

Designing for Restraint Reduction:

- *A Retrospective Observational Study Comparing Environmental Restraint Rates in Old and New Purpose-Built Facilities of a Regional Forensic Psychiatry Hospital*

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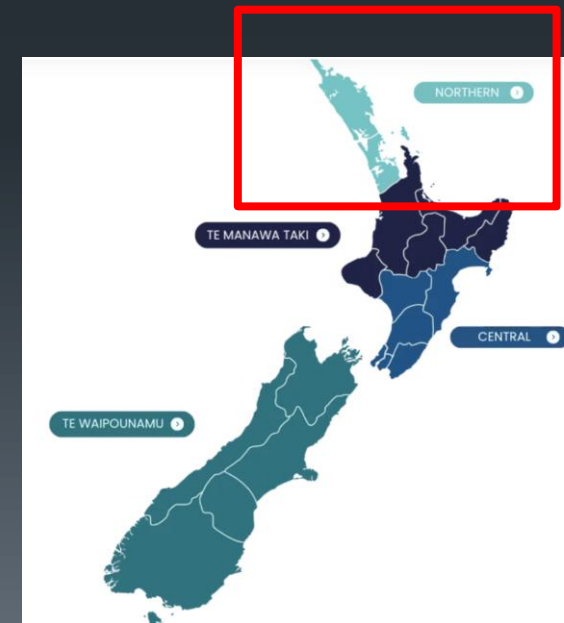
Auckland Regional Forensic Psychiatry Service: Mason Clinic



Integrated Service

- Prison Outreach
- Court Services
- Forensic Community Services
- Inpatient Services

	Adult population (n)	Prison population (n)	Contracted Forensic Mental Health beds (n)	Contracted Forensic Intellectual Disability Beds (n)	Forensic Mental Health Beds per 100,000 population (n)	Forensic Mental Health Beds per 1000 prisoners
ARFPS	2M	3800	109	12	5.5	29



Inpatient profile

- Short Term Care
 - 34 Medium Secure Mental Health beds
 - Servicing courts and prisons
- Extended Forensic Care
 - 41 Medium Secure, 25 Minimum Secure, 9 open ward Extended Forensic Care beds
 - Primarily for forensic orders (NGRI, UFTST)
- Short Term Care
- Extended Forensic Care



AGE AT ADMISSION
(AVERAGE)

35 YEARS



LENGTH OF STAY (MEDIAN)

6 MONTHS

Short Term Care (STC)

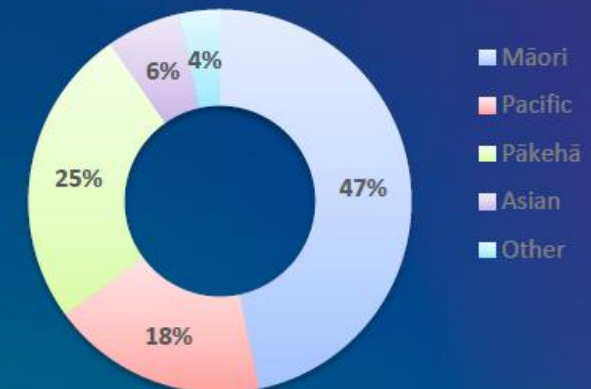
3 YEARS

Extended Forensic Care and
Rehabilitation (EFCR)

GENDER



ETHNICITY



Critical Success Factors

- Meeting clinical needs
- Safe and compliant with regulation
- Delivered within budget.



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Te Ngahere



1 KŌWHAI
3/4 actual size

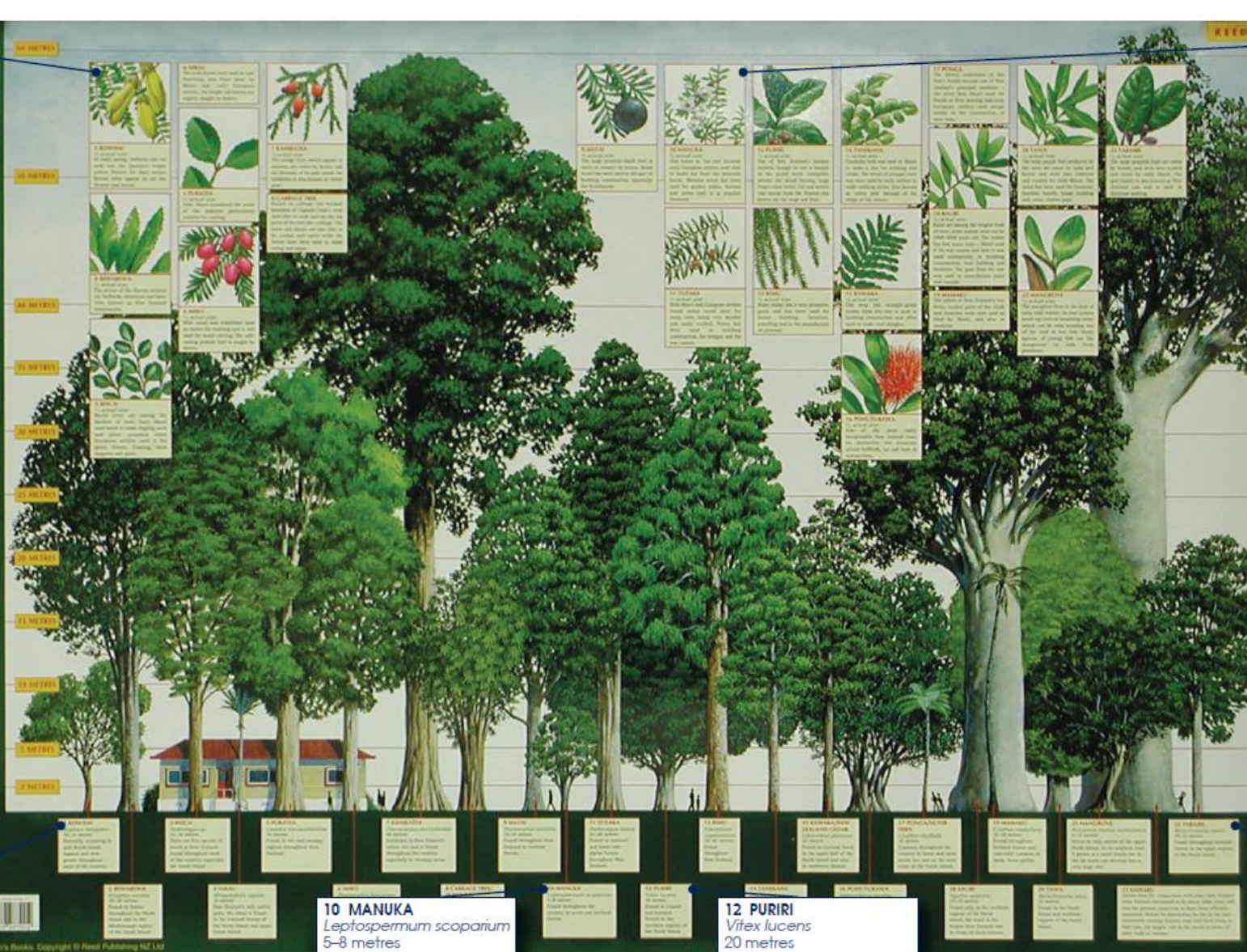
In early spring, bellbirds and tui seek out the kōwhai's bright yellow flowers for their nectar. Kererū often appear to eat the flowers and leaves.

1 KŌWHAI
Sophora tetraptera
10–14 metres

Naturally occurring in mid-North Island regions and now grown throughout most of the country.

New Zealand Native Trees

BY DAVE GUNSON



Published by Reed Children's Books. Copyright © Reed Publishing NZ Ltd

10 MANUKA
Leptospermum scoparium
5–8 metres

Naturally occurring in mid-North Island regions and now grown throughout most of the country.

12 PURIRI
Vitex lucens
20 metres

Found in coastal and lowland forests in the northern regions of the North Island.



10 MANUKA
3/4 actual size

Also known as 'tea tree' because early European settlers were able to make tea from the aromatic leaves. Manuka wood has been used for garden stakes, brooms and poles and is a popular firewood.

