

บทความ

DIARRHOEAL DISEASES CONTROL PROGRAMME

Impact of Oral Rehydration Therapy on Hospital Admission and Case-fatality Rates for Diarrhoeal Disease: Results from 12 Hospitals in Various Countries

Introduction

A number of hospitals known to be using oral rehydration therapy (ORT) as a routine measure in the management of dehydration associated with diarrhoeal diseases were invited to submit data on:

- the total number of diarrhoeal disease cases seen at the hospital;
- the number of these cases that were admitted as in-patients;
- the number of diarrhoea-associated deaths; and
- the types of therapy given.

These data were requested for the 2 periods, before and after the introduction of ORT as a routine measure.

Findings

Fourteen hospitals responded but only 12 were able to provide data for both pre- and post-ORT periods. Because data were submitted for different years and different periods of time (between 1971 and 1983), and also to simplify presentation, annual averages have been calculated and presented unless otherwise indicated (*Table 1*). Information supplied on the proportion of persons treated with oral and intravenous therapy was incomplete, variable in nature and not amenable to compilation. The major change in therapy between the 2 periods, in every case, was the introduction of ORT as a routine measure in both out-patient departments and in-patient wards. Not surprisingly, there was an accompanying decrease in the proportion of patients receiving intravenous therapy.

Three indicators were used to measure ORT impact (*Table 1*) and are discussed briefly below:

(1) *Diarrhoeal disease hospital admission rate*

Nine hospitals provided data allowing calculation of admission rates for both pre- and post-ORT periods. In 8 of these there was a statistically significant decrease in the admission rate. Decreases ranged from 19.6% to 80.9% of the pre-ORT rate, with a median of 64.2%. It is not possible to say whether changes in admission policy and factors external to the hospital contributed to the decreases in admission rates; however, no such factors were specifically reported in the explanatory notes accompanying the data.

In one case (the Matlab station of the International Centre for Diarrhoeal Disease Research in Bangladesh), a significant increase in admission rate was reported. The increased (and high) post-ORT rate was explained by improved village-based management of mild dehydration and a continued policy of admission of some presenting cases for logistical reasons (primarily the fact that lengthy travel by boat prevented patients from regaining their homes on the same day).

DIARRHOEAL DISEASES CONTROL PROGRAMME

(ต่อจากหน้า 6)

Table 1. Summary of Data from 12 Hospitals on the Impact of Oral Rehydration Therapy (ORT) on Diarrhoeal Disease (DD) Admission and Case-fatality Rates (Updated Compilation, May 1984)

Country	Hospital	Period: Pre-ORT or Post-ORT	Total DD Cases Seen ^a	Total DD Cases Admitted as In- patients	Total DD Hospital Deaths	Admission Rate %	Overall Hospital Case-fatality Rate %	In-patient Case-fatality Rate %
Bangladesh	ICDDR, B Dhaka station	Pre- Post-	24 943 81 816	5 589 3 590	128 428	22.4 4.4***	0.5 0.5	2.3 11.9***
		Pre- Post-	4 406 10 287	990 3 516	35 101	24.5 34.2***	0.9 1.0	3.5 2.9
Costa Rica	National Children's Hospital	Pre- Post-	37 035 37 543	2 491 1 033	44 21	6.7 2.8***	0.11 0.06**	1.8 2.0
		Pre- Post-	14 411 24 690	1 956 975	93d 34	13.6 3.9***	0.6d 0.1***	5.3d 3.5
Egypt	Al Shatby Children's Hospital	Pre- Post-	— —	3 312 5 131	466 95	— —	— —	14.1 1.9***
		Pre- Post-	3 690 17 462	759 679	47 58	20.5 3.9***	1.2 0.3***	6.2 8.5
Haiti	State University Hospital	Pre- Post-	800 903	99 33	12 1	12.4 3.7***	1.5 0.1***	12.1 3.0
		Pre- Post-	6 291 6 515	831 406	10 9	13.2 6.2***	0.16 0.14	1.2 2.2
Papua New Guinea	Port Moresby General Hospital	Pre- Post-	2 172 2 571	2 115 1 585	16 7	97.4 61.6***	0.7 0.2*	0.8 0.4
		Pre- Post-	— —	— —	— —	— —	— —	— —
Philippines	National Children's Hospital	Pre- Post-	— —	1 654 697	15 2	— —	— —	0.9 0.3
		Pre- Post-	5 208	3 820	15	13.4	0.4	0.4
Thailand	Bamrasnadura Infectious Diseases Hospital ^c	Pre- Post-	— —	4 382	19	28.1	—	1.5***
		Pre- Post-	14 457 17 066	1 086 1 084	140 82	7.5 6.4***	1.0 0.5***	12.9 7.6***
Tonga	Children's Hospital, Bangkok	Pre- Post-	— —	222 173	7 (1.6)	— —	— —	2.9 0.9*
		Pre- Post-	— —	— —	— —	— —	— —	— —

