

Circular care

Infection prevention, sustainability and resilience

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Te Whatu Ora | Health New Zealand

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Ko wai au



TOI-OHOMAI
Institute of Technology



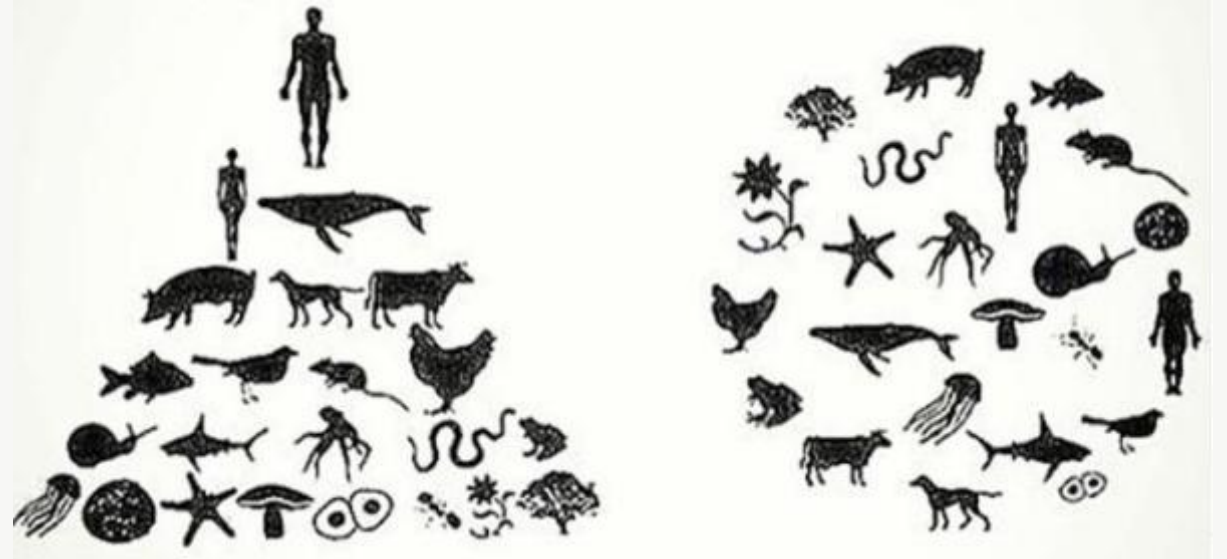
Te Whatu Ora
Health New Zealand



NorthTec
TAI TOKERAU WĀNANGA



Ka ora te taiao,
ka ora te tāngata
We are a part of nature,
not apart from it



Health NZ sustainability function: what we do

Strategic integration of sustainability



To integrate sustainability in core strategic, decision making processes and culture.

Health System Decarbonisation



To reduce health system carbon emissions in line with a 1.5-degree scenario.

Environment in All Practices



To realise co-benefits that include the environment alongside health, equity, social and economic values.

Health System Resilience and Adaptation



To ensure sector resilience by planning for and adapting to the impacts of climate change.

National direction + regional enablement + local action

Meet the team



Rick Lomax
Head of Sustainability
Based in the Northern Region



Vicktoria Blake
Principal Advisor (National) -
Climate Risk and Resilience
Te Manawa Taki



Jake McLaren
Principal Advisor (National) -
Sustainable Procurement
Starting August



Larisa Thathiah
Principal Advisor (National) -
Sustainable Infrastructure
Northern



Keith Tallentire
Principal Advisor (National) -
Emissions Management
Te Waipounamu



Rob Burrell
Clinical Lead (Anaesthetist)
Based in Northern Region



Jenisha Naidoo
Advisor – Sustainability & Climate
Change
Based in Northern Region



Katie Hine
Senior Advisor – Sustainability &
Climate Change
Based in Te Manawa Taki



Hannah Sherratt
Senior Advisor – Sustainability &
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Based in Te Manawa Taki

Vacant
Senior Advisor – Sustainability &
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Jessie Wu
Senior Advisor – Sustainability &
Climate Change
Based in Te Waipounamu

The story in one sentence

IPC is not the barrier to circular care. IPC is the discipline that makes circular care safe.

The problem

Healthcare creates emissions, waste and pollution while trying to protect health. Single-use systems have become the default, not always because they are better, but often because they feel simpler.

The opportunity

New Zealand has clean electricity, water, skilled people and a small health system that can move together. We could become a world leader in safe healthcare reuse.

