



Singapore Healthcare  
Management 2022



# Vaccine Cost Savings of New National Childhood Immunization Schedule

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## INTRODUCTION

Childhood immunization administered according to stipulated schedules serves to optimize immunity based on evidence from clinical trials. On 1<sup>st</sup> November 2020, there was a change in National Childhood Immunization Schedule (NCIS). New vaccines and combination vaccines were incorporated into the NCIS. This study thus aims to compare the cost of vaccine uptake based on the old and new NCIS at the recommended 12 months of age.

### Old NCIS

#### COVERED VACCINATIONS

- Hepatitis B
- Diphtheria, Tetanus, Pertussis, Poliovirus, Haemophilus B (5in1)
- Measles, Mumps, Rubella (MMR)
- Pneumococcal (PCV13)
- Influenza

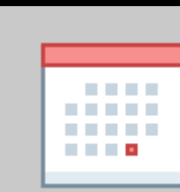
### New NCIS

#### ADDITIONAL VACCINATION

- Varicella

#### COMBINATION VACCINATIONS

- Diphtheria, Tetanus, Pertussis, Poliovirus, Haemophilus B, **Hepatitis B** (6in1)
- MMRV. (Measles, Mumps, Rubella and **Varicella**)



### Vaccine Schedule

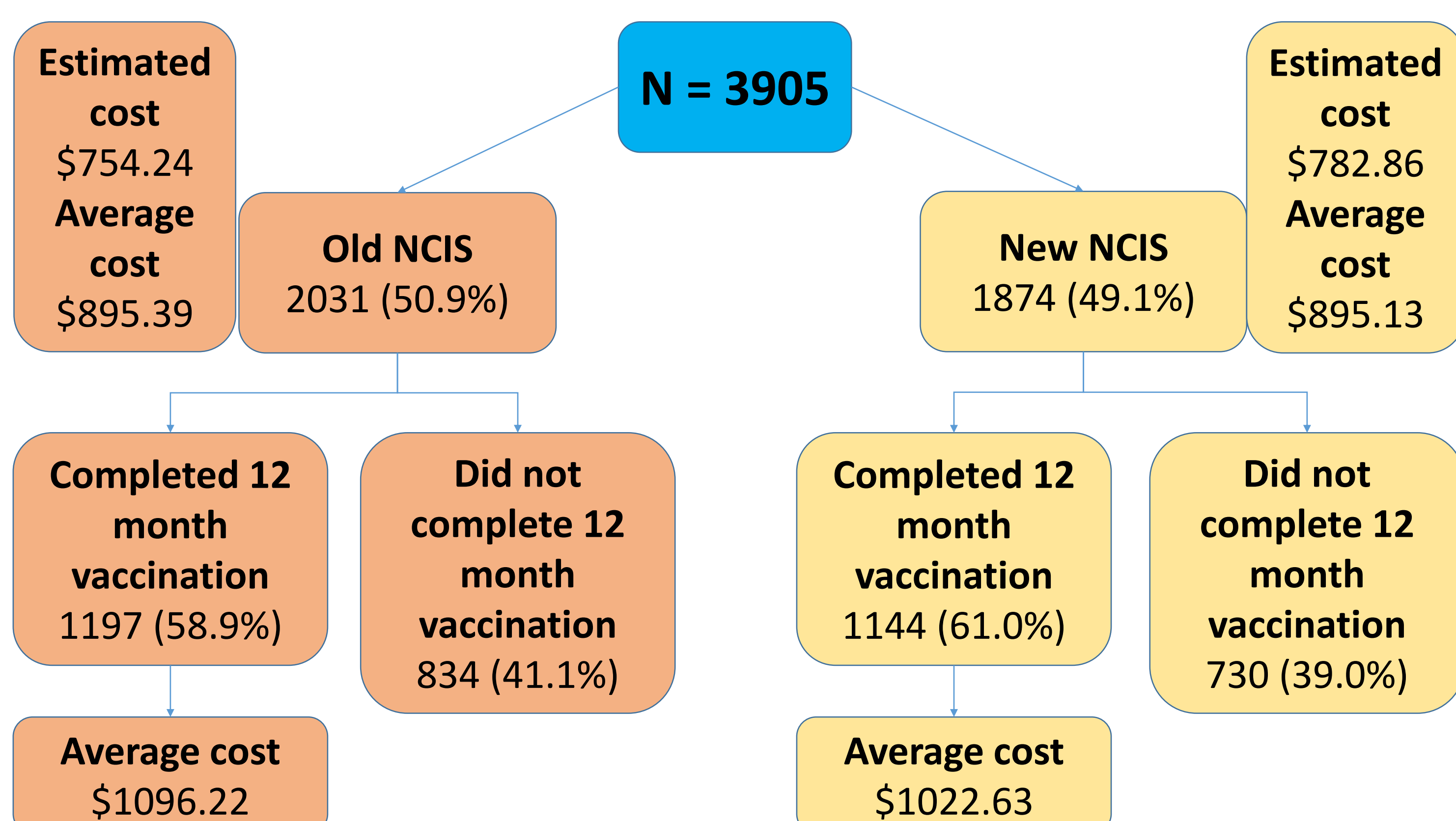
Month	Old NCIS				Old/New	New NCIS				
	HepB	5in1	PCV13	MMR		Influenza	6in1	5in1	PCV13	MMR
1 <sup>st</sup>	D1									
2 <sup>nd</sup>						D1				
3 <sup>rd</sup>		D1	D1							
4 <sup>th</sup>		D2					D1	D1		
5 <sup>th</sup>		D3	D2							
6 <sup>th</sup>	D2				D1	D2		D2		
12 <sup>th</sup>				D1					D1	D1

\*D1, D2 and D3 refers to Dose 1, Dose 2 and Dose 3 respectively.

## METHODS

This is a retrospective study analyzing childhood vaccination data from old and new NCIS with data taken from November 2019 to December 2021. Vaccination records for children were obtained and analyzed according to the recommended 12 month vaccination. All statistical analysis was performed by using SPSS version 25.0. Childhood vaccine related healthcare expenditure was estimated using the average vaccine price from major private general practitioner clinics and group practice available in Singapore.

## RESULTS



A total of N = 3905 children vaccination records were obtained. Average cost of vaccine uptake was higher than estimated cost as children has also opted for optional vaccines such as Meningococcal and Rotavirus. The new NCIS reduced the visit count and injections to the children with the help of combination vaccines and schedule optimizations. Children only require 4 visits in the new NCIS as compared to the 6 visits required previously in the old NCIS. Cost savings was achieved, with an approximate \$74 difference. 12 month vaccination percentage was increased by 2.1%. Intangible cost savings such as time and manpower required was saved as well especially during the Covid-19 pandemic.

## CONCLUSION

This study found that the new NCIS offered protection for more childhood infectious diseases without incurring additional cost compared to the old NCIS.