a Figures shown for each period are 1 year totals or annual averages over 2 to 5 year periods between 1971 and 1983, unless otherwise indicated. Rates in last 3 columns and significance tests are calculated from the data for all the years available.

b Figures for 3 months (April to June) in 1982 and 1983.

c Figures for 6 months (January to June) in 1980 and 1983.

d Deaths and CFRs from 1979 data only. Otherwise averages for 1977 and 1979.

e In 1982 the 3 rates shown were 4.45%, 0.2% and 4.95% respectively.

Levels of significance for Chi-squared test, 1 d.f.: * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$.

(2) *Overall hospital diarrhoeal disease case-fatality rate (overall CFR)*

In 6 of 9 hospitals where a change was calculable, this rate significantly decreased; no significant increases were reported. Changes (including non-significant changes) ranged from a reduction of 93% compared with the pre-ORT rate to an increase of 11%, with the median change being a decrease of 71%. Assuming no change in the severity of dehydration in presenting patients, a decrease in overall CFR should provide firm evidence of the impact of ORT in hospitals. It is likely, however, that deaths occurring outside the hospital are underreported, a factor which may clearly complicate interpretation of changes in overall hospital CFR.

(3) *In-patient diarrhoeal disease case-fatality rate (in-patient CFR)*

In 13 instances (including data for both adults and children at the Bamrasnadura Infectious Diseases Hospital in Thailand), it was possible to calculate this rate for both pre- and post-ORT periods. In only 4 of these were there statistically significant decreases, and in 1 a significant increase, in in-patient CFR. Changes (including non-significant changes) ranged from an 86% decrease to a more than 5-fold increase; the median was a reduction of 50%.

Decreases in in-patient CFR may result from generally improved case management (including improved intravenous therapy) associated with a better awareness of the problem of dehydration. Use of ORT for maintenance therapy will also reduce the length of intravenous therapy and the component risk of fatal complications such as septicaemia. Increases in in-patient CFR might be explained by the fact that effective out-patient management with ORT results in only the most severe cases being admitted.

Conclusion

It is apparent from the brief discussion above that interpretation of changes in the 3 indicators used is difficult in the absence of more complete data on the circumstances in each hospital and its surroundings. Nevertheless, in the data reported here, decreases clearly outnumbered increases in all of the 3 rates calculated. Careful monitoring of these indicators in individual hospitals, with due consideration given to concomitant policy and other changes, should allow evaluation of the impact of ORT in the hospital setting.

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กองมาลาเรีย กรมควบคุมโรคติดต่อ

