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3D Display of Stillbirth in Indonesian obstetrics Part 1: Birth Weight, Complications, and Morbidity

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Introduction

Feedback from Maternity Care Monitoring (MCM) at obstetrical centers in developing countries (1) showed a *barrier of communication* to exist between statistical and medical professions. In order to maximize appropriate use of standard computer outputs (SCO's), *tables of incidence or prevalence* may be rendered in the third dimension (3D). This "3D feedback" illustrates patterns of *risk of stillbirth* by (a) birth weight, (b) complication of delivery, and (c) maternal morbidity (ICD-9).

Material and Method

SCO's from the MCM-library of the Indonesian departments of obstetrics & gynecology are the only source of this report. The three figures were developed from *secondary calculations* by using *isometric paper* and the background information is programmed into the figures.

Results

For the selected controls, *prolonged/obstructed labor* emerges as key determinant of stillbirth (SB) with a center prevalence of 10.0% (3682/36763) and an associated risk of SB of 144.8/1000 - a relative risk (RR) of 5.28 against infants born to women without complication. The RR attains 13.73 for the most prevalent birth weight class (3000-3499 g) - associated with a "base risk" of 8.5/1000 for women with no complication (Fig. 1). For *healthy women* and *anemic women without hemorrhage*, the RRs are around 8.00 (Fig. 3). The second most important determinant of SB is *hemorrhage* with a "peak risk" of 717.6/1000 for *placenta abruptio* and a center prevalence of 0.71% (262/36763) (Fig. 1). The lowest "base risk"of 7.3/1000 applies to birth weights of 3000-3499 grams among healthy women, but rises 34-fold to 248.5/1000 for women with *hemorrhage per vagina* (Fig. 2). The "SB risk chain" across maternal morbidity for women with no complication is very informative: 7.7-144.2 (Fig. 3).

Deduction and Analytical Implication

The SB patterns point to a *weak referral system* - incompatible with *modern primary health care* (PHC). The next step is to control for type of admission (part 2).

Reference

(1) BERNARD RP.: Maternity Care Monitoring: A new opportunity in service statistics. Pop. Reports, J-17, J. Hopk. Univ., Baltimore, pp 338-339 (1977)

