



Singapore Healthcare Management 2023

Pamela Ting Li Ming, National University Hospital, Singapore
 Christine Wong Siaw Wei, National University Hospital, Singapore
 Poh Pei Kee, National University Hospital, Singapore
 Bryan Ng Su Wei, National University Hospital, Singapore
 Eugene Liu Hern Choon, National University Hospital, Singapore

INTRODUCTION

Considerable international variation exists regarding the use of anaesthesia breathing circuits.



Australia & NZ:
Unclarified duration



USA : Single patient use

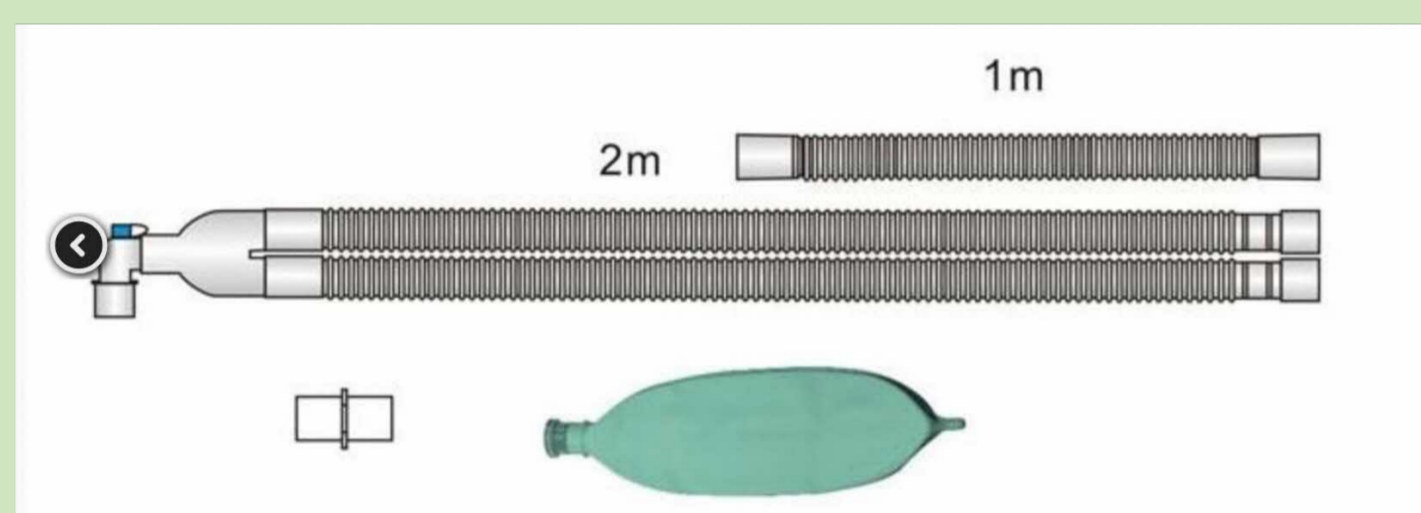


Germany:
Weekly use



United Kingdom:
Weekly use

Since 2002, an agreement was reached between The Association of Anaesthetists of Great Britain and Ireland (AAGBI) and health authorities that breathing circuits can be used for 7 days provided a new single-use breathing circuit bacterial/viral filter is placed between the patient and the circuit Y-piece.

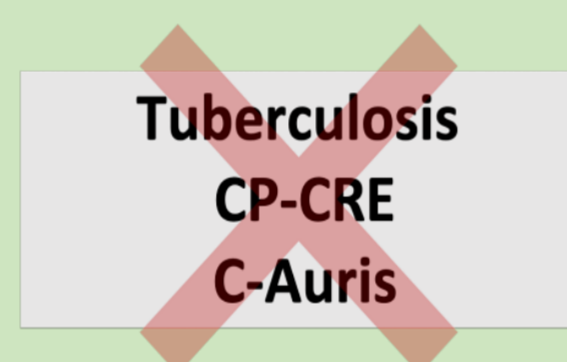


+ = weekly circuit change

This practice is endorsed by multiple international consensus guidelines including ANZCA, the Association of Anaesthetists and the ASA.



Exceptions: Visibly soiled circuit



Infectious patient

A survey of 7 Singaporean public healthcare institutions (TTSH , SGH, CGH, NUH, NTFGH, KKH, KTPH) revealed that all change their circuits daily, deviating from international recommendations.