The ask

Help Sustainability and Procurement define the minimum principles, standards and assurance needed to use better, reuse more and remanufacture safely.



What is circular care?

Safe, high-quality healthcare that keeps resources in use for longer, instead of assuming single use is the default.

Circular care is the deliberate design of clinical systems so products, materials and value are kept in safe use for as long as clinically appropriate.

It is not just recycling

Recycling is the backstop. Circular care starts earlier: reducing unnecessary use, choosing reusable and repairable options, and designing safe return pathways.

It is not informal reuse

Circular care requires defined standards, validated processes, traceability, maintenance, training and clear stop rules.

It is IPC-enabled

IPC helps define what safe means across the full lifecycle: use, cleaning, laundering, reprocessing, storage, reuse and monitoring.

It is resilience-building

Circular systems reduce waste, emissions, cost exposure and dependence on long one-way supply chains.

IPC lens: acceptable risk is evidence-informed, controlled, monitored and transparent, not assumed away.



Why this belongs at an IPC conference

A circular health system is only credible if it is safe, evidence-informed and trusted by clinicians.

IPC understands risk in real clinical environments, not just policy documents.

Reusable and remanufactured options need standards for cleaning, disinfection, sterilisation, handling, storage and monitoring.

The goal is not zero risk. The goal is acceptable, well-characterised, clinically justified risk.

Sustainability, procurement and IPC need to design the system together, early.

The shift we need

“IPC as gatekeeper”



“IPC as design partner”

The pollution problem is not abstract

Health NZ is reducing measured emissions, but the wider footprint is much larger than what is currently counted.

192,105

tCO₂e measured emissions in 2024/25

19%

reduction from 2022/23 baseline

~5x

purchased goods and services estimated close to
five times measured emissions

24%

reduction target by end FY26/27 in the
Health NZ programme

Measured footprint

Likely material unmeasured sources: procurement, commissioned services, capital works, patient/visitor travel and staff commute

The carbon story is also a materials story: what we buy, use once, ship across the world and dispose of.
Circular care is therefore both an environmental strategy and a resilience strategy.

The plastics problem: convenience has consequences

Single-use plastic solves some immediate problems while creating longer-term environmental and health uncertainties.

In hospitals

Large volumes of gowns, drapes, packaging, syringes, tubing, PPE, procedure packs and device components move rapidly from supply chain to waste stream.

In Aotearoa

Every New Zealander sends at least 60 kg of plastic waste to landfill each year; many plastics are used only once and most plastic waste goes to landfill.

For patients

Plastics are present in soil, water, food and air. The health implications of microplastics and chemical additives are still being understood.

“Single use” often means “single moment of clinical use, long-term environmental persistence.”

Waste: landfilling is not a long-term confidence strategy

Waste is a signal that we are losing value, increasing risk and transferring costs to others.

669 kg

waste disposed per person at municipal
landfills in 2023

4.5%

of New Zealand greenhouse gas emissions
from the waste sector in 2022

6.7 kg

Health NZ waste per bed day, Q4 rolling
12-month average

\$9.41/kg

average cytotoxic waste cost in Health NZ
waste cost comparison

**The waste hierarchy starts before the bin: reduce, design out, keep in use, then recycle only
when reuse is no longer possible.**

Supply chains: our geography is a clinical resilience issue

Aotearoa New Zealand relies on long, exposed supply chains for many clinical products.

Pandemics, extreme weather, geopolitical shocks and freight disruption all create supply risk. Every product we can safely launder, reuse, repair or remanufacture reduces dependency on one-way import flows. Resilience is not stockpiling single-use items forever. Resilience is shortening and diversifying supply loops.



New Zealand's superpowers

We are not powerless. We have advantages that could make us a leader in circular healthcare.

Renewable electricity

Lower-carbon energy can support sterilisation, laundry and remanufacturing.

Water and laundering capability

Reusable textiles need reliable laundering systems and strong quality controls.

Skilled workforce

Reuse creates local technical, logistics and quality roles.