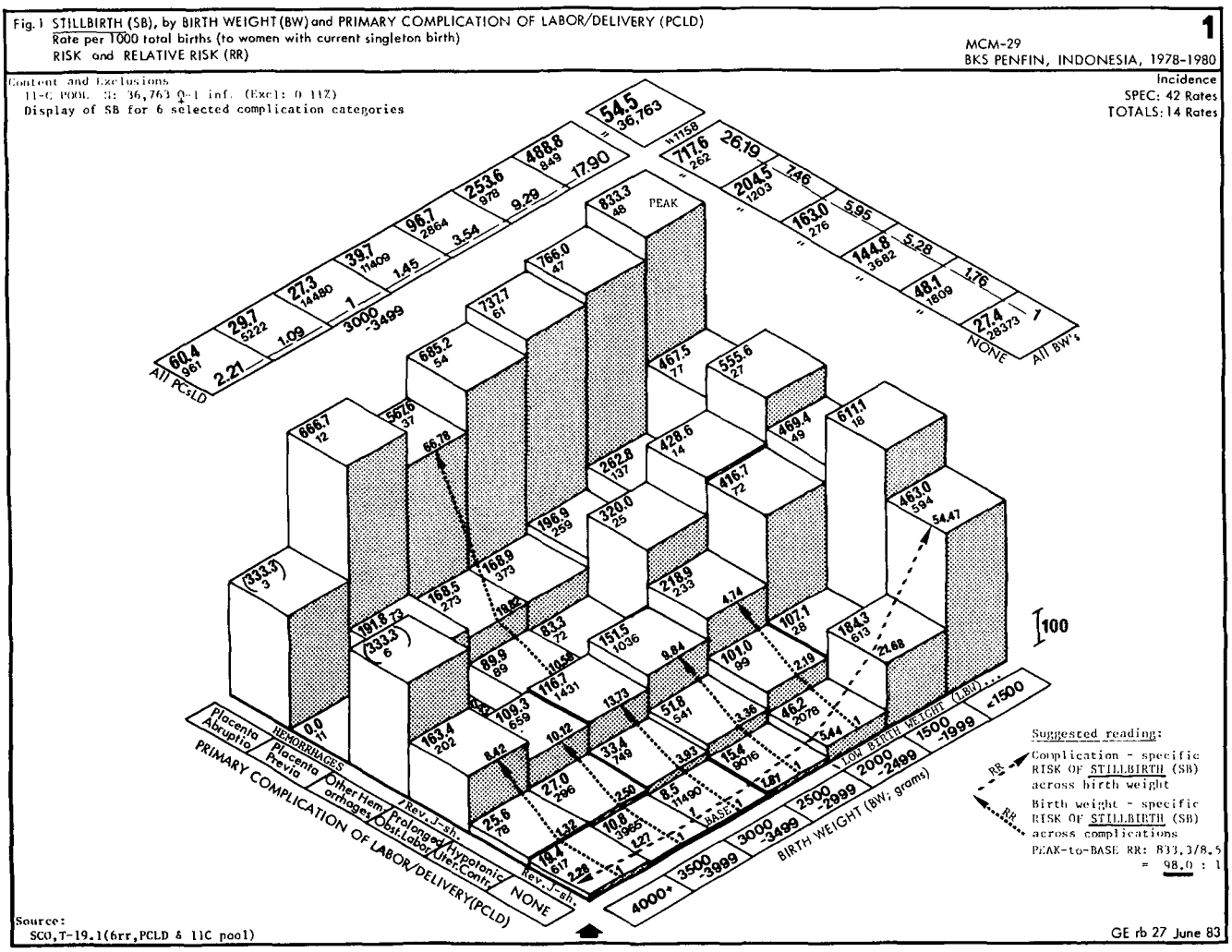
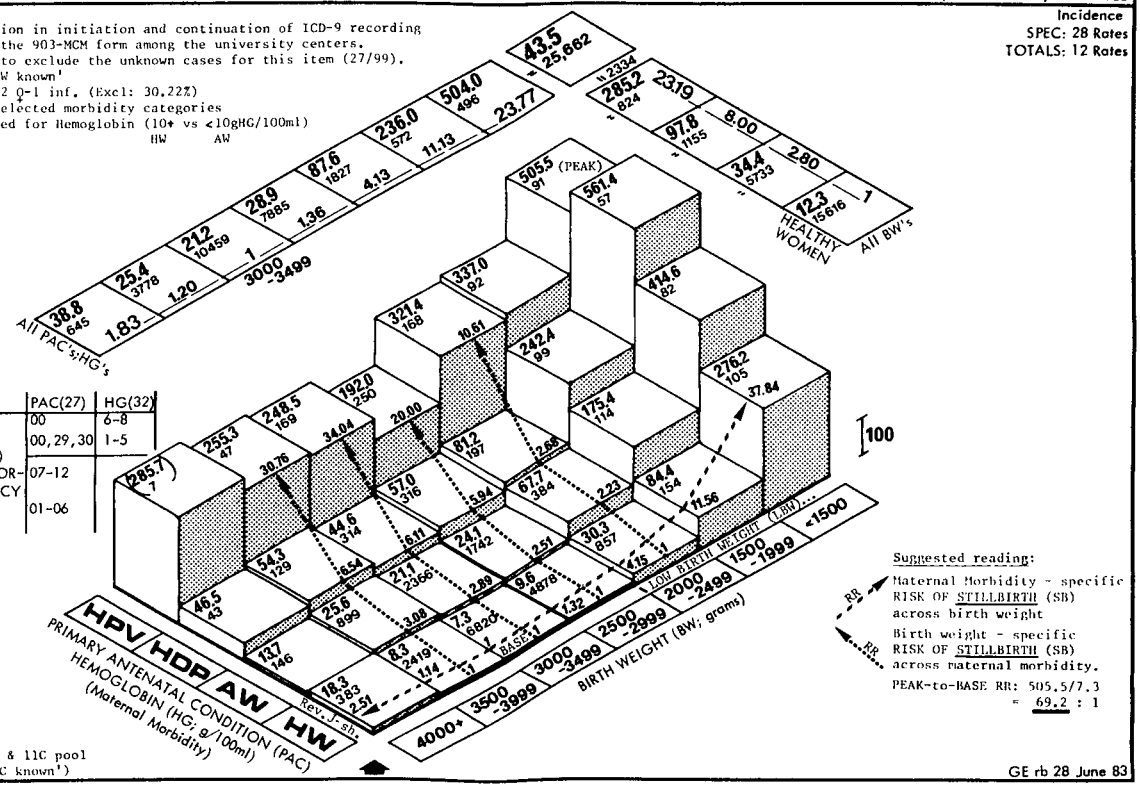


Fig.2 STILLBIRTH (SB), by BIRTH WEIGHT (BW) and PRIMARY ANTENATAL CONDITION (PAC; ICD-9)/HEMOGLOBIN (HG; grams/100ml)
Rate per T000 total births (to women with current singleton birth)
RISK and RELATIVE RISK (RR)

MCM-29 **2**
BKS PENFIN, INDONESIA, 1978-1980

Content and Exclusions:
NOTE: There is variation in initiation and continuation of ICD-9 recording for item 27 in the 903-MCM form among the university centers. Hence the need to exclude the unknown cases for this item (27/99).
11-C POOL of 'PAC & BW known'
N: 25,662 0-1 inf. (Excl: 30.22%)
Display of SB for 4 selected morbidity categories
NO PAC was dichotomized for Hemoglobin (10+ vs <10gHG/100ml)
HW AW

Incidence
SPEC: 28 Rates
TOTALS: 12 Rates



Specifications of:

MATERNAL MORBIDITY		PAC(27)	HG(32)
HW	HEALTHY WOMEN	00	6-8
AW	ANEMIC WOMEN (without hemorrhage)	00,29,30	1-5
HDP	HYPERTENSIVE DISORDERS OF PREGNANCY	07-12	
HPV	HEMORRHAGE PER VAGINA	01-06	

