10th National Convention on Statistics (NCS)
EDSA Shangri-La Hotel
October 1-2, 2007

Indirect Estimates of Maternal Mortality: Philippines, 2006

by

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ABSTRACT

Goal 5 of the Millennium Development Goals (MDG) aims to improve maternal health and one of the targets is to reduce by three-quarters between 1990 and 2015 the maternal mortality ratio (MMR). Monitoring the desired decline in MMR is tricky since the last official timeline-based data is only for 1990 – 1995 through the Technical Working Group on Maternal and Child Mortality and the 1998 data came from the National Demographic and Health Survey (NDHS). The former considers some assumptions; while the latter, which costs the government hundreds of thousands of pesos, still is not representative of the true situation because the event is so rare to be captured only through a survey. Assessing the Philippine's achievement in terms of goal 5 using the two is misleading, since they are not comparable.

Another option for computing MMR is through obtaining the registered vital documents, which can be considered inaccurate because of incomplete registration. Intervention programs and policies on the reduction of maternal mortality will be in vain if the measure to assess their effect falls short from the real.

This paper aims to give estimates of maternal mortality in the Philippines initially for the year 2006 and assess the accuracy of the results. Similar to the paper presented in the 9th National Convention on Statistics, but this time the authors will use data from the 2006 Family Planning Survey instead of the NDHS and under-five mortality rate instead of infant mortality rate. Comparison with the findings from the previous paper and interpolation of the "best" results will also be done.

I. INTRODUCTION

The World Health Organization defines maternal death as, "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes".

In September 2000, leaders of 189 countries, including the Philippines, committed to the Millennium Development Goals (MDG), the fifth goal of which is to improve maternal health, specifically to reduce by three-quarters between 1990 and

[1] Paper presented during the 10th National Convention on Statistics, 1-2 October 2007 at Shangri-La Hotel, Mandaluyong City

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2015 the maternal mortality ratio (MMR). MMR is the ratio of the number of maternal deaths per 100,000 live births. For the Philippines, and using the 1990 Technical Working Group (TWG) on Maternal and Child Mortality estimate, MMR in 2015 should be 53. Table 1 shows what the Philippines has achieved in so far as goal 5 is concerned.

Table 1. Maternal Mortality Ratio from Various Sources: Philippines, 1990 to 2006

Year	MMR (per 100,000 live births)	Source
1990	209	TWG on Maternal and Child Mortality (MCM), National Statistical Coordination Board
1991	203	TWG MCM
1992	197	TWG MCM
1993	191	TWG MCM
1994	186	TWG MCM
1995	180	TWG MCM
1993	209	National Demographic and Health Survey (NDHS), National Statistics Office(NSO)
1998	172	NDHS
2000	163	Yabut and Yabut (2004 NCS)
2000	96	Civil Registry, NSO
2003	108	Civil Registry, NSO
2006	162	Family Planning Survey, NSO

Table 1 also shows the difficulties in measuring maternal mortality, whether from Technical Working Group (TWG), civil registry, or surveys. The TWG on Maternal and Child Mortality is yet to be revived, and whether the methodology used by the TWG still applies to contemporary times is yet to be determined. Maternal deaths are obviously under-registered, because of the rarity of the event and the hardship in determining if a death is related to or aggravated by a pregnancy. The Sisterhood Method, utilized in surveys, provides estimates of maternal mortality rather than precise ratios because of their wide margin of errors[3]. In addition, estimates from this method refer to 6-10 years prior to the survey period. Moreover, large sample size is needed to reduce the margin of error, or mortality questions could be included in a census, but these entails a big chunk of budget for only more than 2000 cases.

