100	1010	1768	2525
10	10	10	10	120	210	300
10	10	10	20	140	245	350
10	10	10	30	160	280	400
10	10	10	40	180	315	450
10	10	10	50	200	350	500
10	10	10	60	220	385	550
10	10	10	70	240	420	600
10	10	10	80	260	455	650
10	10	10	90	280	490	700
10	10	10	100	300	525	750
10	10	20	20	180	315	450
10	10	20	30	200	350	500
10	10	20	40	220	385	550
10	10	20	50	240	420	600
10	10	20	60	260	455	650
10	10	20	70	280	490	700
10	10	20	80	300	525	750
10	10	20	90	320	560	800
10	10	20	100	340	595	850

Disease Severity (%)Area Under The Disease Progress Cur

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
10	10	30	30	240	420	600
10	10	30	40	260	455	650
10	10	30	50	280	490	700
10	10	30	60	300	525	750
10	10	30	70	320	560	800
10	10	30	80	340	595	850
10	10	30	90	360	630	900
10	10	30	100	380	665	950
10	10	40	40	300	525	750
10	10	40	50	320	560	800
10	10	40	60	340	595	850
10	10	40	70	360	630	900
10	10	40	80	380	665	950
10	10	40	90	400	700	1000
10	10	40	100	420	735	1050
10	10	50	50	360	630	900
10	10	50	60	380	665	950
10	10	50	70	400	700	1000
10	10	50	80	420	735	1050
10	10	50	90	440	770	1100
10	10	50	100	460	805	1150
10	10	60	60	420	735	1050
10	10	60	70	440	770	1100
10	10	60	80	460	805	1150
10	10	60	90	480	840	1200
10	10	60	100	500	875	1250
10	10	70	70	480	840	1200
10	10	70	80	500	875	1250
10	10	70	90	520	910	1300
10	10	70	100	540	945	1350
10	10	80	80	540	945	1350
10	10	80	90	560	980	1400
10	10	80	100	580	1015	1450
10	10	90	90	600	1050	1500
10	10	90	100	620	1085	1550
10	10	100	100	660	1155	1650
10	20	20	20	220	385	550
10	20	20	30	240	420	600
10	20	20	40	260	455	650
10	20	20	50	280	490	700
10	20	20	60	300	525	750
10	20	20	70	320	560	800
10	20	20	80	340	595	850
10	20	20	90	360	630	900
10	20	20	100	380	665	950

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
10	20	30	30	280	490	700
10	20	30	40	300	525	750
10	20	30	50	320	560	800
10	20	30	60	340	595	850
10	20	30	70	360	630	900
10	20	30	80	380	665	950
10	20	30	90	400	700	1000
10	20	30	100	420	735	1050
10	20	40	40	340	595	850
10	20	40	50	360	630	900
10	20	40	60	380	665	950
10	20	40	70	400	700	1000
10	20	40	80	420	735	1050
10	20	40	90	440	770	1100
10	20	40	100	460	805	1150
10	20	50	50	400	700	1000
10	20	50	60	420	735	1050
10	20	50	70	440	770	1100
10	20	50	80	460	805	1150
10	20	50	90	480	840	1200
10	20	50	100	500	875	1250
10	20	60	60	460	805	1150
10	20	60	70	480	840	1200
10	20	60	80	500	875	1250
10	20	60	90	520	910	1300
10	20	60	100	540	945	1350
10	20	70	70	520	910	1300
10	20	70	80	540	945	1350
10	20	70	90	560	980	1400
10	20	70	100	580	1015	1450
10	20	80	80	580	1015	1450
10	20	80	90	600	1050	1500
10	20	80	100	620	1085	1550
10	20	90	90	640	1120	1600
10	20	90	100	660	1155	1650
10	20	100	100	700	1225	1750
10	30	30	30	320	560	800
10	30	30	40	340	595	850
10	30	30	50	360	630	900
10	30	30	60	380	665	950
10	30	30	70	400	700	1000
10	30	30	80	420	735	1050
10	30	30	90	440	770	1100
10	30	30	100	460	805	1150