22 TARAIRE
Beilschmiedia tarairi
20–22 metres

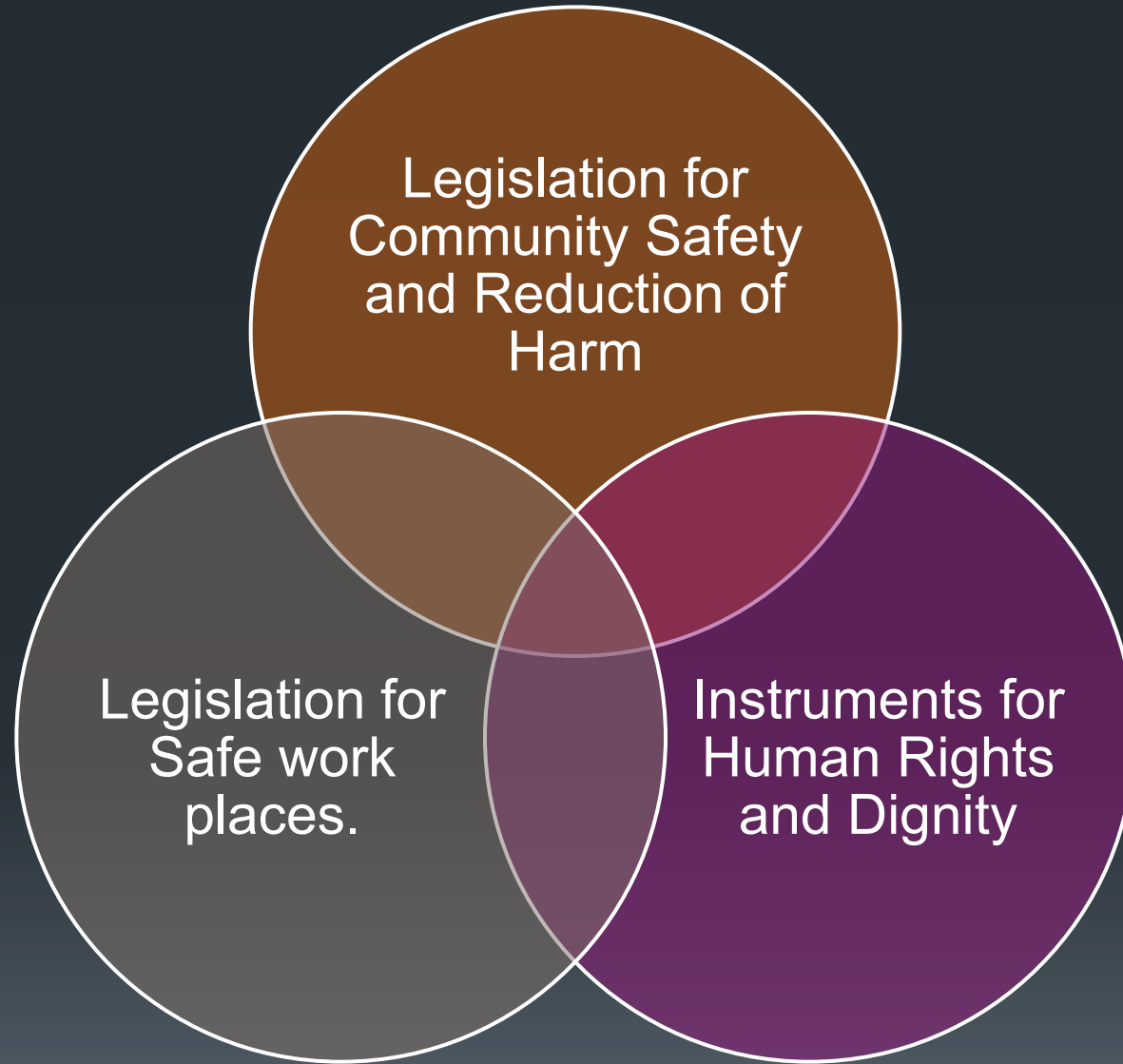
Found throughout lowland forests in the upper regions of the North Island.

Te Ngahere



Kauri 1992	Medium Secure Acute	1990s Coded U1992A
Tōtara 1992	Medium Secure mixed	1990s Coded U1992B
Kahikatea	Minimum Secure EFC	
Rimu	Open	
Rata 1999	Medium Secure EFC	1990s Coded U1999
Tanekaha 1999	Minimum Secure EFC	
Tane Whakapiripiri 2006	Minimum Secure EFC	
Pōhutukawa 2006	Medium Secure ID	
Te Aka 2017	Medium Secure EFC	2017+ Coded U2017
E Tū Tanekaha 2022	Medium Secure mixed	2017+ Coded U2022

SAFE SERVICES AND RESTRICTIVE PRACTICES



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NZ Bill of Rights Act 1990

- S23(5)
 - *“everyone deprived of liberty shall be treated with humanity and with respect for the inherent dignity of the person”.*
- S5
 - *“justified limitations”*
 - *“... the rights and freedoms contained in this Bill of Rights may be subject only to such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society.”*



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Therapeutic Security

- **Relational** security refers to staff–patient relationships (e.g. quality and quantity),
- **Procedural** security reflects policies, and processes
- **Environmental** security describes service environments (windows, doors, keys, fences).

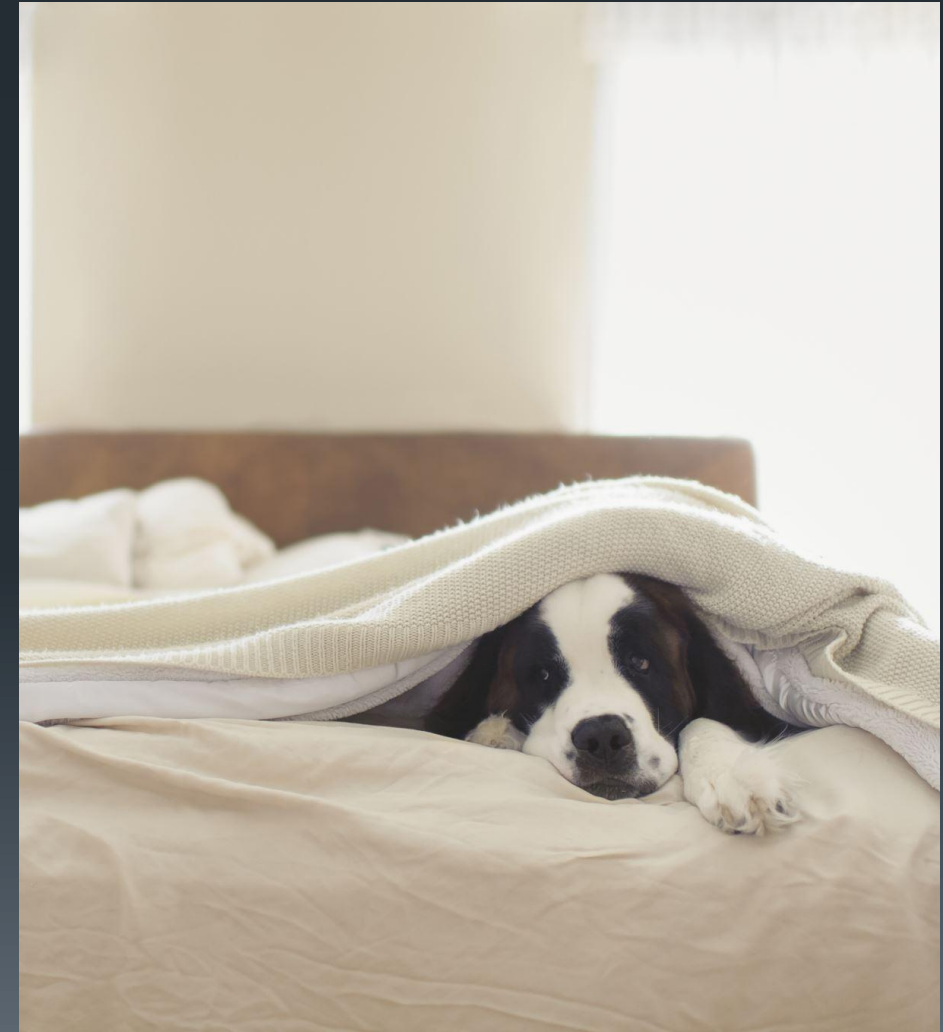


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Blanket Restrictions

- Therapeutic security must be matched to an individual's needs, rather than the individual having to conform to a level of therapeutic security provided.
- ... Or else the individual can be said to be subject to “blanket restrictions”



A blanket restriction: The practice of locking a patient in their bedroom overnight for the purposes of safety.

- Up to 2018 was practiced as a blanket restriction in medium secure units in some regional services in NZ
- Night Time Confinement
 - UK High Secure
 - Cost/Benefit Analysis
- Night Seclusion
- Night Safety Procedures
- Environmental Restraint
- Firmly entrenched as an institutional practice.
 - Analogous to prisons
 - Buildings were designed to accommodate this
 - Staffing cover models designed for night time locking (8:7:3)



