WEEKLY EPIDEMIOLOGICAL REPORT

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Behavioral Risk Factor Surveillance System (BRFSS)

Introduction

In the 80s, personal health behaviours received wider recognition in relation to chronic diseases and telephone surveys emerged as an acceptable method for determining the prevalence of many health risk behaviours among different populations. In addition to their cost advantages, telephone surveys were especially desirable at the local level, where the necessary expertise and resources for conducting area probability sampling for in-person household interviews were not likely to be available.

As a result, surveys were developed and conducted to monitor state-level prevalence of the major behavioural risks among adults associated with premature morbidity and mortality. The basic philosophy was to collect data on actual behaviours, rather than on attitudes or knowledge, that would be especially useful for planning, initiating, supporting, and evaluating health promotion and disease prevention programs.

In 1984, the Centre for Disease Control and Prevention (CDC) launched the Behavioural Risk Factor Surveillance System (BRFSS) working in an ongoing fashion with several states to assess the health status and health risk behaviours of their citizens. The BRFSS is now conducted in all the states in the United States of America (USA)and other US territories. CDC developed standard core questionnaire for states to use to provide data that could be compared across states.

Some of the health-related issues looked into under BRESS are, general health status, health care access, hypertension, tobacco use, alcohol consumption, body weight, physical activity, diet, diabetes, respiratory conditions, immunizations and HIV/AIDS awareness.

Use of BRFSS Data

The CDC developed the BRFSS to help states assess health risks and monitor trends. Comparable surveillance methods are used in all states. This allows for comparisons among states and for the assessment of geographic patterns of risk factor prevalence. The BRFSS information is used to design, implement and support public health activities. Examples of health risk behaviour modification programs are the Diabetes Prevention and Control Program, tobacco cessation and counter-marketing campaigns and campaigns against problem drinking.

One way to assess program effectiveness is to monitor the prevalence of risk factors in the population. Comparing different times, demographic groups or geographic areas may be quite useful in developing, implementing and evaluating intervention programmes

Methodology

Questionnaire Design

The questionnaire consists of three sections:

1) The core questions required of all states participating in BRFSS
2) A set of standardized modules developed by the CDC, which states may opt to include in their survey
3) State-added questions which are designed and administered by individual states to address locally identified health problems.

Core and optional module questions were previously tested. Changes in them were discussed and determinations were made to include them at the annual national BRFSS conference. The BRFSS questionnaire is updated each calendar year by the CDC and by each participating state. For example, in 2011, some optional modules were included for only a part of the year [The H1N1 epidemic prompted the inclusion of influenza like illness (ILI) modules from January through March].

Survey participants are requested to provide such demographic information as age, sex, race, marital and employment status, annual household income, educational level, and location of residence by county and zip code. This location information is suppressed in public use data when the numbers are so small that the respondent might be identified.

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Sampling Process

Only adults aged 18 years and above residing in households are interviewed. People residing in group homes or institutions are not sampled. Households are selected using list-assisted random-digit dialling. This method provides a list of randomly chosen phone numbers from the pool of all existing phone numbers. These numbers are not drawn in a simple random fashion, but use what is known as the disproportionate stratified sampling technique (DSS). This sampling methodology was designed to produce a random sample of telephone numbers, including unlisted numbers and new subscribers in an efficient fashion.

The DSS method divides landline phone numbers into two strata. The first stratum is residential but unlisted. The second stratum is composed of residential listed numbers. Each stratum is sampled at a different rate. The listed residential numbers are sampled at the highest rate. Some numbers are marked by the list provider as not to be called because they have been predetermined to be non-residential or nonworking. There is no set number to be sampled per group and completed interviews are not thrown out. The landline sample is also stratified into geographic regions. These regions are the same regions used by health resource and emergency planning groups within the state. Geographic regions are represented at the same proportion as their population within the state.

Some 0f the regions are further subdivided into counties having a relatively high minority population and counties having low or no minority population based on the most recent census estimates and past survey. The minority counties are sampled at a higher rate than the nonminority counties in an effort to better represent minority groups in the sample. Increasingly many people, including the young, unmarried, ethnic minorities and renters are opting not to use traditional landline telephone service in favour of cell phones. Therefore, another stratum was added devoted to households having cell phones only. All other strata excluded cell phones. However, if they have both cell phones and landline phones, it is considered that they could be included in the landline sample, and therefore, not interviewed on their cell phone. The cell phone only sample was a state wide sample of adults and is not further stratified geographically. These respondents are only asked the core questions in the survey along with some procedural questions. For instance, they are asked if they were doing anything that would make it unsafe to conduct the interview and not interviewed if they were.