Disease Severity (%)Area Under The Disease Progress Cur

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
10	30	40	40	380	665	950
10	30	40	50	400	700	1000
10	30	40	60	420	735	1050
10	30	40	70	440	770	1100
10	30	40	80	460	805	1150
10	30	40	90	480	840	1200
10	30	40	100	500	875	1250
10	30	50	50	440	770	1100
10	30	50	60	460	805	1150
10	30	50	70	480	840	1200
10	30	50	80	500	875	1250
10	30	50	90	520	910	1300
10	30	50	100	540	945	1350
10	30	60	60	500	875	1250
10	30	60	70	520	910	1300
10	30	60	80	540	945	1350
10	30	60	90	560	980	1400
10	30	60	100	580	1015	1450
10	30	70	70	560	980	1400
10	30	70	80	580	1015	1450
10	30	70	90	600	1050	1500
10	30	70	100	620	1085	1550
10	30	80	80	620	1085	1550
10	30	80	90	640	1120	1600
10	30	80	100	660	1155	1650
10	30	90	90	680	1190	1700
10	30	90	100	700	1225	1750
10	30	100	100	740	1295	1850
10	40	40	40	420	735	1050
10	40	40	50	440	770	1100
10	40	40	60	460	805	1150
10	40	40	70	480	840	1200
10	40	40	80	500	875	1250
10	40	40	90	520	910	1300
10	40	40	100	540	945	1350
10	40	50	50	480	840	1200
10	40	50	60	500	875	1250
10	40	50	70	520	910	1300
10	40	50	80	540	945	1350
10	40	50	90	560	980	1400
10	40	50	100	580	1015	1450

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
10	40	60	60	540	945	1350
10	40	60	70	560	980	1400
10	40	60	80	580	1015	1450
10	40	60	90	600	1050	1500
10	40	60	100	620	1085	1550
10	40	70	70	600	1050	1500
10	40	70	80	620	1085	1550
10	40	70	90	640	1120	1600
10	40	70	100	660	1155	1650
10	40	80	80	660	1155	1650
10	40	80	90	680	1190	1700
10	40	80	100	700	1225	1750
10	40	90	90	720	1260	1800
10	40	90	100	740	1295	1850
10	40	100	100	780	1365	1950
10	50	50	50	520	910	1300
10	50	50	60	540	945	1350
10	50	50	70	560	980	1400
10	50	50	80	580	1015	1450
10	50	50	90	600	1050	1500
10	50	50	100	620	1085	1550
10	50	60	60	580	1015	1450
10	50	60	70	600	1050	1500
10	50	60	80	620	1085	1550
10	50	60	90	640	1120	1600
10	50	60	100	660	1155	1650
10	50	70	70	640	1120	1600
10	50	70	80	660	1155	1650
10	50	70	90	680	1190	1700
10	50	70	100	700	1225	1750
10	50	80	80	700	1225	1750
10	50	80	90	720	1260	1800
10	50	80	100	740	1295	1850
10	50	90	90	760	1330	1900
10	50	90	100	780	1365	1950
10	50	100	100	820	1435	2050
10	60	60	60	620	1085	1550
10	60	60	70	640	1120	1600
10	60	60	80	660	1155	1650
10	60	60	90	680	1190	1700
10	60	60	100	700	1225	1750

Disease Severity (%)

Area Under The Disease Progress Cu

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
10	60	70	70	680	1190	1700
10	60	70	80	700	1225	1750
10	60	70	90	720	1260	1800
10	60	70	100	740	1295	1850
10	60	80	80	740	1295	1850
10	60	80	90	760	1330	1900
10	60	80	100	780	1365	1950
10	60	90	90	800	1400	2000
10	60	90	100	820	1435	2050
10	60	100	100	860	1505	2150
10	70	70	70	720	1260	1800
10	70	70	80	740	1295	1850
10	70	70	90	760	1330	1900
10	70	70	100	780	1365	1950
10	70	80	80	780	1365	1950
10	70	80	90	800	1400	2000
10	70	80	100	820	1435	2050
10	70	90	90	840	1470	2100
10	70	90	100	860	1505	2150
10	70	100	100	900	1575	2250
10	80	80	80	820	1435	2050
10	80	80	90	840	1470	2100
10	80	80	100	860	1505	2150
10	80	90	90	880	1540	2200
10	80	90	100	900	1575	2250
10	80	100	100	940	1645	2350
10	90	90	90	920	1610	2300
10	90	90	100	940	1645	2350
10	90	100	100	980	1715	2450
10	100	100	100	1020	1785	2550
20	20	20	20	240	420	600
20	20	20	30	260	455	650
20	20	20	40	280	490	700
20	20	20	50	300	525	750
20	20	20	60	320	560	800
20	20	20	70	340	595	850
20	20	20	80	360	630	900
20	20	20	90	380	665	950
20	20	20	100	400	700	1000