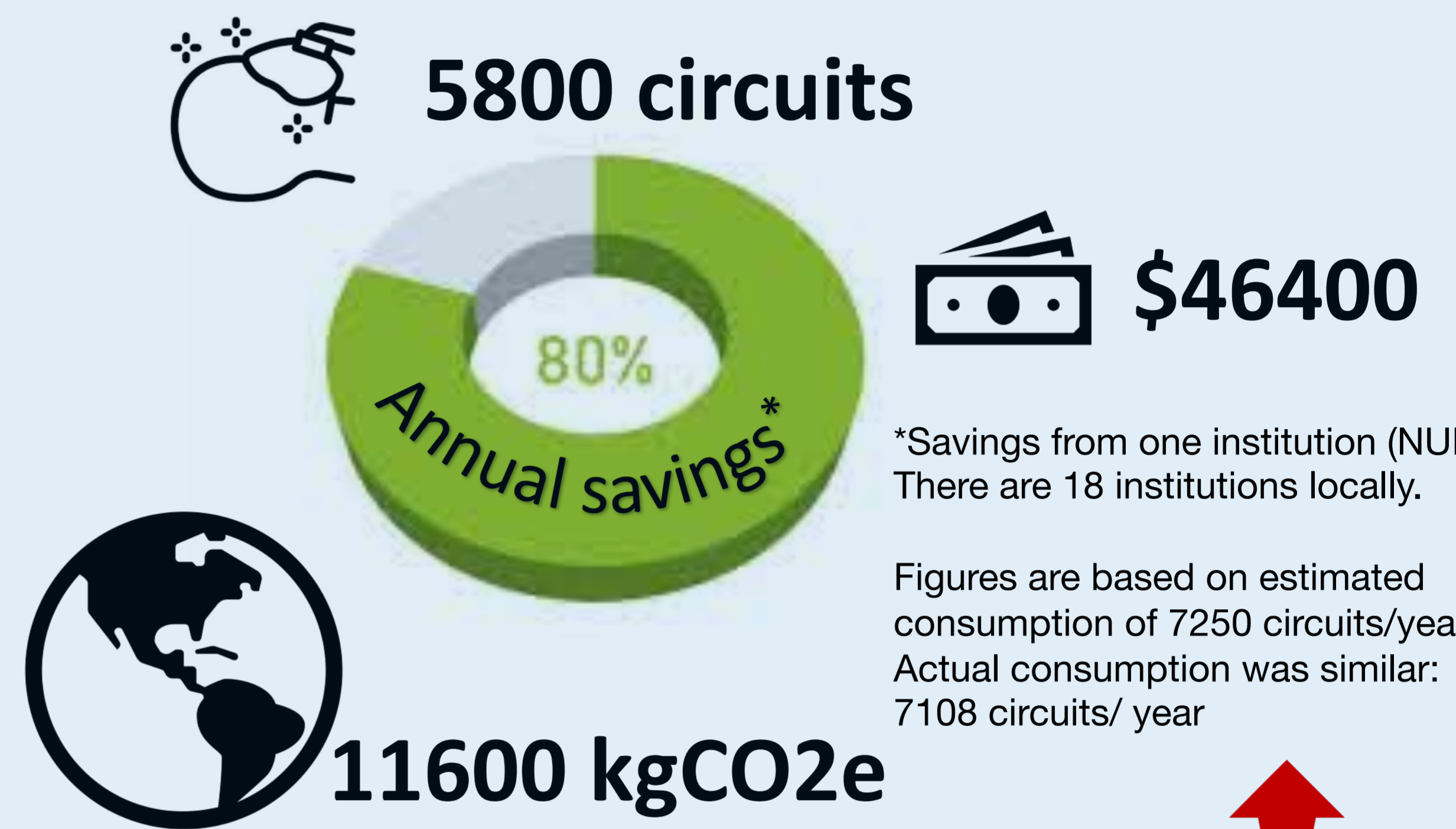
Align local practices with international guidelines