[3] Collado, Paula Monina, The Usefulness and Limits of the Sisterhood Method, paper presented in the Policy Forum organized by Linangan ng Kababaihan, Inc. (Likhaan), 26 May 2006, Pasig City

To address the need for a reliable MMR not only in monitoring the MDG but also in the reduction of maternal deaths as a whole, and to address the issues mentioned above in present methodologies, this paper has the following objectives:

a) to demonstrate the usefulness of data on life expectancy at birth from the inputs of the official population projections, proportion of maternal deaths from female registered deaths from civil registry system and the estimates of under five (U5) mortality estimates from 2006 Family Planning Survey (FPS) results;

b) to come up with reasonable estimates of the different maternal mortality measures at the national, regional and provincial levels; and

c) to open avenues for further research on maternal health intricacies.

This paper is quite similar to that presented in the 9th National Convention on Statistics[4], but with much modification and refinement based from further research of the authors.

II. DATA AND METHODOLOGY

Using the United Nations (UN) General Pattern in MORTPAK® for Windows, the UN Software Package for Demographic Measurement, life table for each region and province was generated with the projected regional and provincial life expectancy at birth for 2000-2005 as the input data. The UN General Pattern was used because based on the plotting of age-specific death rates (ASDR) of the Philippines vis-à-vis the various models of life tables (Latin American, General Pattern and West Pattern), the General Pattern had the closest similarity with the registered deaths in the Philippines. (See Appendix A).

The inputs for mortality (life expectancy at birth) for the official population projections were supposedly considered acceptable and used as bases in determining the mortality level for each region and province. From the generated life tables, ${}_nM_x$ was determined and was multiplied to the population of female 15 to 49 years of age to get the estimated female deaths by age group.

[4] Yabut, Benedicta A. and Yabut, Faye A., Indirect Estimates of Maternal Mortality: Philippines, 2000, presented during the 9th National Convention on Statistics, 4-5 October 2004 at Shagri-La Hotel, Mandaluyong City

The computed proportion of maternal deaths from the latest available vital registration data by province and region was multiplied to the computed female deaths to estimate the maternal deaths by region and province. This estimated maternal deaths served as the numerator for computing Maternal Mortality Ratio while the denominator was based from the estimated births from the population projections input.

$$\text{Maternal Mortality Ratio} = \frac{\text{Maternal Deaths}}{\text{Live Births}} \times 100$$

III. SUMMARY OF FINDINGS

Table 2 presents the derived MMR by province using the proportion of registered maternal deaths and those based from adjusting the count based on the level of completeness of death registration. The latest official data available from the Civil Registry is for 2003.

Table 2. Estimates of Maternal Mortality Ratio (MMR) by Province
Using Proportion of Registered Maternal Deaths and Level of Completeness: 2003

Region/Province	Proportion Maternal Deaths 2003	Estimated Maternal Deaths	MMR	2003 Level of Completeness Registration	Adjusted Maternal Deaths	MMR
PHILIPPINES	0.068	3052	156	0.85	2,067	92
NCR	0.056	198	77	1.33	199	77
CAR	0.063	78	211	0.52	22	54
ABRA	0.111	11	209	0.70	1	23
APAYAO	0.129	7	250	0.20	2	58
BENGUET	0.129	25	167	0.81	14	87
IFUGAO	0.129	13	260	0.30	3	21
KALINGA	0.129	13	242	0.26	3	21
MT. PROVINCE	0.129	10	245	0.38	3	72
REGION I – ILOCOS REGION	0.066	104	80	1.34	102	83
ILOCOS NORTE	0.065	9	70	1.51	3	23
ILOCOS SUR	0.093	17	119	0.83	15	98
LA UNION	0.116	20	114	1.15	15	78
PANGASINAN	0.070	46	66	1.56	71	94
REGION II – CAGAYAN VALLEY	0.068	155	151	0.80	73	98