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
20	20	30	30	300	525	750
20	20	30	40	320	560	800
20	20	30	50	340	595	850
20	20	30	60	360	630	900
20	20	30	70	380	665	950
20	20	30	80	400	700	1000
20	20	30	90	420	735	1050
20	20	30	100	440	770	1100
20	20	40	40	360	630	900
20	20	40	50	380	665	950
20	20	40	60	400	700	1000
20	20	40	70	420	735	1050
20	20	40	80	440	770	1100
20	20	40	90	460	805	1150
20	20	40	100	480	840	1200
20	20	50	50	420	735	1050
20	20	50	60	440	770	1100
20	20	50	70	460	805	1150
20	20	50	80	480	840	1200
20	20	50	90	500	875	1250
20	20	50	100	520	910	1300
20	20	60	60	480	840	1200
20	20	60	70	500	875	1250
20	20	60	80	520	910	1300
20	20	60	90	540	945	1350
20	20	60	100	560	980	1400
20	20	70	70	540	945	1350
20	20	70	80	560	980	1400
20	20	70	90	580	1015	1450
20	20	70	100	600	1050	1500
20	20	80	80	600	1050	1500
20	20	80	90	620	1085	1550
20	20	80	100	640	1120	1600
20	20	90	90	660	1155	1650
20	20	90	100	680	1190	1700
20	20	100	100	720	1260	1800
20	30	30	30	340	595	850
20	30	30	40	360	630	900
20	30	30	50	380	665	950
20	30	30	60	400	700	1000
20	30	30	70	420	735	1050
20	30	30	80	440	770	1100
20	30	30	90	460	805	1150
20	30	30	100	480	840	1200

Disease Severity (%)

Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
20	30	40	40	400	700	1000
20	30	40	50	420	735	1050
20	30	40	60	440	770	1100
20	30	40	70	460	805	1150
20	30	40	80	480	840	1200
20	30	40	90	500	875	1250
20	30	40	100	520	910	1300
20	30	50	50	460	805	1150
20	30	50	60	480	840	1200
20	30	50	70	500	875	1250
20	30	50	80	520	910	1300
20	30	50	90	540	945	1350
20	30	50	100	560	980	1400
20	30	60	60	520	910	1300
20	30	60	70	540	945	1350
20	30	60	80	560	980	1400
20	30	60	90	580	1015	1450
20	30	60	100	600	1050	1500
20	30	70	70	580	1015	1450
20	30	70	80	600	1050	1500
20	30	70	90	620	1085	1550
20	30	70	100	640	1120	1600
20	30	80	80	640	1120	1600
20	30	80	90	660	1155	1650
20	30	80	100	680	1190	1700
20	30	90	90	700	1225	1750
20	30	90	100	720	1260	1800
20	30	100	100	760	1330	1900
20	40	40	40	440	770	1100
20	40	40	50	460	805	1150
20	40	40	60	480	840	1200
20	40	40	70	500	875	1250
20	40	40	80	520	910	1300
20	40	40	90	540	945	1350
20	40	40	100	560	980	1400
20	40	50	50	500	875	1250
20	40	50	60	520	910	1300
20	40	50	70	540	945	1350
20	40	50	80	560	980	1400
20	40	50	90	580	1015	1450
20	40	50	100	600	1050	1500