Approximately equal numbers of interviews per month were conducted from January through December. Interviews were conducted in both English and Spanish. Interviewers make multiple attempts to reach a number to complete an interview before replacing that number.

One person 18 years or older residing in the home was randomly selected to answer the survey.

If the person selected was not available, an appointment was made to complete the interview at another date and time. If the person was not available during the interview period, or if the person refused to participate, no other member of that household was interviewed. Attempts were made to convert initial refusals into participants.

The Interview Process

The interviews were conducted during daytime, evenings and weekends with appointments made as needed to schedule or complete interviews. The average time to complete a landline interview varied greatly per month as the part-year modules were added and removed. The response rate, defined as completed interviews + partial completes (A partial complete is an interview that was terminated before it was complete, but sufficient data had been collected to use for most measures) divided by all eligible households called, have been declining in recent years. This means that results from questions later in the questionnaire are determined from a somewhat smaller sample than earlier questions.

A Computer Aided Telephone Interviewing (CATI) system was used. The CATI system not only assists interviewers in presenting the questionnaire and recording the responses, it also helps keep track of appointments and call-back attempts and reports statistics of call dispositions. Data then were edited for accuracy and completeness using software provided by CDC. After editing, monthly data were submitted to the CDC and to the regional Department of Public Health.

Advantages and Limitations

Telephone interviews provide a means to conduct affordable surveys to monitor the prevalence of behavioural risk factors. Surveys based on telephone interviews are much faster to complete than surveys based on in-person interviews. In one hour, an experienced telephone interviewer can handle busy numbers, calls not answered, and refusals to participate, and still successfully complete one and one-half interview. In contrast, in one day of in-person interviewing, many miles of travel may be required with few interviews completed.

Another advantage of telephone surveys is the much higher response rate compared to self administered surveys, such as mail surveys. Supervision and administration are simpler for telephone interviews than for in-person interviews. All calls can be made from one central location and supervisors can monitor interviewers for quality control.

There is one main limitation to telephone surveys. All people are not reachable by traditional telephone services. Some do not live in households but are in institutions such as nursing homes or prisons. Some households do not have telephones. Persons of low socioeconomic status are less likely than persons of higher socioeconomic status to own telephones and are therefore under-sampled. Furthermore, the percentage of households with a telephone varies by region. New telephone technology such as caller I.D., and call blockers that block telemarketers also pose problems for telephone surveys.

Despite these limitations, prevalence estimates from the BRFSS correspond well with findings from surveys based on in-person interviews.

Some inaccuracy is expected from any survey based on self-reported information. For example, respondents are known to under-report their weight and inaccurately recall socially undesirable habits. The potential for bias must always be kept in mind when interpreting self-reported data.

Source-

Annual Report From the Behavioural Risk Factor Surveillance System, Iowa 2011,

Available from *www.idph.state.ia.us/brfss/common/pdf/ 2011BRFSSannual.pdf*

Compiled by Dr. Madhava Gunasekera of the Epidemiology Unit

Table 1: Vaccine-preventable Diseases & AFP

15th – 21stDecember 2012 (51stWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2012	Number of cases during same week in 2011	Total number of cases to date in 2012	Total number of cases to date in 2011	Difference between the number of cases to date in 2012 & 2011
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	01	00	00	00	00	00	00	00	01	00	74	85	- 12.9 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Measles	00	00	00	02	00	00	01	00	00	03	01	77	132	- 41.7 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	13	25	- 48.0 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	02	101	55	+ 83.6 %
Tuberculosis	121	07	23	06	05	08	19	02	33	224	205	8594	9338	- 08.0 %

Table 2: Newly Introduced Notifiable Disease

15th – 21stDecember 2012 (51stWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2012	Number of cases during same week in 2011	Total number of cases to date in 2012	Total number of cases to date in 2011	Difference between the number of cases to date in 2012 & 2011
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	11	01	04	00	01	02	02	03	01	25	41	4332	4159	+ 04.2 %
Meningitis	04 KL=2 CB=2 GM=1	00	01 GL=1	02 VU=1 JF=1	00	03 KN=3	01 PO=1	01 BD=1	01 KG=1	13	10	831	882	- 05.8 %
Mumps	04	05	02	01	00	00	00	01	04	17	68	4255	3362	+ 26.7 %
Leishmaniasis	00	02 ML=2	02 MT=2	01 VU=1	00	00	08 AP=8	00	00	13	06	1193	913	+ 30.7 %

Key to Table 1 & 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

DPDHS Divisions: **CB**: Colombo, **GM**: Gampaha, **KL**: Kalutara, **KD**: Kandy, **ML**: Matale, **NE**: Nuwara Eliya, **GL**: Galle, **HB**: Hambantota, **MT**: Matara, **JF**: Jaffna, **KN**: Killinochchi, **MN**: Mannar, **VA**: Vavuniya, **MU**: Mullaitivu, **BT**: Batticaloa, **AM**: Ampara, **TR**: Trincomalee, **KM**: Kalmunai, **KR**: Kurunegala, **PU**: Puttalam, **AP**: Anuradhapura, **PO**: Polonnaruwa, **BD**: Badulla, **MO**: Moneragala, **RP**: Ratnapura, **KG**: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

Leishmaniasis is notifiable only after the General Circular No: 02/102/2008 issued on 23 September 2008.