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In Aotearoa NZ: 1995-2018

NIGHT SAFETY PROCEDURES

Ministry of Health
Manatu Hauora
June 1995

Definition

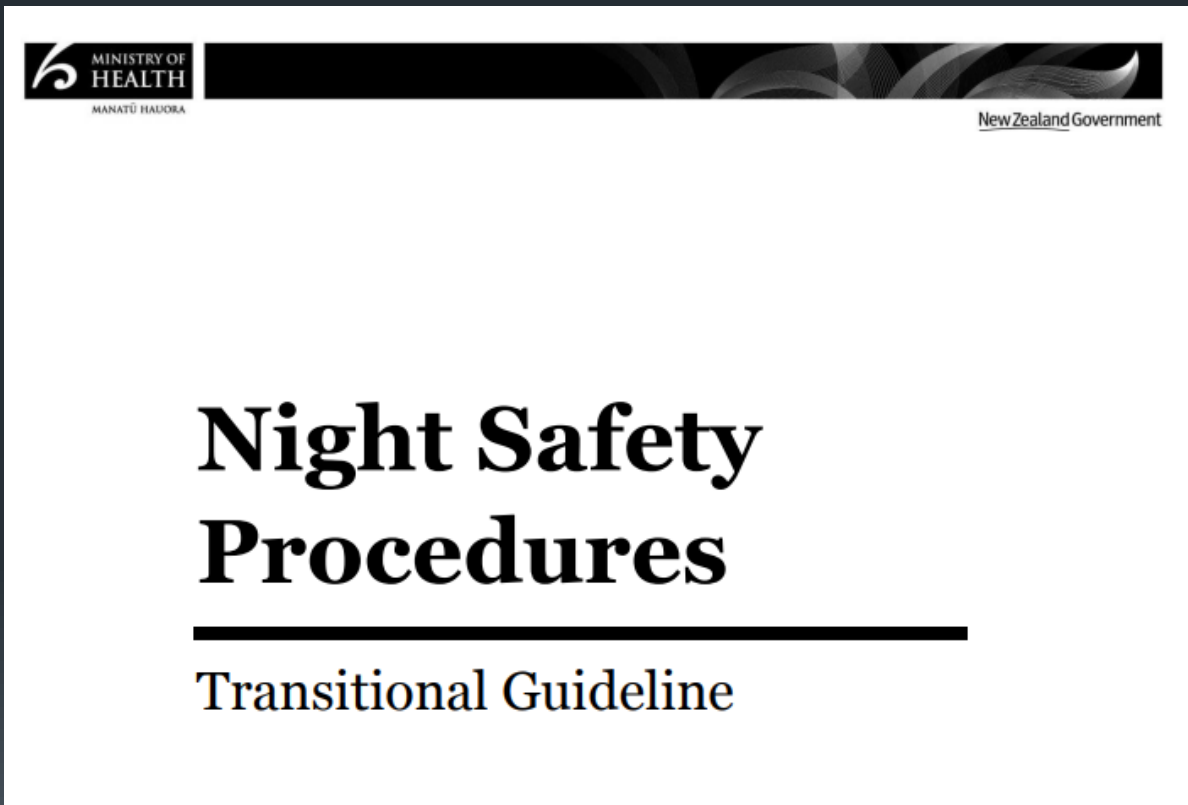
Night Safety Procedures may include the practice of locking a person in their bedroom overnight. Overnight means from 9 pm (may be earlier if the individual wishes to go to bed earlier) to 7.30 am.



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2018-22: “Night Safety” is a blanket restriction



MINISTRY OF HEALTH
MANATŪ HAORA

New Zealand Government

Night Safety Procedures

Transitional Guideline

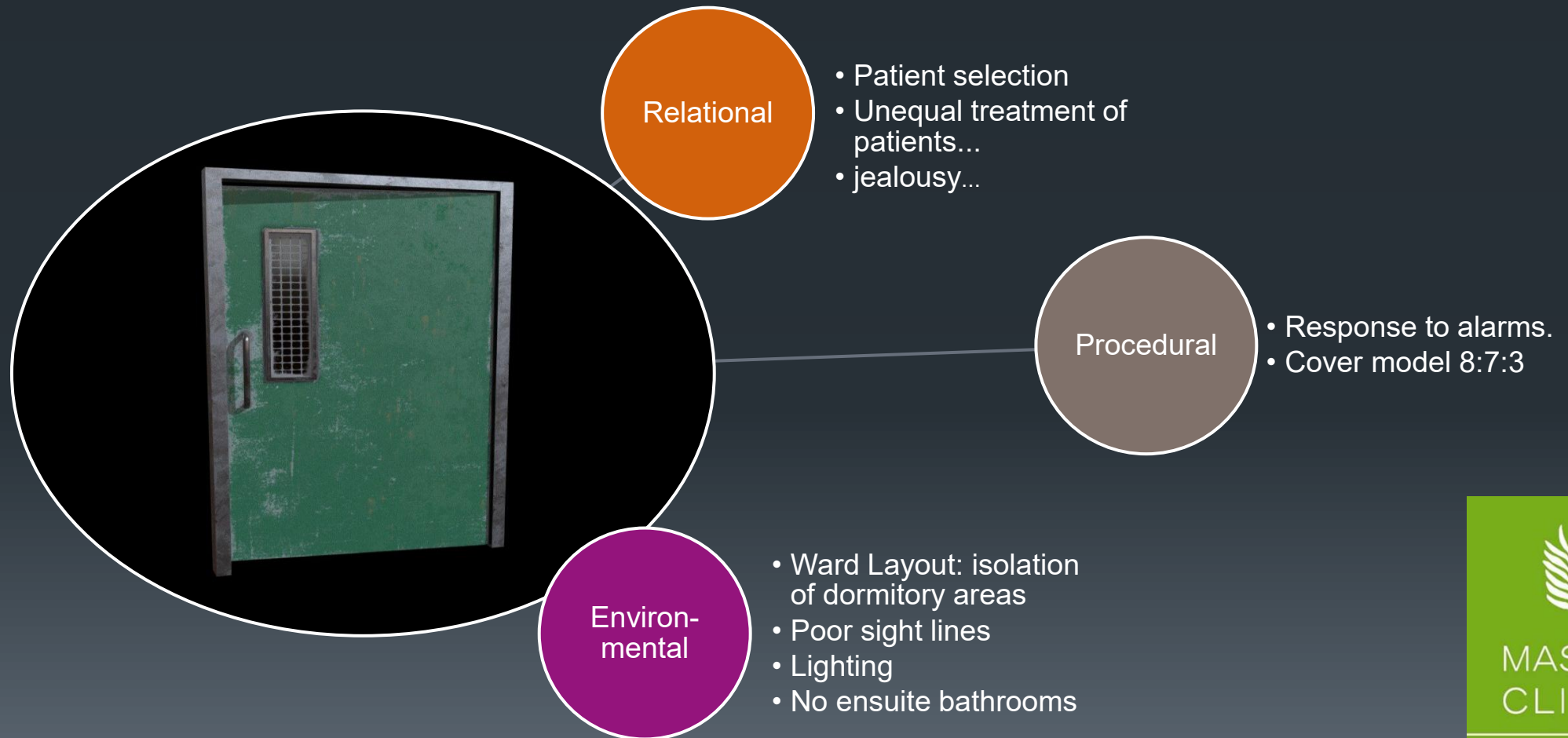
- ...no therapeutic function
- ...a form of environmental restraint
- ...Blanket use of night safety procedures in forensic units is unacceptable.
- ...should not occur as a replacement for adequate levels of staff or resources.
- ...Must cease by December 2022
- Routine Data collection to track change and compliance
- Electronic Health Record
 - MDT safety plan approving NTC
 - Daily recording of application of NTC



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Concerns from service and resistance to change in practice.



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Literature overview

- Prior focus: Patient and staff
- Emerging focus: Architectural and environmental psychology
 - **Ulrich et al.** proposed a conceptual model that emphasized the importance of a well-designed environment in minimizing stressors that trigger aggression among psychiatric inpatients
 - **Harpøth et al.** found that the relocation of a psychiatric university hospital to a new modern facility led to a significant decrease in the use of all restrictive practices.
- Australasian Health Facility Guidelines





- Core Principle: AusHFG provide an evidence-based framework to design mental health facilities that support therapeutic and recovery-oriented care in the least restrictive environment
- Mental Health – Overarching guideline:
 - Planning
 - Design
 - Components of unit

- HPU 132 Child and Adolescent Mental Health Unit;
- HPU 133 Psychiatric Emergency Care Centre (PECC);
- HPU 134 Adult Acute Mental Health Inpatient Unit;
- HPU 135 Older People's Acute Mental Health Inpatient Unit;
- HPU 136 Non Acute Mental Health Unit which includes rehabilitation, extended care and low to medium secure forensic services; and
- HPU 137 Mental Health Intensive Care Unit.

Ulrich et al 2018

- Core findings: *Psychiatric ward design is a significant factor in patient and staff safety, and can directly contribute to a reduction in aggressive behaviour and the need for seclusion and restraint.*
- Key Design Factors for a safer, more therapeutic environment:

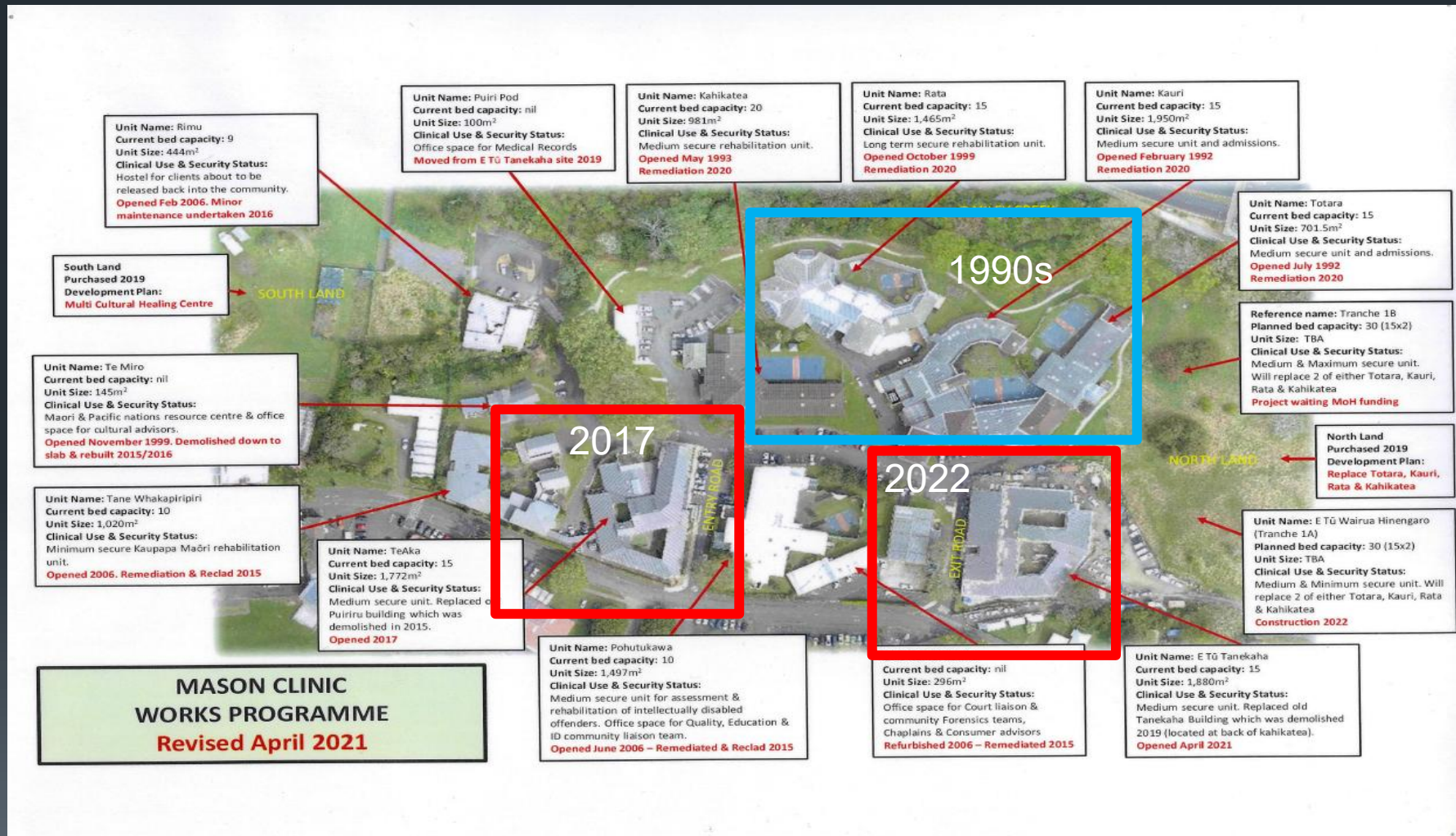
Design Principle	Therapeutic Goal	Key Design Implementations
Minimise Environmental Stress	Reduce arousal and anxiety; enhance autonomy and perceived control.	<ul style="list-style-type: none">• Single-occupancy bedrooms to promote privacy and safety.• Acoustic treatments to reduce noise-related stress.• Natural light, outdoor views, and access to therapeutic landscapes.
Promote Safety and Transparency	Strengthen psychological and physical safety; reduce uncertainty.	<ul style="list-style-type: none">• Clear sightlines from care stations.• Open, legible spatial layouts.• Domestic-scale materials and furnishings.
Support Positive Social Dynamics	Facilitate safe engagement; provide pathways for de-escalation.	<ul style="list-style-type: none">• Adequately sized communal spaces.• Zoned quiet and social areas.• Secure outdoor access for de-escalation.



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All Medium Secure Mental Health Units on site



1990s design.

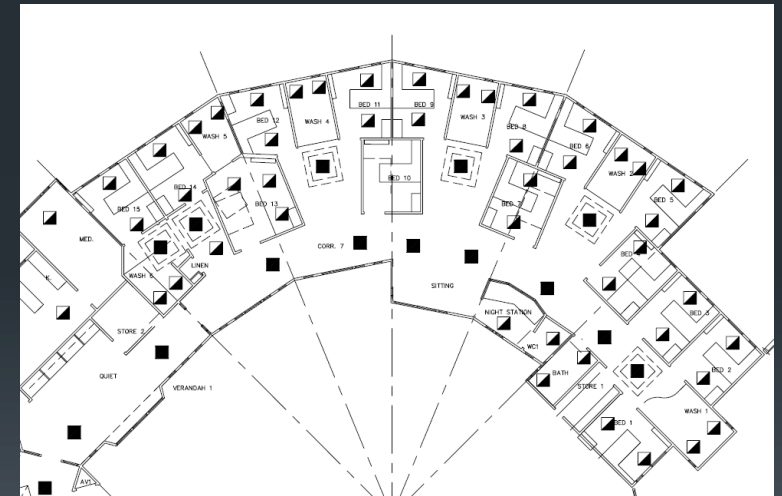


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1990s layout: Male acute ward dormitory

- Blind ended
- No ensuite facility
- No line of sight from Nursing station



1990s lay out : Male subacute ward

- Double loaded
- Blind ended
- No ensuite facilities
- No line of sight from nursing station



2017

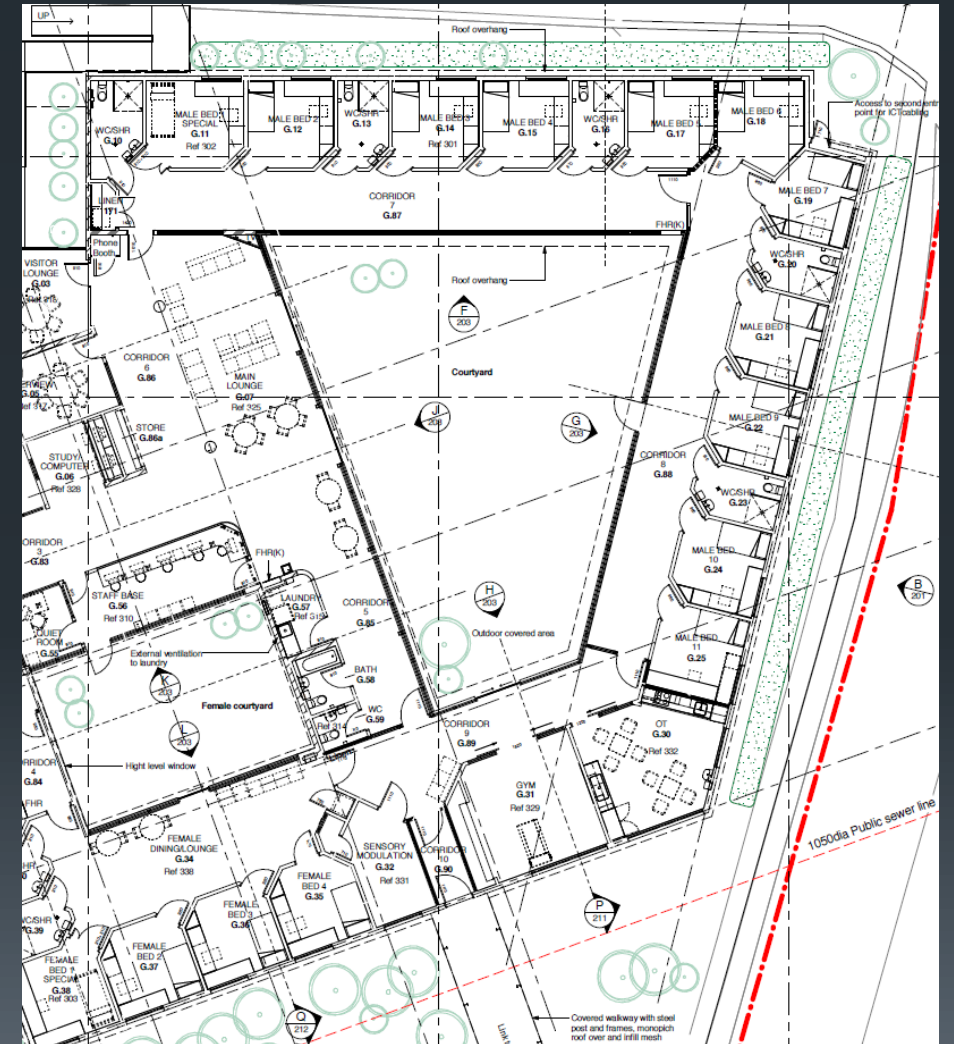


Te Aka



Medium Secure Extended Forensic Care dormitory: 2017+

- Single loaded corridor
- Natural views from external Windows
- Wrapped around glazed internal living space
- Line of sight from nursing station



2022



Female acute ward dormitory: 2017+ layout



- Single loaded corridor
- Open ended
- Natural views from external Windows
- Ensuite bathroom
- Wrapped around glazed internal living space
- Line of sight from nursing station



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Methodology

- Retrospective longitudinal cohort study
- Mental Health Medium Secure units on site at Mason Clinic
- Forensic ID excluded
- Use of routine data collection from EHR
 - Percentage of occupied bed nights with NTC per month
- Ullrich (2018) informed design feature score
- Comparison
 - Percentage fulfilment of design factors vs
 - Percentage of NTC
- 1 October 2022 – 31 September 2024