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
20	40	60	60	560	980	1400
20	40	60	70	580	1015	1450
20	40	60	80	600	1050	1500
20	40	60	90	620	1085	1550
20	40	60	100	640	1120	1600
20	40	70	70	620	1085	1550
20	40	70	80	640	1120	1600
20	40	70	90	660	1155	1650
20	40	70	100	680	1190	1700
20	40	80	80	680	1190	1700
20	40	80	90	700	1225	1750
20	40	80	100	720	1260	1800
20	40	90	90	740	1295	1850
20	40	90	100	760	1330	1900
20	40	100	100	800	1400	2000
20	50	50	50	540	945	1350
20	50	50	60	560	980	1400
20	50	50	70	580	1015	1450
20	50	50	80	600	1050	1500
20	50	50	90	620	1085	1550
20	50	50	100	640	1120	1600
20	50	60	60	600	1050	1500
20	50	60	70	620	1085	1550
20	50	60	80	640	1120	1600
20	50	60	90	660	1155	1650
20	50	60	100	680	1190	1700
20	50	70	70	660	1155	1650
20	50	70	80	680	1190	1700
20	50	70	90	700	1225	1750
20	50	70	100	720	1260	1800
20	50	80	80	720	1260	1800
20	50	80	90	740	1295	1850
20	50	80	100	760	1330	1900
20	50	90	90	780	1365	1950
20	50	90	100	800	1400	2000
20	50	100	100	840	1470	2100
20	60	60	60	640	1120	1600
20	60	60	70	660	1155	1650
20	60	60	80	680	1190	1700
20	60	60	90	700	1225	1750
20	60	60	100	720	1260	1800
20	60	70	70	700	1225	1750
20	60	70	80	720	1260	1800
20	60	70	90	740	1295	1850
20	60	70	100	760	1330	1900

Disease Severity (%)

Area Under The Disease Progress Cur

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
20	60	80	80	760	1330	1900
20	60	80	90	780	1365	1950
20	60	80	100	800	1400	2000
20	60	90	90	820	1435	2050
20	60	90	100	840	1470	2100
20	60	100	100	880	1540	2200
20	70	70	70	740	1295	1850
20	70	70	80	760	1330	1900
20	70	70	90	780	1365	1950
20	70	70	100	800	1400	2000
20	70	80	80	800	1400	2000
20	70	80	90	820	1435	2050
20	70	80	100	840	1470	2100
20	70	90	90	860	1505	2150
20	70	90	100	880	1540	2200
20	70	100	100	920	1610	2300
20	80	80	80	840	1470	2100
20	80	80	90	860	1505	2150
20	80	80	100	880	1540	2200
20	80	90	90	900	1575	2250
20	80	90	100	920	1610	2300
20	80	100	100	960	1680	2400
20	90	90	90	940	1645	2350
20	90	90	100	960	1680	2400
20	90	100	100	1000	1750	2500
20	100	100	100	1040	1820	2600
30	30	30	30	360	630	900
30	30	30	40	380	665	950
30	30	30	50	400	700	1000
30	30	30	60	420	735	1050
30	30	30	70	440	770	1100
30	30	30	80	460	805	1150
30	30	30	90	480	840	1200
30	30	30	100	500	875	1250
30	30	40	40	420	735	1050
30	30	40	50	440	770	1100
30	30	40	60	460	805	1150
30	30	40	70	480	840	1200
30	30	40	80	500	875	1250
30	30	40	90	520	910	1300
30	30	40	100	540	945	1350

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 3</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
30	30	50	50	480	840	1200
30	30	50	60	500	875	1250
30	30	50	70	520	910	1300
30	30	50	80	540	945	1350
30	30	50	90	560	980	1400
30	30	50	100	580	1015	1450
30	30	60	60	540	945	1350
30	30	60	70	560	980	1400
30	30	60	80	580	1015	1450
30	30	60	90	600	1050	1500
30	30	60	100	620	1085	1550
30	30	70	70	600	1050	1500
30	30	70	80	620	1085	1550
30	30	70	90	640	1120	1600
30	30	70	100	660	1155	1650
30	30	80	80	660	1155	1650
30	30	80	90	680	1190	1700
30	30	80	100	700	1225	1750
30	30	90	90	720	1260	1800
30	30	90	100	740	1295	1850
30	30	100	100	780	1365	1950
30	40	40	40	460	805	1150
30	40	40	50	480	840	1200
30	40	40	60	500	875	1250
30	40	40	70	520	910	1300
30	40	40	80	540	945	1350
30	40	40	90	560	980	1400
30	40	40	100	580	1015	1450
30	40	50	50	520	910	1300
30	40	50	60	540	945	1350
30	40	50	70	560	980	1400
30	40	50	80	580	1015	1450
30	40	50	90	600	1050	1500
30	40	50	100	620	1085	1550
30	40	60	60	580	1015	1450
30	40	60	70	600	1050	1500
30	40	60	80	620	1085	1550
30	40	60	90	640	1120	1600
30	40	60	100	660	1155	1650
30	40	70	70	640	1120	1600
30	40	70	80	660	1155	1650
30	40	70	90	680	1190	1700
30	40	70	100	700	1225	1750