AIMS

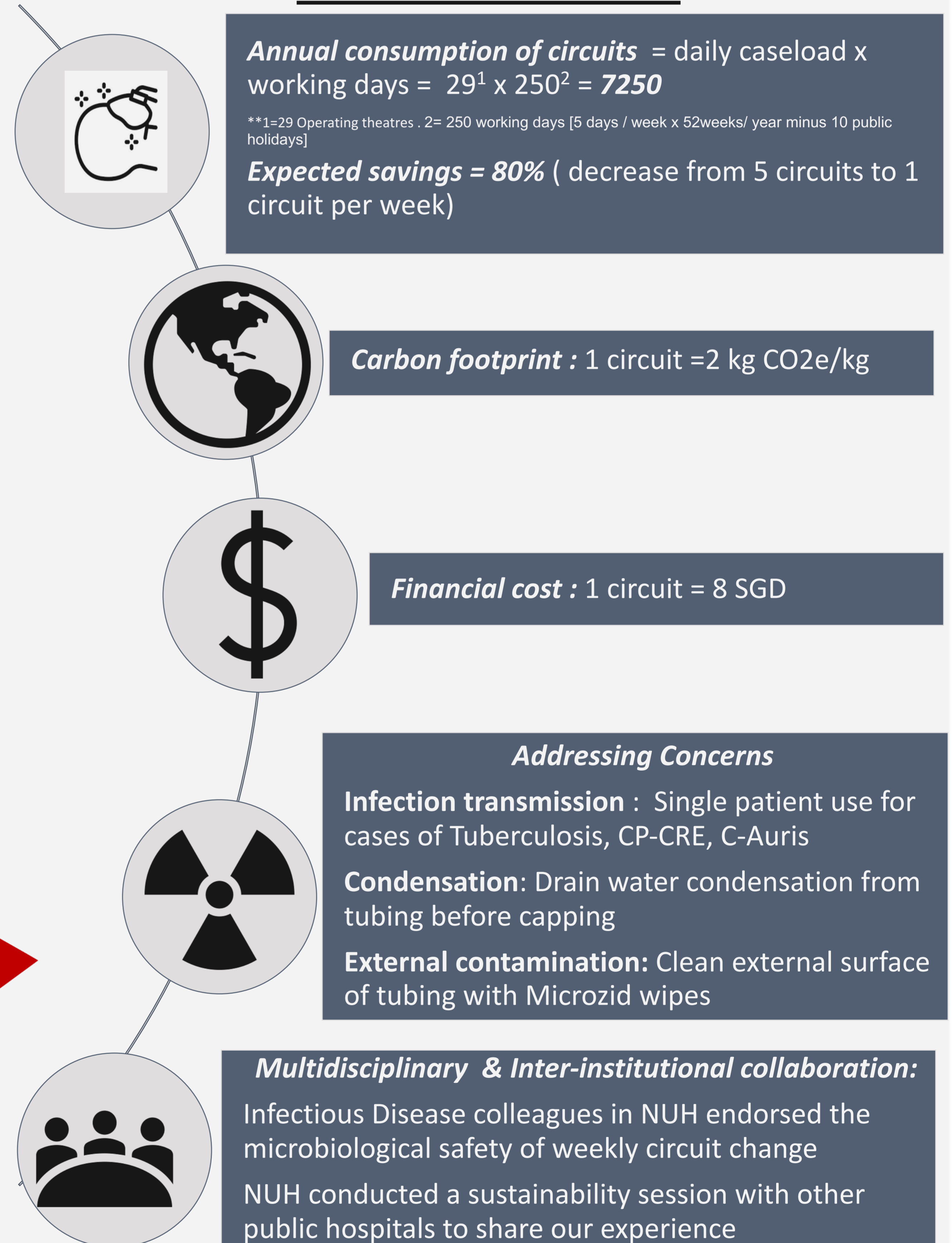
Sustainable practice without compromising patient safety

Financial and environmental savings

RESULTS



METHODOLOGY



Breathing Circuits Carbon Footprint

Component	Material	Weight (kg)	Carbon Emissions Factor (kgCO ₂ e/kg)				Carbon Footprint (kgCO ₂ e)
			Manufac ture	Mouldi ng	Extrusi on	Disposa l	
Fitting	Polyethylene	0.055	2.75	1.8	0.47	1.1	0.3366
Corrugate Tubing	Polyethylene	0.115	2.75	1.8	0.47	1.1	0.7038
	Ethylene vinyl acetate	0.115	2.1	1.15	0.45	1.1	0.552
Breathing Bag	Latex (Natural rubber)	0.045	2.1	1.3	0	1.1	0.2025
Filter	Polypropylene	0.03	3.05	1.6	0.47	1.1	0.1866
Clear Bag	LDPE (Film)	0.01	2.6	-	-	1.1	0.037
Total		0.37					2.0185