Small system with national scale

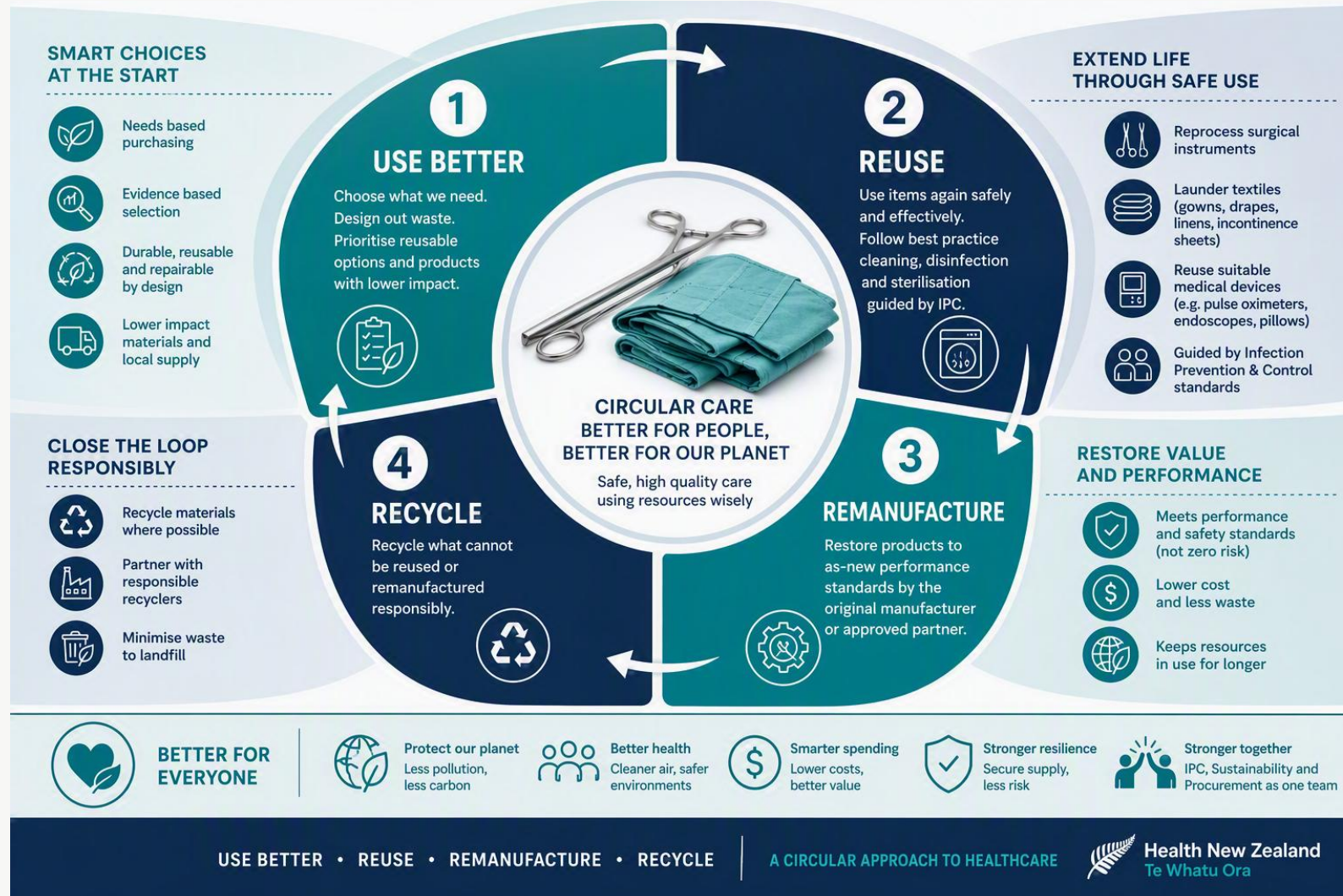
Single national system can set consistent principles and scale what works.

Public value mandate

Public healthcare can lead markets toward lower-impact products and services.

Use better. Reuse. Remanufacture.

A practical circular care framework for IPC, Sustainability and Procurement.



1. Use better: make safe laundry the default where it can be

The first question is not “where can we recycle?” It is “where can we avoid disposables altogether?”

Reusable gowns, theatre drapes, linens and incontinence sheets are practical candidates where performance and laundering systems are robust.

Selection should consider lifecycle cost, carbon, water, waste, comfort, supply security and infection prevention requirements.

Reusable systems need inventory, transport, laundry, sterilisation, inspection and replacement processes designed from the start.

IPC design questions

What is the required barrier performance?

How many cycles are validated?

How is failure detected?

When is single-use still indicated?

2. Reuse: keep high-value items in safe circulation

Healthcare already reuses many of its most expensive and clinically critical tools.