Disease Severity (%)

Area Under The Disease Progress Cu

Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
30	40	80	80	700	1225	1750
30	40	80	90	720	1260	1800
30	40	80	100	740	1295	1850
30	40	90	90	760	1330	1900
30	40	90	100	780	1365	1950
30	40	100	100	820	1435	2050
30	50	50	50	560	980	1400
30	50	50	60	580	1015	1450
30	50	50	70	600	1050	1500
30	50	50	80	620	1085	1550
30	50	50	90	640	1120	1600
30	50	50	100	660	1155	1650
30	50	60	60	620	1085	1550
30	50	60	70	640	1120	1600
30	50	60	80	660	1155	1650
30	50	60	90	680	1190	1700
30	50	60	100	700	1225	1750
30	50	70	70	680	1190	1700
30	50	70	80	700	1225	1750
30	50	70	90	720	1260	1800
30	50	70	100	740	1295	1850
30	50	80	80	740	1295	1850
30	50	80	90	760	1330	1900
30	50	80	100	780	1365	1950
30	50	90	90	800	1400	2000
30	50	90	100	820	1435	2050
30	50	100	100	860	1505	2150
30	60	60	60	660	1155	1650
30	60	60	70	680	1190	1700
30	60	60	80	700	1225	1750
30	60	60	90	720	1260	1800
30	60	60	100	740	1295	1850
30	60	70	70	720	1260	1800
30	60	70	80	740	1295	1850
30	60	70	90	760	1330	1900
30	60	70	100	780	1365	1950
30	60	80	80	780	1365	1950
30	60	80	90	800	1400	2000
30	60	80	100	820	1435	2050
30	60	90	90	840	1470	2100
30	60	90	100	860	1505	2150
30	60	100	100	900	1575	2250

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
30	70	70	70	760	1330	1900
30	70	70	80	780	1365	1950
30	70	70	90	800	1400	2000
30	70	70	100	820	1435	2050
30	70	80	80	820	1435	2050
30	70	80	90	840	1470	2100
30	70	80	100	860	1505	2150
30	70	90	90	880	1540	2200
30	70	90	100	900	1575	2250
30	70	100	100	940	1645	2350
30	80	80	80	860	1505	2150
30	80	80	90	880	1540	2200
30	80	80	100	900	1575	2250
30	80	90	90	920	1610	2300
30	80	90	100	940	1645	2350
30	80	100	100	980	1715	2450
30	90	90	90	960	1680	2400
30	90	90	100	980	1715	2450
30	90	100	100	1020	1785	2550
30	100	100	100	1060	1855	2650
40	40	40	40	480	840	1200
40	40	40	50	500	875	1250
40	40	40	60	520	910	1300
40	40	40	70	540	945	1350
40	40	40	80	560	980	1400
40	40	40	90	580	1015	1450
40	40	40	100	600	1050	1500
40	40	50	50	540	945	1350
40	40	50	60	560	980	1400
40	40	50	70	580	1015	1450
40	40	50	80	600	1050	1500
40	40	50	90	620	1085	1550
40	40	50	100	640	1120	1600
40	40	60	60	600	1050	1500
40	40	60	70	620	1085	1550
40	40	60	80	640	1120	1600
40	40	60	90	660	1155	1650
40	40	60	100	680	1190	1700
40	40	70	70	660	1155	1650
40	40	70	80	680	1190	1700
40	40	70	90	700	1225	1750
40	40	70	100	720	1260	1800