จังหวัด	จำนวนใบเก็บภาษี						ผลรวมทั้งเก็บภาษี						จำนวนใบเก็บภาษีที่ยังคงมีบัตร						ผลรวมทั้งเก็บภาษีที่ยังคงมีบัตร						
	Exam.	Pos.	F.	V.	M.	Mix	Exam.	Pos.	F.	V.	M.	Mix	Exam.	Pos.	F.	V.	M.	Mix	Exam.	Pos.	F.	V.	M.	Mix	
กรุงเทพมหานคร	10891	1928	1427	488	4	9	65051	13699	9841	3810	9	39	8472	1502	1007	490	-	5	51660	7991	5100	2859	5	27	
กรุงเทพมหานคร	6795	542	322	220	-	-	37079	3728	1912	1812	-	4	5341	754	458	294	-	2	31053	3501	1930	1562	-	8	
กรุงเทพมหานคร	11344	995	592	401	-	2	73217	6098	3168	2922	-	8	8943	505	265	239	-	1	61578	4698	2306	2389	-	8	
กรุงเทพมหานคร	3992	829	536	286	-	7	25396	4909	2961	1908	-	40	2943	460	307	150	-	3	19565	3133	1708	1414	-	11	
กรุงเทพมหานคร	5080	118	28	90	-	-	33218	894	285	608	-	1	7100	346	155	191	-	-	30034	1317	458	855	-	4	
กรุงเทพมหานคร	3423	167	71	96	-	-	23326	1951	842	1100	-	9	3325	359	173	185	-	1	18913	2256	1049	1201	-	6	
กรุงเทพมหานคร	945	10	5	5	-	-	6634	98	39	59	-	-	944	13	6	7	-	-	6379	127	53	74	-	-	
กรุงเทพมหานคร	11400	262	98	163	-	1	86936	2528	1152	1369	-	7	18729	817	267	549	-	1	86989	3159	1222	1931	-	6	
กรุงเทพมหานคร	3663	75	40	35	-	-	30976	872	332	539	-	1	3975	127	61	66	-	-	27354	768	288	479	-	1	
กรุงเทพมหานคร	13296	376	184	192	-	-	72203	2428	1134	1293	-	1	15984	1472	641	831	-	-	81907	5908	2464	3434	-	10	
กรุงเทพมหานคร	6466	568	381	186	-	1	40266	2784	1811	967	-	6	7523	692	418	273	-	1	34896	3189	1826	1359	-	4	
กรุงเทพมหานคร	1782	172	110	62	-	-	13985	1627	1100	522	-	5	3079	278	190	88	-	-	13124	1764	1143	619	-	2	
กรุงเทพมหานคร	7125	135	29	105	-	1	44366	1375	335	1038	-	2	7329	315	81	234	-	-	35749	1676	422	1253	-	1	
กรุงเทพมหานคร	2895	36	18	18	-	-	18919	250	128	122	-	-	2980	37	22	15	-	-	17936	252	137	114	1	-	
กรุงเทพมหานคร	89097	6213	3841	2347	4	21	71572	43241	25040	18069	9	123	86717	7677	4051	3612	-	14	13537	39739	20106	19539	6	88	
กรุงเทพมหานคร	5514	741	579	159	-	3	39838	4838	3854	968	-	16	4840	563	423	138	-	2	29786	2691	1808	871	-	12	
กรุงเทพมหานคร	2469	220	184	35	-	1	19943	817	683	132	-	2	2086	65	45	20	-	-	12353	548	415	133	-	-	
กรุงเทพมหานคร	19504	1325	1061	260	-	4	14649	5952	4555	1359	-	38	4922	664	488	176	-	-	95778	4941	3586	1347	-	8	