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Analytic Approach

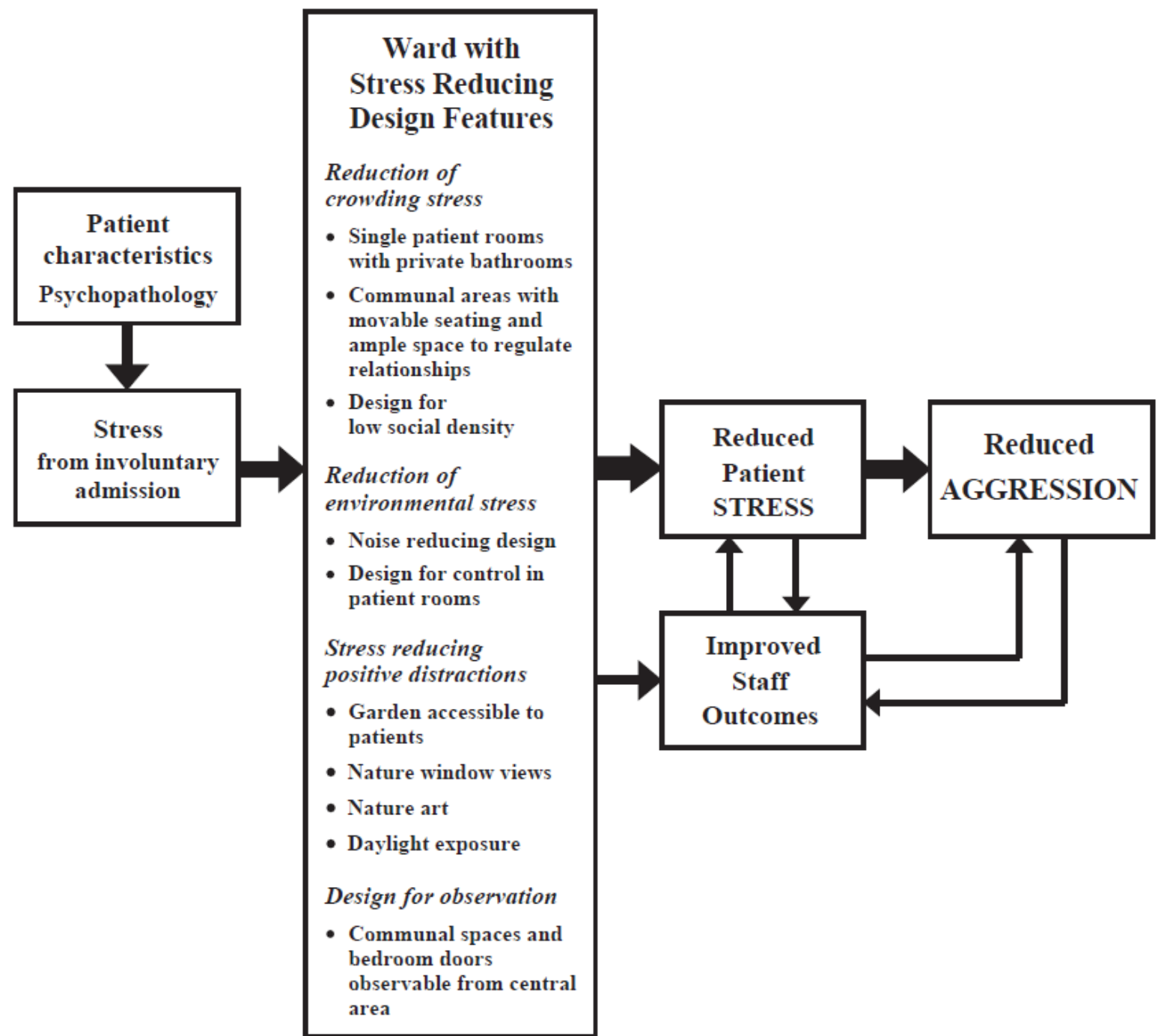


Fig. 1. Conceptual model for designing inpatient psychiatric wards to reduce aggression.

Relevant environmental factors

- Crowding stress

		U1992A	U1992B	U1999	U2017	U2022	Remarks
Factors	Subcategories						
Bedrooms	Single bedrooms	Y	Y	Y	Y	Y	AUSHFG S3.5.5
	Ensuites	N	N	N	N	Y	AUSHFG S3.5.5
Communal areas	Movable seating	Y	Y	Y	Y	Y	
	Activity area	Y	Y	Y	Y	Y	AUSHFG S3.5.1
Social density	Clustering bed rooms into pods	Y	N	Y	N	Y	AUSHFG S3.5.1
	Outdoor areas m2 per person	6.76	4.58	3.33	17.86	16.86	
	Separation of zones such as bedrooms from communal activity areas	Y	Y	Y	Y	Y	

Relevant environmental factors

- Reduction of environmental stress

		U1992A	U1992B	U1999	U2017	U2022	Remarks
Factors	Subcategories						
Noise reducing design	Bedroom away from communal areas	Y	Y	N	Y	Y	AUSHFG S3.5.2
	Acoustic design to minimise unwanted noise	N	N	N	Y	Y	AUSHFG S3.5.2
Control in patient room	Control with access to own room	N	N	N	Y	Y	AUSHFG S3.5.5 AUSHFG S3.7.3
	Control of lighting in own room	N	N	N	Y	Y	AUSHFG S3.5.3

Relevant environmental factors

- Stress reducing positive distraction and design for observation

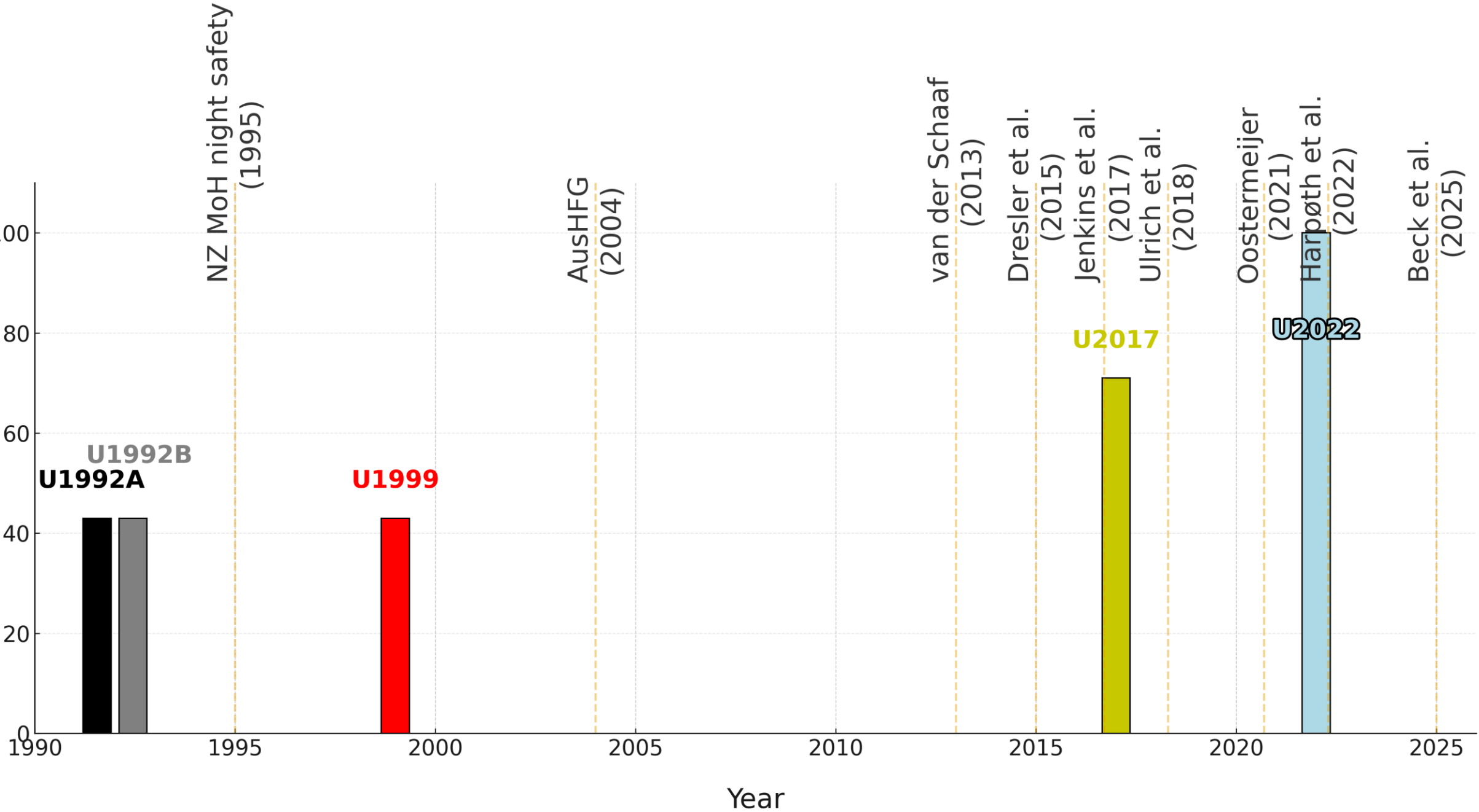
		U1992A	U1992B	U1999	U2017	U2022	Remarks
Factors	Subcategories						
Stress reducing positive distractions	Garden accessible to patients	N	N	N	N	Y	AUSHFG S3.8.9
	Nature art, not abstract	N	Y	Y	Y	Y	AUSHFG S3.5.5
	Designed for higher daylight exposure	N	N	N	N	Y	AUSHFG S3.5.3
Design for observation	Obs from central area to bedroom doors and communal areas	N	N	N	Y	Y	AUSHFG S3.7.4