BATANES	0.165	1	328	0.67	3	588
CAGAYAN	0.062	24	99	0.91	21	77
ISABELA	0.080	35	113	1.08	35	104
NEUVA VIZCAYA	0.165	28	314	0.65	5	55
QUIRINO	0.165	14	389	0.32	2	41
REGION III – CENTRAL LUZON	0.055	224	74	1.20	162	74
AURORA	0.222	19	377	0.58	7	129
BATAAN	0.110	26	200	1.03	14	95
BULACAN	0.063	44	82	1.30	56	91
NUEVA ECIJA	0.077	43	112	1.16	25	59
PAMPANGA	0.062	28	61	1.34	24	48
TARLAC	0.078	32	126	1.02	21	74
ZAMBALES	0.103	31	202	0.89	19	116
REGION IV -A CALABARZON	0.057	203	80	1.26	222	89
BATANGAS	0.043	21	46	1.32	20	40
CAVITE	0.056	36	74	1.33	53	93
LAGUNA	0.067	51	112	1.19	48	97
QUEZON	0.109	74	168	1.06	63	132
RIZAL	0.049	27	65	0.65	51	110
REGION IV -B MIMAROPA	0.101	109	116	0.76	72	84
MARINDUQUE	0.096	8	121	1.10	3	38
OCCIDENTAL MINDORO	0.112	16	127	0.74	11	79
ORIENTAL MINDORO	0.074	19	82	0.95	15	59
PALAWAN	0.151	49	183	0.49	35	116
ROMBLON	0.174	18	207	0.76	11	117
REGION V – BICOL REGION	0.100	196	153	0.93	193	138
ALBAY	0.112	44	158	1.22	48	158
CAMARINES NORTE	0.136	37	292	0.84	35	250
CAMARINES SUR	0.075	36	87	1.25	45	99
CATANDUANES	0.199	20	342	0.79	11	170
MASBATE	0.198	73	335	0.48	42	180
SORSOGON	0.090	22	123	1.02	21	105
REGION VI - WESTERN VISAYAS	0.056	170	74	1.01	120	66
AKLAN	0.083	18	139	0.76	10	73
ANTIQUE	0.125	28	200	0.74	15	98
CAPIZ	0.116	34	187	0.80	16	80
GUIMARAS	0.200	11	283	0.84	2	56
ILOILO	0.059	32	65	1.32	40	75
NEGROS OCCIDENTAL	0.061	48	68	1.18	45	59
REGION VII - CENTRAL VISAYAS	0.090	201	130	1.04	194	121
BOHOL	0.081	33	115	0.88	26	82
CEBU	0.116	115	133	1.49	147	155

NEGROS ORIENTAL	0.078	47	159	0.57	33	103
SIQUIJOR	0.250	5	670	0.54	2	106
REGION VIII - EASTERN VISAYAS	0.107	226	175	0.74	166	175
BILIRAN	0.346	17	441	0.87	8	190
EASTERN SAMAR	0.146	29	270	0.27	9	74
LEYTE	0.089	50	121	1.01	53	117
NORTHERN SAMAR	0.145	36	221	1.03	38	214
SAMAR	0.227	85	428	0.36	34	158
SOUTHERN LEYTE	0.070	10	117	1.14	8	87
REGION IX - ZAMBOANGA	0.100	157	150	0.57	110	111
BASILAN	0.200	34	318	0.31	3	30
ZAMBOANGA DEL NORTE	0.137	64	262	0.49	36	138
ZAMBOANGA DEL SUR	0.091	60	104	0.73	53	87
REGION X - NORTHERN MINDANAO	0.076	153	138	0.65	96	93
BUKIDNON	0.107	51	163	0.45	33	95
CAMIGUIN	0.107	4	208	0.57	3	132
LANAO DEL NORTE	0.082	38	192	0.57	23	106
MISAMIS OCCIDENTAL	0.066	16	131	0.69	4	30
MISAMIS ORIENTAL	0.096	44	155	0.97	30	95
REGION XI - DAVAO REGION	0.072	165	160	0.65	112	118
DAVAO	0.097	43	237	0.59	23	114
DAVAO DEL SUR	0.062	55	125	0.83	48	102
DAVAO ORIENTAL	0.102	45	192	0.50	12	96
COMPOSTELLA VALLEY	0.142	119	344	0.51	27	183
REGION XII - SOCCSKSARGEN	0.071	125	109	0.58	90	83
COTOBATO	0.096	41	140	0.53	29	92
SOUTH COTOBATO	0.056	27	83	0.81	23	63
SULTAN KUDARAT	0.096	31	167	0.50	21	104
SARANGANI	0.151	27	198	0.48	15	100
CARAGA	0.085	111	165	0.57	67	108
AGUSAN DEL NORTE	0.101	29	197	0.68	20	125
AGUSAN DEL SUR	0.116	38	239	0.36	16	92
SURIGAO DEL NORTE	0.078	13	107	0.96	10	76
SURIGAO DEL SUR	0.118	31	226	0.58	17	114
ARMM	0.092	496	350	0.07	21	23
LANAO DEL SUR	0.250	152	722	0.05	4	14
MAGUINDANAO	0.092	78	249	0.12	8	22
SULU	0.250	175	1,282	0.03	2	11
TAWI-TAWI	0.250	91	1,044	0.03	4	33