Dengue Prevention and Control Health Messages

Thoroughly clean the water collecting tanks bird baths, vases and other utensils once a week to prevent dengue mosquito breeding.

Table 4: Selected notifiable diseases reported by Medical Officers of Health

15th – 21stDecember 2012 (51stWeek)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	135	9723	1	151	0	10	3	225	0	69	0	218	0	8	3	119	0	5	**46**
Gampaha	57	7743	0	93	0	18	1	63	0	47	0	317	0	23	4	326	0	1	**53**
Kalutara	20	2751	1	226	0	5	1	56	0	28	3	296	0	4	0	35	0	2	**38**
Kandy	21	2437	4	136	0	4	0	25	0	58	1	84	1	124	1	136	0	0	**52**
Matale	2	559	2	131	0	5	0	14	0	54	1	45	0	3	0	35	0	1	**17**
Nuwara	2	332	0	186	0	3	0	28	0	9	1	42	1	67	0	20	0	1	**46**
Galle	8	1498	1	130	0	7	0	18	0	17	3	141	0	75	0	4	0	0	**74**
Hambantota	5	589	1	52	0	3	0	12	0	31	1	95	0	59	0	28	0	0	**42**
Matara	26	1821	7	118	0	9	0	22	0	52	3	206	2	83	2	147	0	0	**100**
Jaffna	35	853	9	263	0	14	20	413	0	83	0	3	30	340	1	21	0	2	**92**
Kilinochchi	0	89	0	60	0	3	0	37	0	45	0	4	0	31	0	4	0	1	**25**
Mannar	9	177	6	92	0	4	1	72	0	17	0	27	1	45	0	2	0	0	**40**
Vavuniya	1	100	4	61	0	21	0	14	1	27	0	19	0	3	0	3	0	2	**75**
Mullaitivu	4	41	0	37	0	1	0	16	0	3	0	3	0	5	0	1	0	0	**20**
Batticaloa	6	703	1	305	0	5	0	16	0	308	0	11	0	0	0	9	0	4	**29**
Ampara	0	147	3	103	0	3	0	6	0	22	0	28	0	0	0	3	0	0	**43**
Trincomalee	0	157	0	266	0	2	0	16	0	15	0	42	0	19	0	4	0	0	**17**
Kurunegala	47	3310	4	248	10	18	3	105	0	43	0	157	0	38	0	134	0	4	**38**
Puttalam	4	1736	0	109	0	9	0	14	0	12	0	41	0	17	0	6	0	2	**25**
Anuradhapu	5	443	1	101	0	7	0	14	0	26	6	100	0	28	0	62	0	1	**42**
Polonnaruw	6	280	0	90	0	2	0	4	0	129	2	68	0	3	0	48	0	1	**43**
Badulla	2	405	1	138	0	4	0	51	0	6	0	37	1	119	0	44	0	0	**59**
Monaragala	2	277	2	179	0	6	1	28	0	24	3	74	0	86	2	177	0	2	**55**
Ratnapura	5	3843	9	309	1	28	0	51	0	14	2	304	0	43	0	137	0	3	**39**
Kegalle	33	2650	1	61	1	11	2	29	1	20	2	193	0	63	10	596	0	0	**82**
Kalmune	0	319	0	248	0	2	0	8	0	91	0	9	0	1	0	10	0	3	**31**
SRI LANKA	**435**	**42983**	**57**	**3929**	**03**	**204**	**32**	**1357**	**02**	**1250**	**28**	**2564**	**36**	**1287**	**23**	**2111**	**00**	**35**	**49**

Source: Weekly Returns of Communicable Diseases WRCD).
***Dengue Fever / DHF** refers to Dengue Fever / Dengue Haemorrhagic Fever.
****Timely** refers to returns received on or before 21stDecember , 2012 Total number of reporting units 329. Number of reporting units data provided for the current week: 162
A = Cases reported during the current week. **B** = Cumulative cases for the year.

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to **chepid@sltnet.lk.**

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