Relevant environmental factors

- Stress reducing positive distraction and design for observation

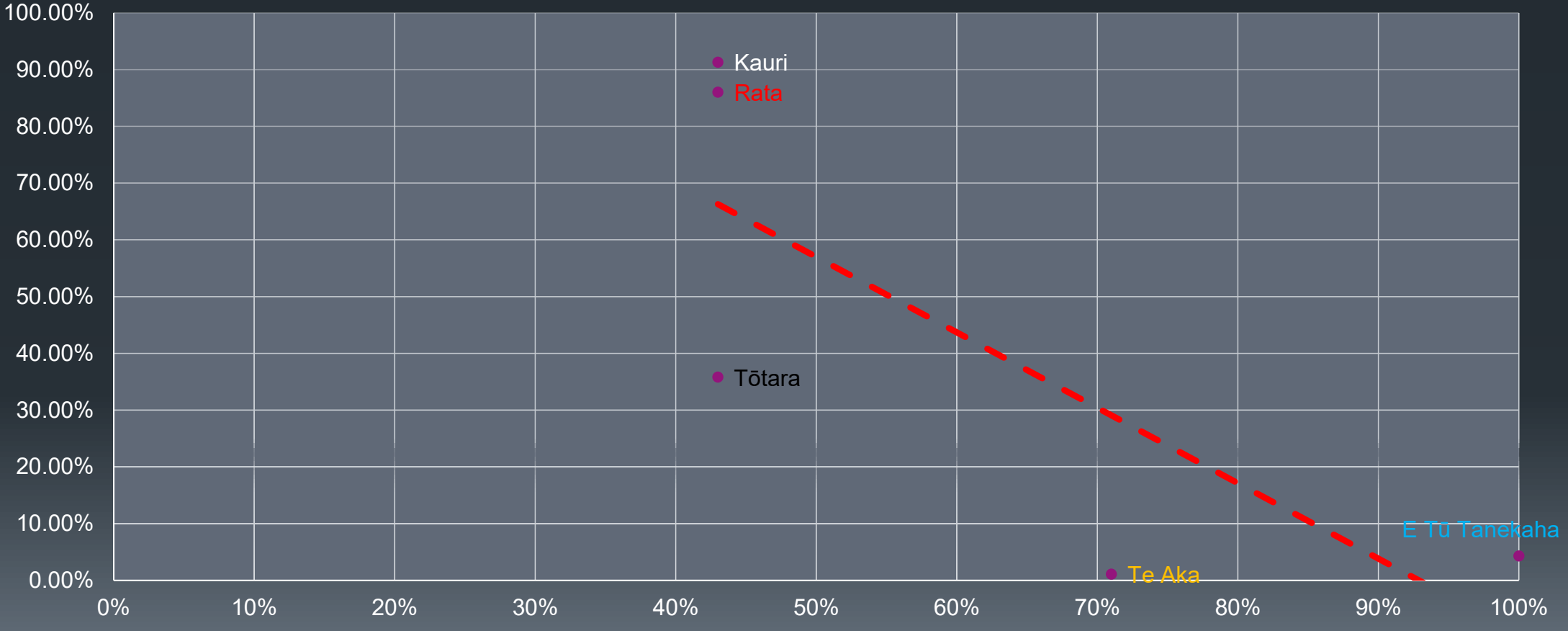
		U1992A	U1992B	U1999	U2017	U2022	Remarks
Factors	Subcategories						
Stress reducing positive distractions	Garden accessible to patients	N	N	N	N	Y	AUSHFG S3.8.9
	Nature art, not abstract	N	Y	Y	Y	Y	AUSHFG S3.5.5
	Designed for higher daylight exposure	N	N	N	N	Y	AUSHFG S3.5.3
Design for observation	Obs from central area to bedroom doors and communal areas	N	N	N	Y	N	AUSHFG S3.7.4
Overall Score	Total Score	43%	43%	43%	71%	100%	
	Outdoor area per person (m2)	6.76	4.58	3.33	17.86	16.86	

Percentage fulfilment of identified design factors



Evolution of Design-Factor Fulfilment with Key Design & Policy Milestones

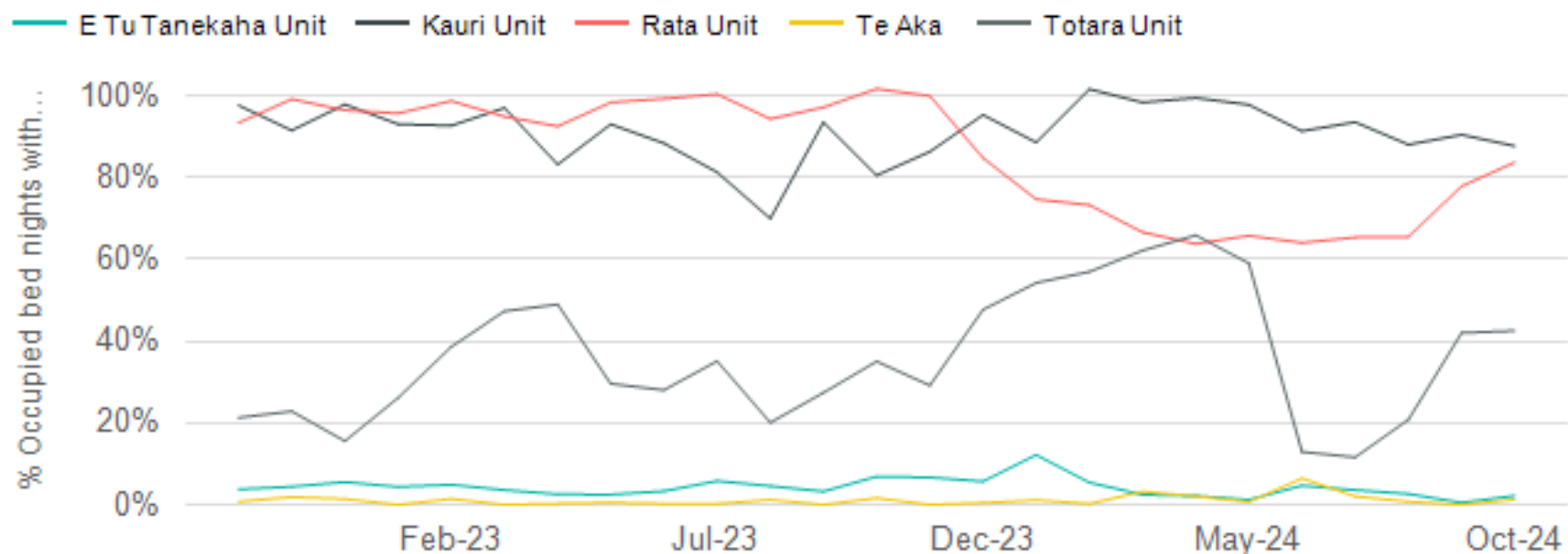
Percentage Night Time Confinement



X axis denotes percentage fulfilment of design factors with Y axis denotes percentage of average monthly night time confinement between Oct 2022 and Sep 2024