Obvious reuse

Surgical instruments and sets are used, cleaned, sterilised, tracked and reused every day. This shows that safe reuse is already normal healthcare practice.

Expand the lens

Endoscopes, pillows, pulse oximeters and suitable items that touch patients can be assessed through a risk-based reuse lens.

Build confidence

Reuse needs validated cleaning/disinfection, traceability, maintenance, staff training, incident management and transparent performance monitoring.

If we can trust reuse for surgical instruments, we can have conversations about other products too.

3. Remanufacture: restore value without pretending risk is zero

Remanufacturing is a regulated, quality-assured pathway, not informal reuse.

Remanufacturing restores selected products to a reusable state where performance and safety specifications can be met.

It may be delivered by the original manufacturer or approved third parties, ideally with competition and transparency.

The test is not whether risk exists. The test is whether risk is understood, controlled, monitored and acceptable for the clinical use.

- 1 Identify candidate
- 2 Define specifications
- 3 Validate process
- 4 Monitor outcomes

What the evidence says about reusable surgical textiles

The evidence is encouraging, but implementation has to be local and deliberate.

66%

lower greenhouse gas emissions in one LCA
comparison of reusable gowns

84%

lower solid waste generation in the same
study

5,230

peri-operative professionals surveyed across
134 countries in 2025 study

62.4%

thought reusable drapes/gowns were
unlikely or very unlikely to affect safety

Staff concerns are legitimate: sterility, barrier performance, workflow, comfort, cost and water use all need to be addressed.

The strongest implementation message is context: local systems and people determine whether reusable textiles succeed.

Implementation pattern: from “good idea” to normal practice

A reusable gown or drape project should look like a clinical quality project, not a waste project.



Do not skip the human bit

The barrier is rarely only evidence. It is also workflow, comfort, trust, supply availability and confidence that leadership will back the change.

IPC principles for circular care

The minimum viable contribution from IPC is a set of principles that others can operationalise.

Safety by design

Build safety into product and service design.

Evidence proportionate to risk

Require evidence that matches the exposure, use and consequence.

Validated processes

Specify cleaning, disinfection, sterilisation, storage and transport controls.

Traceability and accountability

Know what was used, where it went, and when it must be removed from service.

Clear exceptions and stop rules

Define where single-use remains necessary and when pilots pause.

Continuous monitoring

Track infection, failure, complaints, cost, waste and supply performance.

The operating model: nobody does this alone

Circular care is a team sport with clear roles.

IPC

Minimum standards, risk assessment, monitoring and assurance

Sustainability

Evidence, impact assessment, programme coordination and reporting

Procurement

Market engagement, specifications, contracts and supplier performance

Clinical teams

Workflow design, acceptability, education and safe adoption

Operations

Laundry, sterile services, logistics, waste and data

Risk is real. So are the risks of inaction.

A mature system compares risks, rather than treating single-use as risk-free.

Risks to manage

Infection transmission, barrier failure, inadequate decontamination, device performance failure, supply disruption, staff confidence and patient trust.

Risks of doing nothing

Pollution, emissions, rising waste costs, supply dependence, landfill pressures, procurement exposure and a legacy of avoidable harm.

What maturity looks like

Evidence-based standards, pilots, monitoring, transparent exceptions, and willingness to stop or scale based on data.

The aim is not “green at any price”. The aim is safe care with lower total harm.

A practical 12-month work programme

A realistic next step is not a perfect national policy. It is a structured pathway to learn and scale.

0–3 months

Agree IPC principles; select 2–3 candidate categories; baseline waste, emissions, cost and risk.

3–6 months

Develop procurement specifications; confirm laundering/reprocessing capability; design assurance and monitoring.

6–9 months

Run pilots in willing sites; train staff; capture infection, quality, workflow, waste and cost data.

9–12 months

Decide stop, adapt or scale; publish case study; embed standards in contracts and practice guidance.

What we need from IPC

Three asks that would unlock progress.

1. Principles

Help articulate what safe circular care requires across textiles, reusable equipment and remanufactured devices.

2. Minimum standards

Define the evidence, processes, controls and monitoring required before a category can shift away from single-use.

3. Partnership

Join Sustainability and Procurement early, so the market is asked for products and services that are both safe and circular.

“Nobody does this alone. We need IPC on the team.”

Closing thought

The question is not whether healthcare can afford to reuse.

The question is whether we can afford not to build the systems that make reuse safe.

Use better. Reuse more. Remanufacture safely. Leave less burden for the people who come after us.