กรุงเทพมหานคร	2290	96	71	23	-	2	14212	544	445	96	-	3	1932	46	39	7	-	-	10673	291	198	88	-	5	
กรุงเทพมหานคร	9889	1440	1109	329	-	2	63371	7316	5335	1966	-	15	7206	864	614	249	-	1	52691	4179	2611	1556	-	12	
กรุงเทพมหานคร	2724	286	229	57	-	-	15604	1157	900	252	-	5	1278	93	71	21	-	1	8739	477	381	92	-	4	
กรุงเทพมหานคร	10128	652	507	144	-	1	49321	3092	2207	881	-	4	4171	418	275	142	-	1	25613	1620	947	670	-	3	
กรุงเทพมหานคร	7176	391	274	115	-	2	38823	1578	1033	541	-	4	4632	352	252	100	-	-	12090	1355	872	479	-	4	
กรุงเทพมหานคร	9364	493	412	80	-	1	56008	2488	1889	590	-	9	7650	417	271	145	-	1	43152	1986	1204	778	-	4	
กรุงเทพมหานคร	7806	808	479	329	-	-	47549	6020	4529	1484	-	7	6455	613	439	173	-	1	37110	3382	2570	803	-	9	
กรุงเทพมหานคร	12246	1473	989	480	-	4	15958	18305	14331	3925	-	49	4426	1992	1585	402	-	5	82561	9112	7053	2023	2	34	
กรุงเทพมหานคร	19629	2012	1389	618	-	5	134608	16410	12529	3842	-	39	13759	1068	758	306	-	4	114440	9313	7010	2277	-	26	
กรุงเทพมหานคร	334	-	-	-	-	-	2262	-	-	-	-	-	333	-	-	-	-	-	343	10	7	3	-	-	
กรุงเทพมหานคร	918	1	1	-	-	-	5967	37	18	14	2	-	1	-	-	-	-	-	11	3	3	-	-	-	
กรุงเทพมหานคร	393	14	11	3	-	-	2881	135	87	44	-	4	374	10	6	4	-	-	386	10	6	4	-	-	
กรุงเทพมหานคร	162	4	4	-	-	-	613	19	16	2	1	-	2	2	2	-	-	-	10	5	4	1	-	-	
กรุงเทพมหานคร	41	9	5	4	-	-	270	59	33	26	-	-	86	52	29	23	-	-	622	381	195	186	-	-	
กรุงเทพมหานคร	80	-	-	-	-	-	749	4	3	1	-	-	49	2	-	2	-	-	75	19	8	11	-	-	
กรุงเทพมหานคร	363	-	-	-	-	-	2291	1	1	-	-	-	120	-	-	-	-	-	131	-	-	-	-	-	
กรุงเทพมหานคร	8	1	-	1	-	-	8	1	-	1	-	-	-	-	-	-	-	-	10	4	4	-	-	-	
กรุงเทพมหานคร	133	15	11	4	-	-	1521	125	90	35	-	-	166	14	7	6	-	1	169	15	8	6	-	1	
กรุงเทพมหานคร	152	-	-	-	-	-	1056	7	5	2	-	-	189	1	-	1	-	-	256	38	23	15	-	-	
กรุงเทพมหานคร	1	1323	9981	7315	2641	-	25	72502	68902	52543	16161	2	1968	1677	7236	5304	1915	-	17	516999	40380	28913	11343	2	122
กรุงเทพมหานคร	51689	-	20853	-	5	-	37	8517	-	122147	-	28	55	513	-	15070	-	2	32	9504	-	80753	-	30	-
กรุงเทพมหานคร	-	29520	-	8569	93	-	-	174530	-	51829	-	526	-	23527	-	8405	50	-	-	129493	-	48298	-	412	-