Percentage of Occupied bed nights with environmental restraint contact

Percentage of Occupied bed nights with environmental restraint contact



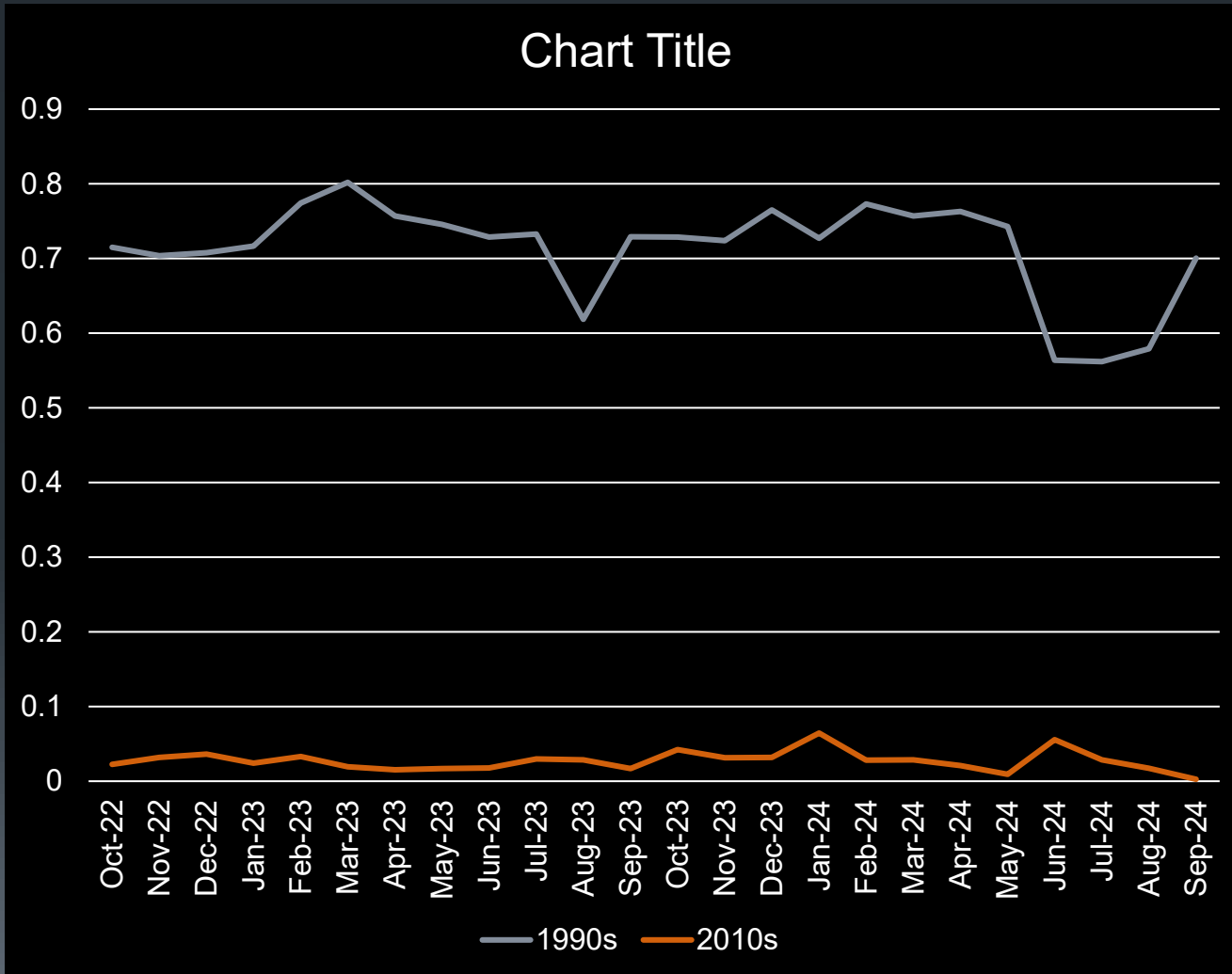
- Red, Black and Grey
 - 1990s design
- Blue and Yellow
 - 2017+ design



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Effect of design vintage cohorts on NTC



	Mean	Variance	Std Dev
1990s NTC	0.712	0.004	0.065
2010s NTC	0.027	0.000	0.013

Service Critical Success Factors

- Quality service meeting clinical needs
- Safe and regulatory compliant service (reduced restrictive practice)
- Delivered within budget. (no increased staffing)



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Discussion

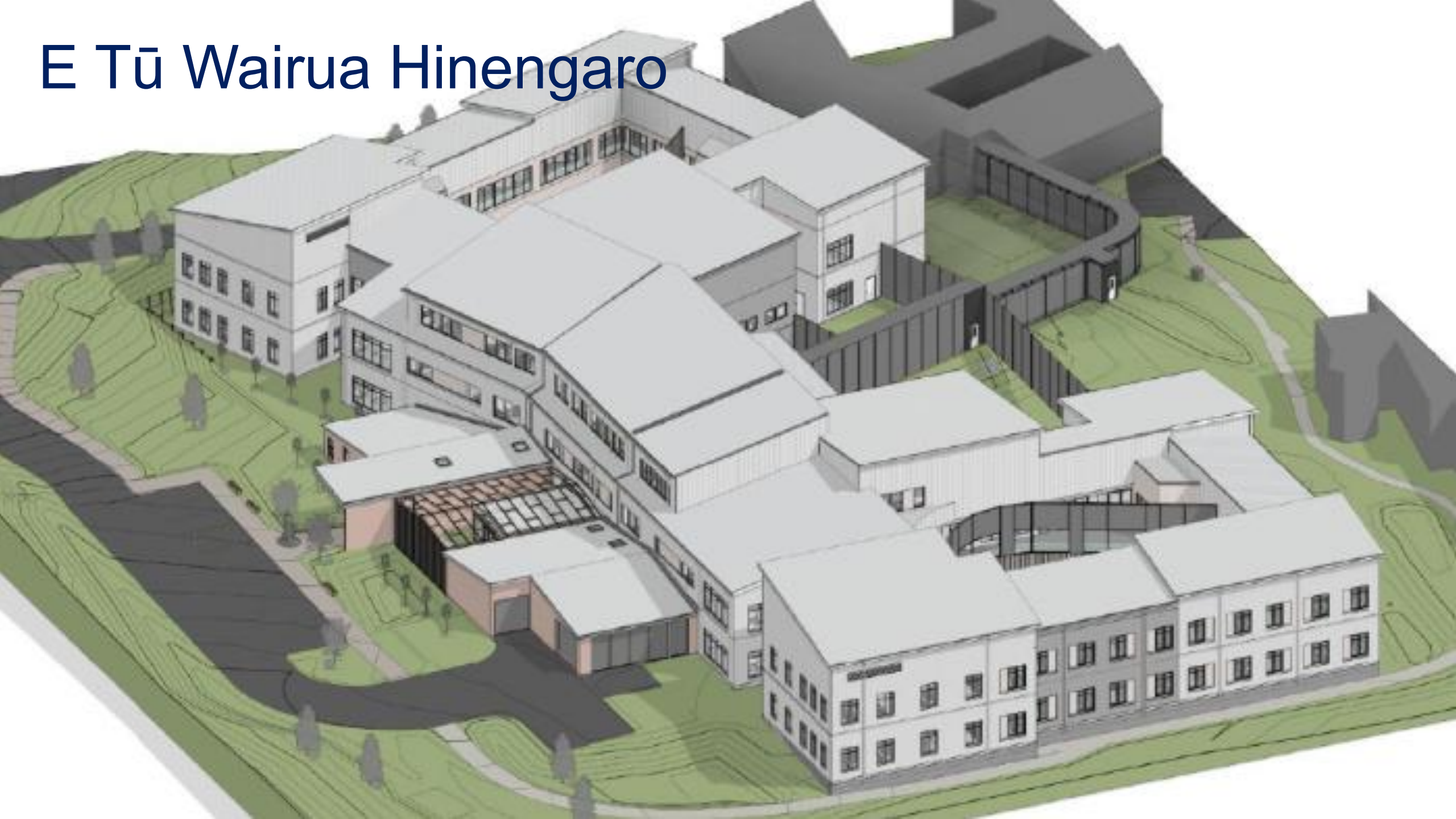
- Building design can have profound effect on restrictive practices and blanket restrictions
- Discourse in High Secure literature from UK
 - Balance of cost vs effectiveness, third option possible with deliberate design
- One-off CapEx of new build
- OpEx cost neutral with no increase in staffing
- Need to explore balancing measures such as adverse events, particularly at night time
- Consideration of specific AHFG for forensic services accounting for long term dangerousness



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E Tū Wairua Hinengaro



Future research

- Prospective study design
- Comparison of Routine outcome measures including seclusion and restraint pre and post (AB design) move to new facilities.
- Same cohorts of staff and patients



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Questions



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Cultural factor

- Culturally appropriate practice is critical for mental health care.
- Little existing practical standard on this topic within AUSHFG
- With published research from Wharewera-Mika et al 2016 and 2023, it has been demonstrated that “...positive, culturally appropriate strategies...” can “reduce and ultimately eliminate the experience of seclusion for Māori”.
- We would like to extrapolate that building designs incorporating te ao Māori would help to promote such practice above and thus positively impact upon the prevalence of restrictive practice.