The computed MMR based on the adjusted level of completeness of death registration was 92 per 100,000 live births. This is very much below the confidence interval of the MMR estimates from the results of the 2006 FPS. At 95 % confidence interval from FPS, MMR is between128-196 per 100,000 live births. Using the proportion of maternal deaths with the estimated female deaths among 15-49 years old, the estimated MMR was 156 per 100,000 live births.

Among regions, ARMM had the highest MMR with 350, followed by Region VIII with 175 and CARAGA with 165. These regions are considered as high fertility areas.

With the results of the 2006 FPS as a guide, we continue with the use of the derived nMx values of the UN General Pattern for the more recent estimates of MMR. Using the estimates of Under Five Mortality (see Appendix B) from the survey as guide in locating the appropriate life table values of nMx, the 2006 MMR was computed. The projected female population for 2006 and projected live births were likewise utilized.

Table 3 below shows the estimates of MMR for 2006. Region wise, ARMM showed the highest estimate with 245 per 100,000 live births followed by Region VIII with 209 and Region IX with 172. These regions are high fertility areas and economically worse off.

Table 3. Estimates of Maternal Mortality Ratio Using Under Five Mortality Estimates From The 2006 Family Planning Survey by Region, Philippines

Region			Projected Female Population	Estimated Female Deaths	Proportion of Maternal Deaths	Estimated Maternal Deaths	2006 Projected Births	Maternal Mortality Ratio
PHILIPPINES U5=33								
Age	m(x,n)	q(x,n)	22,055,969	20,228	0.0770	2,384	2,302,408	104
15	0.00032	0.00141	4,400,795	1,426				
20	0.00044	0.00190	3,973,462	1,739				
25	0.00058	0.00255	3,545,821	2,072				
30	0.00078	0.00343	3,019,232	2,354				
35	0.00113	0.00505	2,738,460	3,099				
40	0.00173	0.00784	2,368,136	4,102				
45	0.00270	0.01238	2,010,063	5,436				
NCR U5=29								
Age	m(x,n)	q(x,n)	3,111,502	2,515	0.0562	141	243,741	58
15	0.00026	0.00094	466,421	122				
20	0.00035	0.00126	528,615	187				

