



## TESTING THE AGREEMENT LEVEL OF THE NEW VERBAL AUTOPSY INSTRUMENT WITH WHO VERBAL AUTOPSY INSTRUMENT

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### Abstract

**Objectives:** This study was conducted to evaluate the performance of the Newly developed VA tool in juxtaposition with the WHO verbal autopsy tool in determining major causes of neonatal deaths.

**Findings:** Out of 66 subjects the new tool picked up 58 cases correctly and the WHO tool picked up 61 cases correctly. The overall Kappa agreement is 0.576 with P value of 000.

**Keywords:** Verbal Autopsy, Neonates, New VA tool, WHO tool, Kappa, CI.

Cause specific mortality is a vital indicator for assessing demographic change and for planning public health interventions<sup>1</sup>. Many developing countries and even some developed countries still lack up-to-date data on the causes of death especially neonatal deaths, because of various factors<sup>2</sup>. In this scenario, verbal autopsy (VA) proves to be one of the reliable methods to compile the 'community or Population diagnoses' of major causes of diseases<sup>3</sup>. Verbal autopsy is an approach to ascertain probable cause of death by interviewing relatives and caretakers of the deceased<sup>4</sup>. The current study was aimed to develop and assess a new verbal autopsy instrument for Neonates which would be simple, reliable, accurate, time efficient and user friendly.

It was a retrospective cohort randomized study conducted in the Metropolitan City of Chennai and the surrounding field areas. It attracted clinical information from the members of the family, otherwise known as the respondents who had a neonatal death during the immediate past one year. The Data was collected from the Institute of Child Health and Hospital for Children, Chennai retrospectively from 1<sup>st</sup> August 2015 to 24<sup>th</sup> August 2016 and then was subjected to the Inclusion - Exclusion Criteria.

The study tool is a newly designed Verbal Autopsy instrument for ascertaining the CoDs of neonates formatted in a single paper, double-sided layout with eight sections and - questions. The questionnaire has closed ended narrative and open-ended narrative. The questionnaire is both qualitative and quantitative in nature. Questionnaire got standardized by arranging the questions from easy to difficult ones, and from casual to more probing ones. There is no place for unimportant and vague questions. The new VA tool was added with the starting time of the cardinal symptoms, severity and the ending time. This can be the deciding factor in determining the starting point of the problem and the main CoD, especially when there are multiple CoDs. Administering WHO VA tool consumes approximately 35 minutes, whereas the new VA tool interview lasts for 15 minutes only.

After getting necessary permissions from appropriate authorities and after training the staff, field study was done. After a positive telephonic confirmation with the family of the deceased, their houses were visited by the social worker. Written consent was obtained from the respondent and then the study was carried out. The interview was conducted after a mourning period of 4 to 6 weeks after death and within 6 months. From among the chosen 445 subjects for study, 258 subjects were selected after applying inclusion- exclusion criteria and after obtaining willingness to participate in the study. Regular study was conducted.

Out of 258 selected subjects for regular study, only 86 subjects gave consent for second interview and interviews were conducted after one week. From the 86 subjects, in 20 subjects new VA instrument was administered for reliability studies and in 66 subjects different instrument was applied for agreement studies. Those who were administered New tool were given WHO tool and those who revived WHO tool were given New tool. The entire subject was methodically coded by two independent physicians. In case of disagreement of coding procedures between the physicians, coding would be arrived at reconciliation. If it does not settle at reconciliation, adjudication from a third Physician and Investigator would be sought for finalization of results. Then the CoD was compared separately against the gold standard hospital diagnosis.

**Data maintenance:** All the forms were checked for the completeness, consistency and errors while filling the forms. Quality checks were also conducted in 10% of questionnaire by the Investigator independently and compared with social workers for agreement. All the data stored electronically on the researcher's personal laptop, which was



password protected, not available for public review or scrutiny. The data will be double checked by the guide and will be used for research purpose only. Relevant data will be exported from MS excel file to SPSS. Statistical Analytical methods like SPSS, OpenEpi software were used for data analysis.

NT * WHO Cross tabulation				
Count				
		WHO		
		1	2	Total
NT	1	57	1	58
	2	4	4	8
Total		61	5	66

Symmetric Measures					
		Value	Asymp. Std. Error	Approx. T <sup>b</sup>	P-value
Measure of Agreement	Kappa	.576	.169	4.837	.000
N of Valid Cases		66			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					

**Data Analysis** included (1) Reliability Studies (2) Accuracy Studies like Validation of the New tool with the Hospital Records and Comparison of the validation studies results of the New tools with the WHO tool (3) Agreement Studies (4) Time Efficiency

**Agreement of the New VA tool with the WHO tool:** Out of 66 subjects the new tool picked up 58 subjects correctly and the WHO tool picked up 61 cases correctly. The overall kappa agreement is 0.576 with Value of .000 (cf. p.04)

**Kappa Statistical Concept:** The simplest approach to assess an agreement between two readings is simply to calculate the exact agreement (true) and the expected agreement (due to chance)<sup>5</sup>. In other words, comparison is done with the proportions of agreement between two readings which are made by two different occasions i.e. New VA Instrument and WHO VA Instrument with the proportion of agreement that would be expected by chance only in each occasion. This principle is referred to as Kappa statistics

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