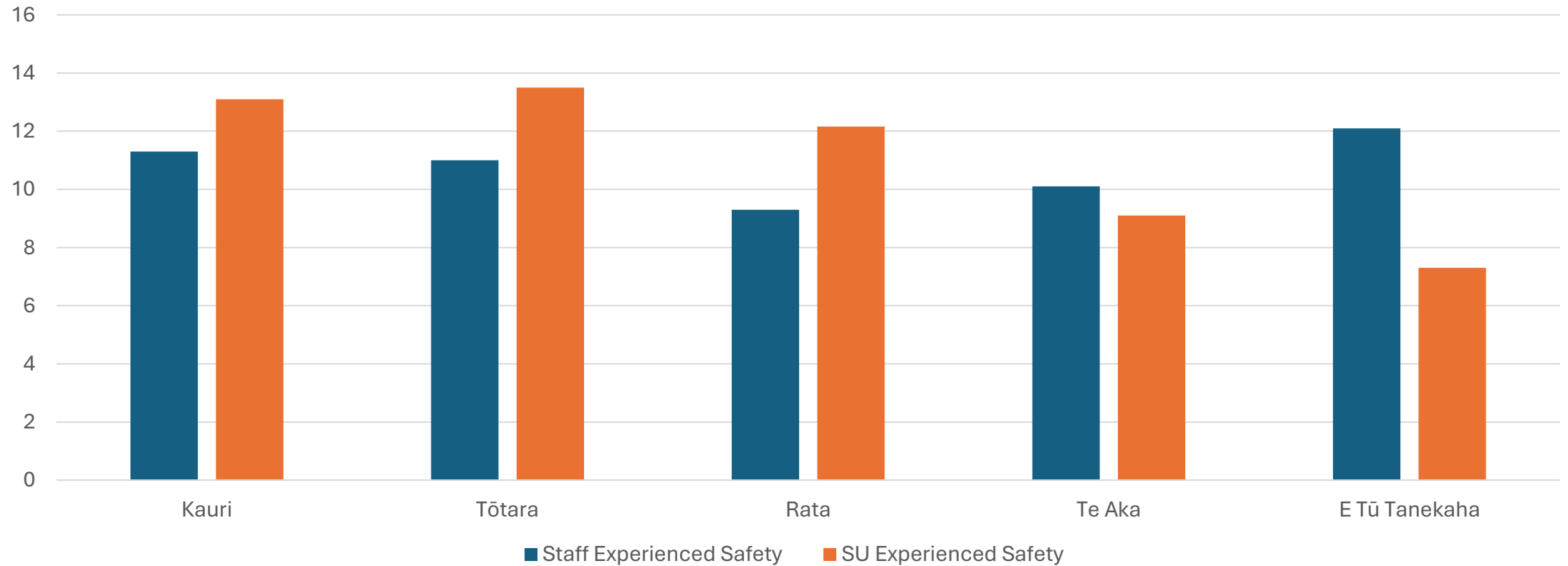


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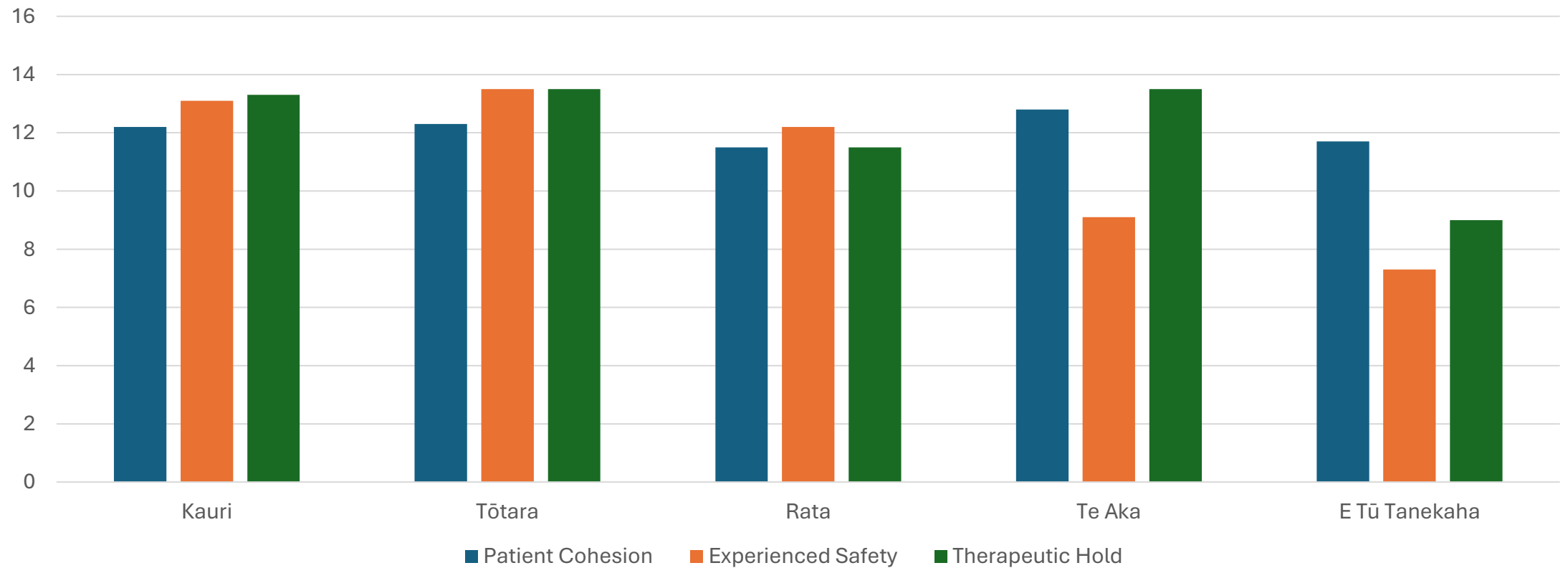
Experienced Safety (2025): Staff vs Service User

Chart Title



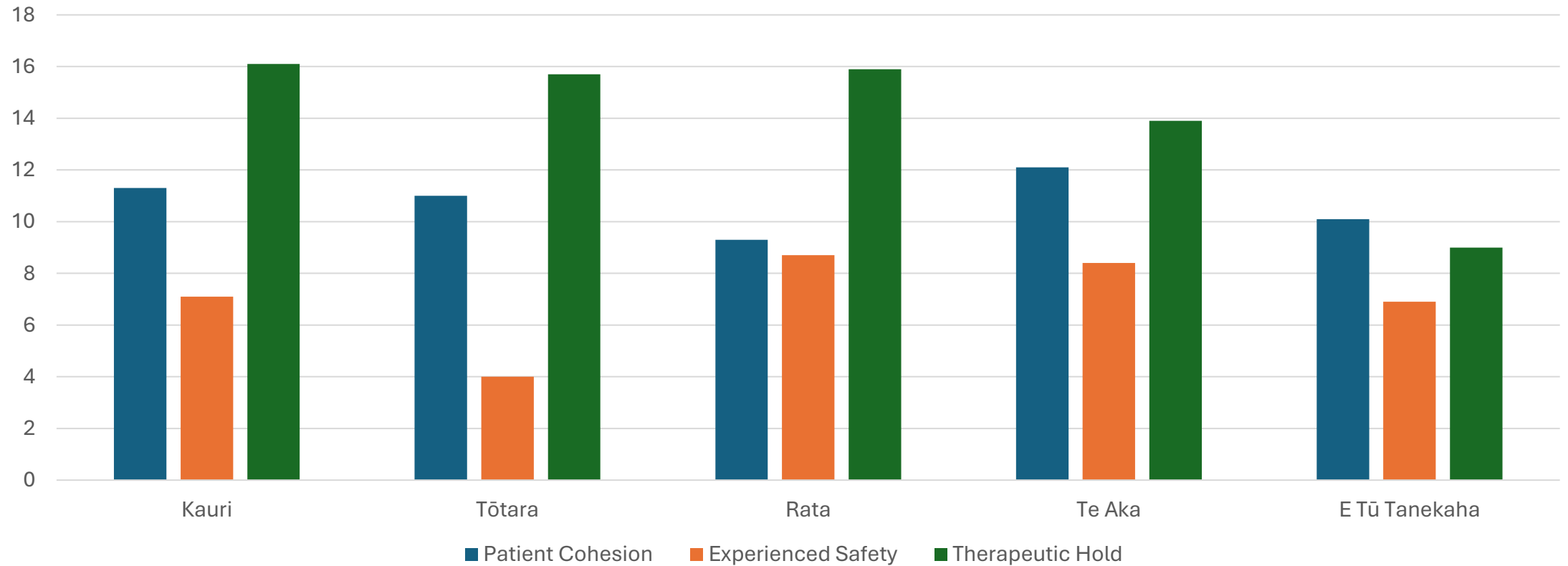
Essen CES: Service user average (2025)

Chart Title



Essen-CES: Staff average (2025)

Chart Title



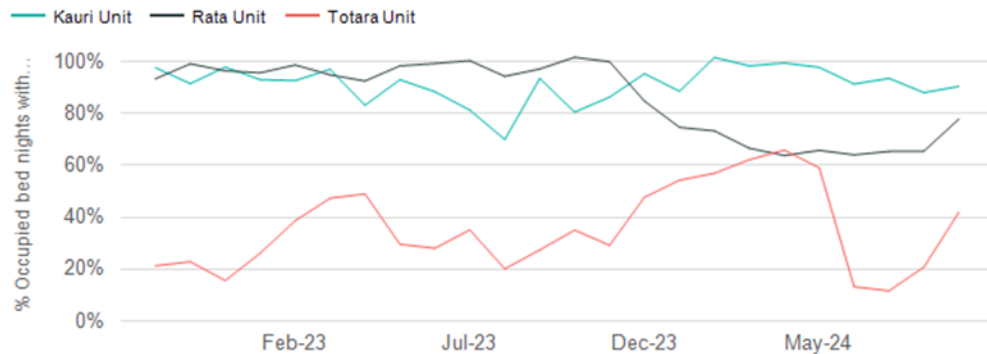
Environmental Security in more detail

- Measures for environmental or physical security are often installed, at high capital cost, to help manage public confidence.
- The environment can have a strong, mitigating effect on the management of disturbed behaviour.
- Internal design of the ward and clinical area is arranged to facilitate observation and avoid the obstruction of sight lines.
- Ligature proofing (fixtures and heat maps).
- Staff must be made be aware of environmental risks as part of their induction process.

Old stock 1990s Medium secure buildings.

- Kauri (blue): 15 bed male only admissions. Highest Security on site.
- Rata (grey): 15 bed male only Extended Forensic Care.
- Tōtara (red): 15 bed male only Subacute

Percentage of Occupied bed nights with environmental restraint contact



Acute units compared

Percentage of Occupied bed nights with environmental restraint contact