25	0.00048	0.00174	571,780	273				
30	0.00064	0.00239	485,180	312				
35	0.00095	0.00366	417,105	398				
40	0.00150	0.00596	346,829	519				
45	0.00238	0.00976	295,572	705				
CAR U5=38								
Age	m(x,n)	q(x,n)	395,655	410	0.1260	52	43,962	117
15	0.00039	0.00141	83,962	33				
20	0.00053	0.00190	76,932	41				
25	0.00070	0.00255	64,262	45				
30	0.00093	0.00343	49,954	46				
35	0.00132	0.00505	45,508	60				
40	0.00197	0.00784	40,514	80				
45	0.00303	0.01238	34,523	105				
REGION I U5=38								
Age	m(x,n)	q(x,n)	1,175,716	1,265	0.0860	109	128,788	84
15	0.00039	0.00131	234,190	92				
20	0.00053	0.00176	212,962	113				
25	0.00070	0.00238	184,683	129				
30	0.00093	0.00321	157,893	146				
35	0.00132	0.00476	145,915	192				
40	0.00197	0.00746	128,723	254				
45	0.00303	0.01185	111,350	337				
REGION II U5=39								
Age	m(x,n)	q(x,n)	788,293	881	0.1275	112	78,795	142
15	0.00042	0.00131	169,327	71				
20	0.00056	0.00176	140,790	79				
25	0.00074	0.00238	121,255	90				
30	0.00098	0.00321	102,377	100				
35	0.00138	0.00476	93,491	129				
40	0.00206	0.00746	87,077	179				
45	0.00314	0.01185	73,976	232				
REGION III U5=28								
Age	m(x,n)	q(x,n)	2,426,124	1,815	0.1021	185	223,503	83
15	0.00024	0.00086	450,378	109				
20	0.00033	0.00115	417,809	136				
25	0.00044	0.00159	395,598	175				
30	0.00060	0.00220	343,786	207				
35	0.00090	0.00340	322,553	289				
40	0.00142	0.00559	270,027	383				
45	0.00228	0.00924	225,973	515				
REGION IV-A U5=29								
Age	m(x,n)	q(x,n)	2,866,089	2,282	0.0648	148	260,732	57
15	0.00026	0.00094	512,814	134				

20	0.00035	0.00126	493,647	174				
25	0.00048	0.00174	481,795	230				
30	0.00064	0.00239	411,315	265				
35	0.00095	0.00366	378,760	361				
40	0.00150	0.00596	319,807	479				
45	0.00238	0.00976	267,951	639				
REGION IV-B U5=55								
Age	m(x,n)	q(x,n)	618,307	1,014	0.1213	123	92,742	133
15	0.00069	0.00260	139,456	97				
20	0.00095	0.00352	114,657	108				
25	0.00121	0.00457	92,167	111				
30	0.00155	0.00594	79,827	123				
35	0.00208	0.00823	72,447	151				
40	0.00292	0.01190	64,310	188				
45	0.00424	0.01773	55,443	235				
REGION V U5=45								
Age	m(x,n)	q(x,n)	1,221,530	1,583	0.0996	158	151,689	104
15	0.00052	0.00196	288,799	150				
20	0.00071	0.00265	225,151	159				
25	0.00092	0.00350	178,659	164				
30	0.00119	0.00462	148,811	177				
35	0.00165	0.00658	143,801	238				
40	0.00239	0.00983	126,219	302				
45	0.00358	0.01504	110,090	394				
REGION VI U5=31								
Age	m(x,n)	q(x,n)	1,711,853	1,405	0.1074	151	194,468	78
15	0.00028	0.00103	368,564	104				
20	0.00038	0.00138	321,636	122				
25	0.00051	0.00189	257,710	132				
30	0.00069	0.00259	215,714	148				
35	0.00101	0.00392	202,231	205				
40	0.00157	0.00633	183,454	289				
45	0.00249	0.01028	162,544	405				
REGION VII U5=37								
Age	m(x,n)	q(x,n)	1,624,244	1,632	0.0978	160	169,995	94
15	0.00037	0.00131	335,256	124				
20	0.00050	0.00176	298,912	149				
25	0.00066	0.00238	259,338	171				
30	0.00088	0.00321	217,922	191				
35	0.00126	0.00476	195,355	245				
40	0.00189	0.00746	171,025	324				
45	0.00292	0.01185	146,436	428				
REGION VIII U5=53								
Age	m(x,n)	q(x,n)	936,944	1,475	0.1704	251	120,318	209

