



ANALYSIS OF RESULTS OF SARS-COV-2 RT-PCR TESTING AND POOLING STRATEGIES FOR SCREENING OF ASYMPTOMATIC INDIVIDUALS – THE PHILIPPINE CHILDREN'S MEDICAL CENTER EXPERIENCE.

Danielle Anne G. Gonong, MD, Grig D. Misiona, MD, Melani H. Sionzon, MD, Farrah Kristine F. Santiago, MD, Aquiles J. Lira, MD, Raymundo W. Lo, MD
Philippine Children's Medical Center – Division of Pathology



INTRODUCTION

To diminish the expense and shorten the overall turnaround time for SARS-CoV-2 RT-PCR testing, pooling strategies was done at the Philippine Children's Medical Center. In this study, the investigators evaluated the institution's experience in pooled testing in asymptomatic population.

OBJECTIVES

- Review the pooled SARS-CoV-2 RT-PCR results and case investigation forms (CIF).
- Determine the incidence of SARS-CoV-2 in asymptomatic population and compare all the individual and pooled tests results.
- Determine the number of saved test kits and identify clustering in the community.

METHODS

This is a retrospective study that reviewed the pooled and individual SARS-CoV-2 RT-PCR results using Allsheng Auto-Pure 32a extraction kit, Sansure Biotech PCR machine and Maccura Sars-CoV-2 test kits.

RESULTS

From the 1828 samples submitted, there were 165 negative, 68 indeterminate, and 137 positive pools. Among these, 157 negative, 135 positive, and 68 indeterminate pools contain 5 individual samples. Additionally, the negative pools contained 8 pools with 3 individual samples and the positive pools contained 2 pools with 2 individual samples. Deconvolution of the positive and indeterminate pools resulted to 227 and 74 positive individuals, respectively. In this review, the laboratory saved 24% of the test kits and shorten the overall turnaround time by 23 hours.

POOLED SAMPLES	INDIVIDUAL SAMPLES INTERPRETATION	NUMBER	ORF (Ct-values)	NUMBER	Ct-values positive %
Negative: 165					
Positive: 137					
	Positive	227	<20	13	6%
			20-25	25	11%
			> 25	189	83%
	Negative	452			
Indeterminate: 68					
N gene: 45	Positive	51	<20	0	0%
			20-25	0	0%
			> 25	51	100%
N and E genes: 14	Positive	16	<20	0	0%
			20-25	0	0%
			> 25	16	100%
Late Amplification: 9	Positive	7	<20	0	0%
			20-25	0	0%
			> 25	7	100%
	Negative	38			

CONCLUSION AND RECOMMENDATION

The incidence of SARS-CoV-2 in the population is higher compared to the prevalence of infection in the country. Pooled testing conserved test kits and congruence of pooled and individual ORF Ct-values was observed. An in-depth study including other genes is recommended and assessment of pooling in other population may be pursued.

KEY WORDS

RT-PCR, pooled testing, Ct-value