Disease Severity (%)

Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
40	40	80	80	720	1260	1800
40	40	80	90	740	1295	1850
40	40	80	100	760	1330	1900
40	40	90	90	780	1365	1950
40	40	90	100	800	1400	2000
40	40	100	100	840	1470	2100
40	50	50	50	580	1015	1450
40	50	50	60	600	1050	1500
40	50	50	70	620	1085	1550
40	50	50	80	640	1120	1600
40	50	50	90	660	1155	1650
40	50	50	100	680	1190	1700
40	50	60	60	640	1120	1600
40	50	60	70	660	1155	1650
40	50	60	80	680	1190	1700
40	50	60	90	700	1225	1750
40	50	60	100	720	1260	1800
40	50	70	70	700	1225	1750
40	50	70	80	720	1260	1800
40	50	70	90	740	1295	1850
40	50	70	100	760	1330	1900
40	50	80	80	760	1330	1900
40	50	80	90	780	1365	1950
40	50	80	100	800	1400	2000
40	50	90	90	820	1435	2050
40	50	90	100	840	1470	2100
40	50	100	100	880	1540	2200
40	60	60	60	680	1190	1700
40	60	60	70	700	1225	1750
40	60	60	80	720	1260	1800
40	60	60	90	740	1295	1850
40	60	60	100	760	1330	1900
40	60	70	70	740	1295	1850
40	60	70	80	760	1330	1900
40	60	70	90	780	1365	1950
40	60	70	100	800	1400	2000
40	60	80	80	800	1400	2000
40	60	80	90	820	1435	2050
40	60	80	100	840	1470	2100
40	60	90	90	860	1505	2150
40	60	90	100	880	1540	2200
40	60	100	100	920	1610	2300

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
40	70	70	70	780	1365	1950
40	70	70	80	800	1400	2000
40	70	70	90	820	1435	2050
40	70	70	100	840	1470	2100
40	70	80	80	840	1470	2100
40	70	80	90	860	1505	2150
40	70	80	100	880	1540	2200
40	70	90	90	900	1575	2250
40	70	90	100	920	1610	2300
40	70	100	100	960	1680	2400
40	80	80	80	880	1540	2200
40	80	80	90	900	1575	2250
40	80	80	100	920	1610	2300
40	80	90	90	940	1645	2350
40	80	90	100	960	1680	2400
40	80	100	100	1000	1750	2500
40	90	90	90	980	1715	2450
40	90	90	100	1000	1750	2500
40	90	100	100	1040	1820	2600
40	100	100	100	1080	1890	2700
50	50	50	50	600	1050	1500
50	50	50	60	620	1085	1550
50	50	50	70	640	1120	1600
50	50	50	80	660	1155	1650
50	50	50	90	680	1190	1700
50	50	50	100	700	1225	1750
50	50	60	60	660	1155	1650
50	50	60	70	680	1190	1700
50	50	60	80	700	1225	1750
50	50	60	90	720	1260	1800
50	50	60	100	740	1295	1850
50	50	70	70	720	1260	1800
50	50	70	80	740	1295	1850
50	50	70	90	760	1330	1900
50	50	70	100	780	1365	1950
50	50	80	80	780	1365	1950
50	50	80	90	800	1400	2000
50	50	80	100	820	1435	2050
50	50	90	90	840	1470	2100
50	50	90	100	860	1505	2150
50	50	100	100	900	1575	2250