15	0.00066	0.00246	223,607	148				
20	0.00090	0.00334	171,974	155				
25	0.00116	0.00435	134,785	156				
30	0.00148	0.00567	116,520	173				
35	0.00201	0.00789	108,348	218				
40	0.00283	0.01148	97,016	274				
45	0.00413	0.01719	84,694	350				
REGION IX U5=54								
Age	m(x,n)	q(x,n)	769,229	1,252	0.1425	178	103,729	172
15	0.00069	0.00246	170,896	119				
20	0.00095	0.00334	140,085	132				
25	0.00121	0.00435	116,336	141				
30	0.00155	0.00567	104,939	162				
35	0.00208	0.00789	93,673	195				
40	0.00292	0.01148	79,551	232				
45	0.00424	0.01719	63,749	271				
REGION X U5=36								
Age	m(x,n)	q(x,n)	1,008,965	1,008	0.0918	93	109,494	84
15	0.00037	0.00131	217,721	80				
20	0.00050	0.00176	187,224	93				
25	0.00066	0.00238	156,632	104				
30	0.00088	0.00321	131,181	115				
35	0.00126	0.00476	118,996	149				
40	0.00189	0.00746	106,760	202				
45	0.00292	0.01185	90,451	264				
REGION XI U5=40								
Age	m(x,n)	q(x,n)	1,063,051	1,222	0.1006	123	99,784	123
15	0.00044	0.00162	223,891	99				
20	0.00060	0.00219	198,791	119				
25	0.00078	0.00292	166,341	130				
30	0.00103	0.00389	141,510	146				
35	0.00145	0.00564	126,829	184				
40	0.00214	0.00863	111,065	238				
45	0.00325	0.01344	94,624	307				
REGION XII U5=43								
Age	m(x,n)	q(x,n)	928,201	1,096	0.0798	87	113,982	77
15	0.00047	0.00162	200,434	94				
20	0.00063	0.00219	175,416	111				
25	0.00083	0.00292	145,021	120				
30	0.00108	0.00389	124,967	135				
35	0.00152	0.00564	110,596	168				
40	0.00222	0.00863	95,251	212				
45	0.00336	0.01344	76,516	257				
CARAGA U5=44								

Age	m(x,n)	q(x,n)	568,481	705	0.1031	73	68,421	106
15	0.00049	0.00173	134,532	66				
20	0.00067	0.00234	107,509	72				
25	0.00087	0.00311	81,291	71				
30	0.00114	0.00413	69,155	79				
35	0.00158	0.00595	65,338	103				
40	0.00231	0.00902	59,905	138				
45	0.00347	0.01397	50,751	176				
ARMM U5=56								
Age	m(x,n)	q(x,n)	841,785	1,393	0.1729	241	98,265	245
15	0.00073	0.00260	180,547	131				
20	0.00099	0.00352	161,352	159				
25	0.00126	0.00457	138,168	174				
30	0.00161	0.00594	118,181	190				
35	0.00216	0.00823	97,514	211				
40	0.00301	0.01190	80,603	242				
45	0.00436	0.01773	65,420	285				

Table 4. Estimates of Maternal Deaths, Maternal Mortality Rates and Ratios and Lifetime Risk of Maternal Deaths By Region, Philippines: 2006 and 2000

Region	2006			
	Maternal Deaths	Mortality Rate per 1,000 Women	Mortality Ratio per 100,000 Live Births	Lifetime Risk of Maternal Deaths (per 1,000 women)
Philippines	2,384	0.11	104	3.8
NCR	141	0.05	58	1.6
CAR	52	0.13	117	4.6
Region I	109	0.09	84	3.2
Region II	112	0.14	142	5.0
Region III	185	0.08	83	2.7
Region IV-A	148	0.05	57	1.8
Region IV-B	123	0.20	133	7.0
Region V	158	0.13	104	4.5
Region VI	151	0.09	78	3.1
Region VII	160	0.10	94	3.4
Region VIII	251	0.27	209	9.4
Region IX	178	0.23	172	8.1
Region X	93	0.09	84	3.2
Region XI	123	0.12	123	4.0
Region XII	87	0.09	77	3.3
ARMM	241	0.29	106	10.0
CARAGA	73	0.13	245	4.5