รายงานการค้นหายผู้ป่วยมาลาเรีย ประจำเดือน กรกฎาคม 2527

กองมาลาเรีย กรมควบคุมโรคติดต่อ

จังหวัด	จำนวนในเดือน					ยอดรวมทั้งปี					จำนวนในเดือนของปีต้น					ยอดรวมทั้งปีของปีต้น								
	Exam.	Pos.	F.	V.	M. Mix	Exam.	Pos.	F.	V.	M. Mix	Exam.	Pos.	F.	V.	M. Mix	Exam.	Pos.	F.	V.	M. Mix				
จ.บ.	21168	3862	2940	913	1	8	93899	18097	13639	4387	7	64	18614	1503	10114	472	1	16	78712	6353	3984	2249	21	99
กำแพงเพชร	6351	613	456	155	-	2	30158	2260	1651	602	3	4	4802	288	192	96	-	-	24999	1508	999	506	-	1
นครสวรรค์	6659	243	174	68	-	1	32860	751	591	159	-	1	4140	118	96	22	-	-	24076	425	339	86	-	-
อุทัยธานี	4558	308	236	72	-	-	26437	1315	1002	313	-	-	4320	321	250	71	-	-	22825	1096	861	235	-	-
พิจิตร	1800	22	17	5	-	-	9998	132	94	38	-	-	885	25	12	13	-	-	5012	122	101	21	-	-
อุพบุรี	4474	80	60	20	-	-	33628	541	399	142	-	-	4090	60	31	29	-	-	30770	454	257	197	-	-
สระบุรี	5761	286	235	49	-	2	24375	1252	928	318	-	6	3036	128	80	48	-	-	21852	931	591	331	-	5
ชัยภูมิ	14958	368	166	199	-	3	79647	1707	824	879	-	4	11919	423	240	182	-	1	71399	2683	1442	1236	-	5
หนองบัว	23539	543	413	115	-	15	139918	2732	2099	617	-	16	13718	439	293	144	-	2	10052	3470	2391	1072	-	7
บุรีรัมย์	6342	233	163	70	-	-	39691	1687	1205	479	-	3	4170	241	154	87	-	-	31386	1785	1150	630	-	5
สุรินทร์	12275	568	439	127	-	2	60852	3183	2444	719	-	20	6218	203	149	54	-	-	46159	2428	1687	736	-	5
ศรีสะเกษ	13765	1103	815	283	-	5	63127	4235	3048	1166	-	21	9020	331	217	114	-	-	52163	2919	1914	991	-	24
รวม	121750	8229	6114	2076	1	38	634590	37892	27924	9819	10	139	84932	4080	2728	1332	1	19	509945	24174	15716	8294	21	143
เชียงใหม่	27120	234	170	64	-	-	134286	895	613	277	1	4	24546	202	116	86	-	-	112243	730	345	383	-	2
ลำพูน	7230	139	82	57	-	-	38570	375	227	148	-	-	6321	49	26	23	-	-	32182	168	76	92	-	-
แม่ฮ่องสอน	15608	252	210	42	-	-	79115	991	762	225	3	1	13232	201	137	64	-	-	49079	759	451	304	-	4
ลำปาง	15844	176	112	59	-	5	94163	749	459	279	1	10	16631	79	36	42	1	-	83087	465	244	219	1	1
พะเยา	11097	71	30	41	-	-	62596	383	166	212	-	5	13203	92	53	39	-	-	58401	485	242	243	-	-
น่าน	23613	242	121	120	-	1	125554	1279	635	641	-	3	19556	351	247	104	-	-	117316	1249	799	447	-	3
แพร่	14563	158	105	53	-	-	93719	787	479	306	-	2	13597	60	42	18	-	-	89219	493	293	199	-	1
อุตรดิตถ์	28584	229	193	35	-	1	157701	769	638	127	-	4	22680	153	122	31	-	-	124042	616	514	99	-	3
พิษณุโลก	14077	472	360	112	-	-	93305	2688	2124	563	-	1	17083	399	304	95	-	-	85451	1934	1429	501	-	4
สุโขทัย	11329	127	97	30	-	-	64405	499	342	157	-	-	8510	36	15	21	-	-	57858	243	82	161	-	-
พิจิตร	24320	408	314	94	-	-	133481	1920	1430	485	1	4	20666	433	285	148	-	-	119239	2060	1268	790	-	2
เพชรบูรณ์	2756	8	8	-	-	-	15242	81	58	22	-	1	2934	14	8	6	-	-	18354	102	58	51	-	-
สุโขทัย	29223	362	229	133	-	-	169500	1676	925	745	-	6	26798	730	496	234	-	-	150878	1903	1105	792	-	6
เชียงใหม่	225364	2878	2031	840	-	7	261637	13092	8858	4187	6	41	205757	2799	1887	911	1	-	997900	11136	6860	4249	1	26
ขอนแก่น	11096	167	110	57	-	-	57024	707	448	257	-	2	8894	254	165	89	-	-	55216	1595	978	617	-	-
อุดรธานี	8847	110	78	32	-	-	50002	596	380	216	-	-	8760	128	66	62	-	-	55503	1190	750	439	-	1
หนองบัวลำภู	9261	210	137	73	-	-	50678	936	578	356	-	2	9521	311	182	129	-	-	52639	1456	860	595	-	1
สกลนคร	10211	115	88	27	-	-	59447	717	507	208	-	2	9236	129	107	22	-	-	61363	962	794	167	-	1
นครพนม	5535	115	73	41	-	1	35470	711	474	236	-	1	4656	77	64	13	-	-	35552	955	693	259	-	1
กาฬสินธุ์	7903	99	64	35	-	-	43857	862	541	319	1	1	5189	113	53	60	-	-	42325	1793	1170	621	-	-
มหาสารคาม	2186	58	36	22	-	-	17006	455	261	192	-	2	1612	56	35	21	-	-	11959	346	207	137	-	2
ร้อยเอ็ด	3468	76	46	30	-	-	27917	739	516	222	-	1	2832	72	42	30	-	-	21068	750	542	204	-	4
อุบลราชธานี	22862	831	628	202	-	1	21040	3655	2752	890	-	13	11387	251	173	78	-	-	84060	2532	1549	967	-	16
ยโสธร	2428	49	28	21	-	-	15042	267	181	85	-	1	2991	21	17	4	-	-	13847	261	145	116	-	-
อุบลราชธานี	15713	280	182	98	-	-	83312	1004	573	431	-	-	11832	272	151	121	-	-	73678	1354	784	568	-	2
สุโขทัย	4645	109	82	27	-	-	32421	754	571	181	-	2	5520	51	45	6	-	-	33913	870	686	181	-	3
รวม	94155	2219	1552	665	-	2	93216	11403	7782	3593	1	27	82430	1735	1100	635	-	-	541123	14064	9158	4873	-	11