Disease Severity (%)Area Under The Disease Progress C

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
50	60	60	60	700	1225	1750
50	60	60	70	720	1260	1800
50	60	60	80	740	1295	1850
50	60	60	90	760	1330	1900
50	60	60	100	780	1365	1950
50	60	70	70	760	1330	1900
50	60	70	80	780	1365	1950
50	60	70	90	800	1400	2000
50	60	70	100	820	1435	2050
50	60	80	80	820	1435	2050
50	60	80	90	840	1470	2100
50	60	80	100	860	1505	2150
50	60	90	90	880	1540	2200
50	60	90	100	900	1575	2250
50	60	100	100	940	1645	2350
50	70	70	70	800	1400	2000
50	70	70	80	820	1435	2050
50	70	70	90	840	1470	2100
50	70	70	100	860	1505	2150
50	70	80	80	860	1505	2150
50	70	80	90	880	1540	2200
50	70	80	100	900	1575	2250
50	70	90	90	920	1610	2300
50	70	90	100	940	1645	2350
50	70	100	100	980	1715	2450
50	80	80	80	900	1575	2250
50	80	80	90	920	1610	2300
50	80	80	100	940	1645	2350
50	80	90	90	960	1680	2400
50	80	90	100	980	1715	2450
50	80	100	100	1020	1785	2550
50	90	90	90	1000	1750	2500
50	90	90	100	1020	1785	2550
50	90	100	100	1060	1855	2650
50	100	100	100	1100	1925	2750
60	60	60	60	720	1260	1800
60	60	60	70	740	1295	1850
60	60	60	80	760	1330	1900
60	60	60	90	780	1365	1950
60	60	60	100	800	1400	2000

Disease Severity (%)Area Under The Disease Progress Curve

<u>Obs. 1</u>	<u>Obs. 2</u>	<u>Obs. 3</u>	<u>Obs. 4</u>	<u>4 day</u>	<u>7 day</u>	<u>10 day</u>
60	60	70	70	780	1365	1950
60	60	70	80	800	1400	2000
60	60	70	90	820	1435	2050
60	60	70	100	840	1470	2100
60	60	80	80	840	1470	2100
60	60	80	90	860	1505	2150
60	60	80	100	880	1540	2200
60	60	90	90	900	1575	2250
60	60	90	100	920	1610	2300
60	60	100	100	960	1680	2400
60	70	70	70	820	1435	2050
60	70	70	80	840	1470	2100
60	70	70	90	860	1505	2150
60	70	70	100	880	1540	2200
60	70	80	80	880	1540	2200
60	70	80	90	900	1575	2250
60	70	80	100	920	1610	2300
60	70	90	90	940	1645	2350
60	70	90	100	960	1680	2400
60	70	100	100	1000	1750	2500
60	80	80	80	920	1610	2300
60	80	80	90	940	1645	2350
60	80	80	100	960	1680	2400
60	80	90	90	980	1715	2450
60	80	90	100	1000	1750	2500
60	80	100	100	1040	1820	2600
60	90	90	90	1020	1785	2550
60	90	90	100	1040	1820	2600
60	90	100	100	1080	1890	2700
60	100	100	100	1120	1960	2800
70	70	70	70	840	1470	2100
70	70	70	80	860	1505	2150
70	70	70	90	880	1540	2200
70	70	70	100	900	1575	2250
70	70	80	80	900	1575	2250
70	70	80	90	920	1610	2300
70	70	80	100	940	1645	2350
70	70	90	90	960	1680	2400
70	70	90	100	980	1715	2450
70	70	100	100	1020	1785	2550



Disease Severity (%)

Area Under the Disease Progress Curve

Obs. 1	Obs. 2	Obs. 3	Obs. 4	4 day	7 day	10 day
70	80	80	80	940	1645	2350
70	80	80	90	960	1680	2400
70	80	80	100	980	1715	2450
70	80	90	90	1000	1750	2500
70	80	90	100	1020	1785	2550
70	80	100	100	1060	1855	2650
70	90	90	90	1040	1820	2600
70	90	90	100	1060	1855	2650
70	90	100	100	1100	1925	2750
70	100	100	100	1140	1995	2850
80	80	80	80	960	1680	2400
80	80	80	90	980	1715	2450
80	80	80	100	1000	1750	2500
80	80	90	90	1020	1785	2550
80	80	90	100	1040	1820	2600
80	80	100	100	1080	1890	2700
80	90	90	90	1060	1855	2650
80	90	90	100	1080	1890	2700
80	90	100	100	1120	1960	2800
80	100	100	100	1160	2030	2900
90	90	90	90	1080	1890	2700
90	90	90	100	1100	1925	2750
90	90	100	100	1140	1995	2850
90	100	100	100	1180	2065	2950
100	100	100	100	1200	2100	3000

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