Region	2000			
	Maternal Deaths	Mortality Rate per 1,000 Women	Mortality Ratio per 100,000 Live Births	Lifetime Risk of Maternal Deaths (per 1,000 women)
Philippines	2,374	0.12	110	4.1
NCR	157	0.05	63	1.8
CAR	56	0.16	130	5.8
Region I	143	0.14	124	4.8
Region II	92	0.13	125	4.1
Region III	174	0.08	80	3
Region IV-A	410	0.13	123	4.7
Region IV-B	410	0.13	123	4.7
Region V	205	0.2	277	6.8
Region VI	139	0.09	79	3.2
Region VII	185	0.13	119	4.6

Region VIII	261	0.33	219	11.5
Region IX	182	0.24	195	8.5
Region X	136	0.2	175	7
Region XI	232	0.18	171	6.2
Region XII	118	0.18	140	6.3
ARMM	143	0.24	171	8.4
CARAGA	83	0.24	135	8.5

Through intensified campaign of maternal deaths reduction by the Department of Health in coordination with all other government agencies, private and people organization, maternal mortality ratio is continuously decreasing from 163 in 2000 to 156 in 2003 to 104 in 2006 based on the same methodology of using model life tables.

Lifetime risk of maternal deaths among women 15-49 years old in the Philippines for 2006 was about 4 for every 1,000 women aged 15-49. The risk was highest in ARMM with 10 per 1,000 women followed by Region VIII with more than 9 per 1,000 women. It was low in NCR with 1.6, Region IV-A with 1.8 and Region III with 2.7 per 1,000 women aged 15-49. These three regions are the most developed areas in the country. Almost the same rankings can be observed in 2000 as can be seen from Table 4 in the previous page. It is noteworthy to mentioned that remarkable decreases was observed in almost all the regions except for ARMM, and Region IV-B (this was included in Region IV-A before).

The MDG challenge of reducing MMR by 75% in 2015 is deemed to be feasible if we were able to realize a decrease of 59 from 163 in 2000 to 104 in 2006. We only need to achieve another 50 in the remaining nine years.

IV. POLICY IMPLICATIONS AND RECOMMENDATIONS

The continuing effort being carried out by the NSO to improve the level of completeness of death registration is inherent with the estimated level from 74 per cent in 2000 to 85 per cent in 2003. However, this improvement should not allow complacency in the registration system since the accuracy of reporting causes of death still demonstrate some flaws.

There is also a need to strengthen the statistical services at the sub national level like the Field Service Health Information System (FSHIS) of the DOH in order to improve the quality of timely data being collected.

The authors would like to call the attention of the Technical Working Group on Maternal and Child Health to examine the possibility of using this methodology of using model life table because of its cost effectiveness.

APPENDIX A

Figure 1. Comparison of 2000 Philippines Age Specific Death Rates / M(x) With Corresponding Various Models of Life Tables