Suggested reading:
RR Maternal Morbidity - specific RISK OF STILLBIRTH (SB) across birth weight
RR Birth weight - specific RISK OF STILLBIRTH (SB) across maternal morbidity.
PEAK-to-BASE RR: 505.5/7.3 = 69.2 : 1

Source:
SCO,T-19.1(4rr,PAC/HG & 11C pool of 'PAC known')

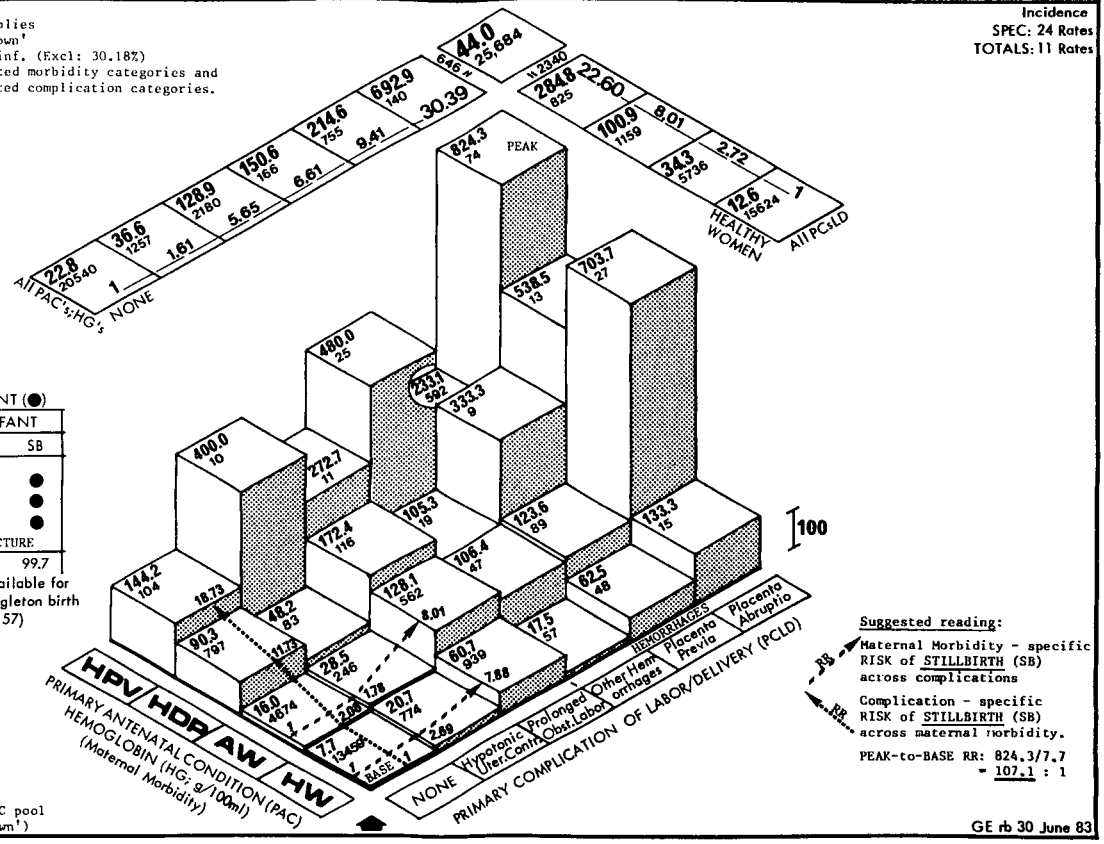
GE rb 28 June 83

Fig.3 STILLBIRTH (SB), by PRIMARY COMPLICATION OF LABOR/DELIVERY (PCLD) and PRIMARY ANTENATAL CONDITION (PAC; ICD-9)/HEMOGLOBIN (HG; grams/100ml)
Rate per T000 total births (to women with current singleton birth)
RISK and RELATIVE RISK (RR)

MCM-29 **3**
BKS PENFIN, INDONESIA, 1978-1980

Content and Exclusions:
NOTE: Remark in Fig. 2 applies
11-POOL of 'PAC & PCLD known'
N: 25,684 0-1 inf. (Excl: 30.18%)
Display of SB for 4 selected morbidity categories and 6 selected complication categories.

Incidence
SPEC: 24 Rates
TOTALS: 11 Rates



Scheme of:
CONTROL (■) of ENDPOINT (●)

'MCH'	MOTHER		INFANT	
	PAC/HG	PCLD	BW	SB
Fig. 1	■			●
2	■	■		●
3	■	■		●
	CLOSED CONTROL STRUCTURE			
%IA**	69.8	96.0	99.9	99.7

** Percent information available for 36,778 women with singleton birth (3 Dec. 1980; AC 233.57)

Suggested reading:
RR Maternal Morbidity - specific RISK of STILLBIRTH (SB) across complications
RR Complication - specific RISK of STILLBIRTH (SB) across maternal morbidity.
PEAK-to-BASE RR: 824.3/7.7 = 107.1 : 1

Source:
SCO,T-11.7(4rr,PAC/HG & 11C pool of 'PAC known')

GE rb 30 June 83