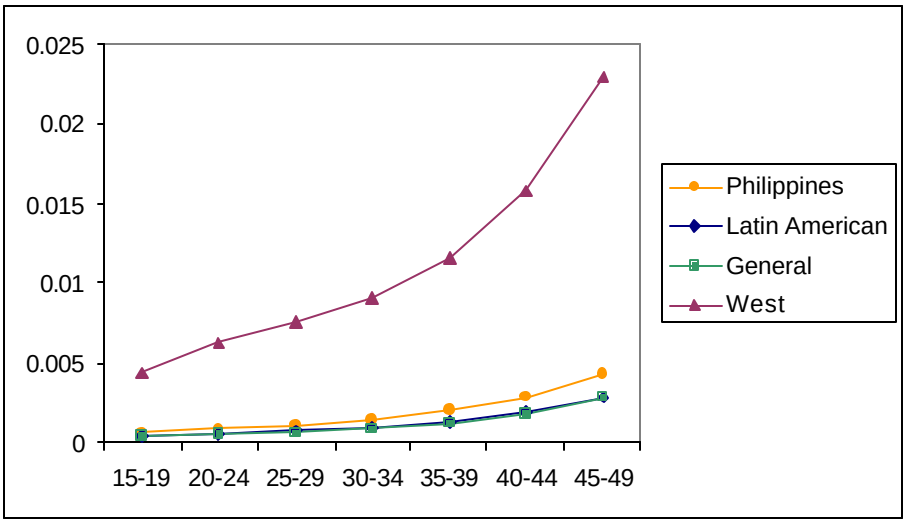
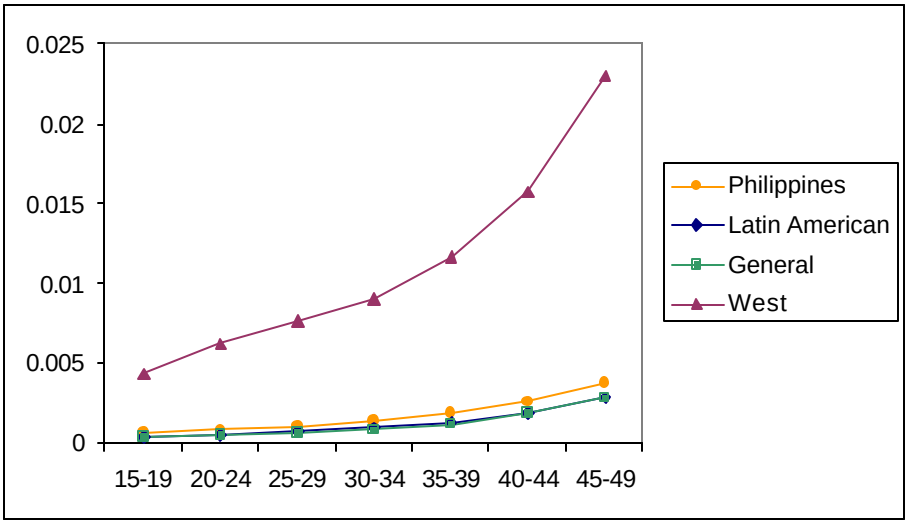


Figure 2. Comparison of 2003 Philippines Age Specific Death Rates / M(x) With Corresponding Various Models of Life Tables



APPENDIX B

Estimates of under-five mortality rates by domain for 10-year reference period, with standard errors and 95% confidence intervals (for 10 years preceding survey)

Domain	Estimate	Std. Err.	CV (%)	95% Conf. Interval	
				Lower	Upper
PHILIPPINES	31	0.9	2.9	29	33
RESIDENCE					
Urban	27	1.2	4.5	24	29
Rural	35	1.3	3.8	32	37
REGION					
NCR	24	2.3	9.5	20	29
CAR	31	3.9	12.6	23	38
I – Ilocos Region	30	3.8	12.7	23	38
II – Cagayan Valley	30	4.4	14.7	21	39
III – Central Luzon	22	2.9	13.0	17	28
IV-A – Calabarzon	24	2.4	10.0	19	29
IV-B – MIMAROPA	45	4.8	10.5	36	55
V – Bicol Region	38	3.7	9.9	30	45
VI – Western Visayas	25	3.4	13.7	18	31
VII – Central Visayas	30	3.4	11.4	23	37
VIII – Eastern Visayas	43	4.8	11.2	34	53
IX – Zamboanga Peninsula	44	5.2	11.7	34	54
X – Northern Mindanao	29	3.6	12.4	22	36
XI – Davao Region	33	3.5	10.5	26	40
XII - SOCCSKSARGEN	33	4.8	14.4	24	43
XIII – Caraga	35	4.4	12.5	27	44
ARMM	45	5.5	12.2	34	56

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