AOTEAROA NEW ZEALAND HAEMODIALYSIS INFRASTRUCTURE SURVEY

A report on Aotearoa New Zealand's haemodialysis service capacity

Prepared for the National Renal Advisory Board, Manatū Hauora – Ministry of Health New Zealand

by

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BACKGROUND

- Haemodialysis (HD) is an essential life-preserving service that cannot be deferred or wait-listed. It is therefore essential that renal services infrastructure have sufficient capacity.

- Renal teams must implement solutions to deliver HD even if there is insufficient infrastructure (physical spaces, staffing, funding or regional arrangements): "*there is no option not to cope*"

- Constraints on the capacity of renal centres to deliver adequate HD care will disproportionately impact Māori and Pacific people

- There is no clear, nation-wide data on
  - HD resources available (*physical infrastructure, staffing, funding, regional arrangements*),
  - the proportion of adults in each district requiring HD,
  - travel burdens to/from dialysis facilities.

AIMS

To characterize for each Renal Centre within New Zealand:
o Current Haemodialysis demand
o Current staffing and physical infrastructure in haemodialysis units
o The ability of infrastructure and staff to adapt/flex/mitigate issues with demand
o The impact of dialysis capacity constraints on the patient experience.
o The comparable state of dialysis units, allowing teams to review their individual situation within a regional/national context.
o Highlight areas/activities which could serve as templates for change for those centres/districts looking to adapt their local services.
• To provide relevant data and analysis to empower patients/whānau/communities, medical professionals, the wider nephrology community, management teams, and funding agencies to work towards future proofing haemodialysis infrastructure, staffing and funding to meet patients' needs.

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METHODS

- Questionnaire (56 items) sent to all independent renal services / health district dialysis units (n=15).
- Quantitative and qualitative / free-text response elements
- Reference population from publicly- available resources (*Stats NZ for general population level data, ANZDATA for haemodialysis population level data*).
- Missing data derived from ANZDATA where available.
- Owing to the nature of the survey, it will not be formally published in any journal.
- Each individual contributing unit will receive a copy of their own summarised information. The Head of Renal Service for each contributing unit will receive a copy of the final report, with their individual centre identified, whilst all other centres will have their identity anonymised.
- All 15 services reported one or more capacity constraints resulting in an inability to meet current dialysis needs, including insufficient staffing, insufficient funding/haemodialysis arrangements or insufficient space.

TIMELINE

Task	Projected date*	Notes
Survey concept advisory to National Renal Advisory Board (NRAB)	August 2021	NRAB minutes 11.08.2021, item 3g.
Survey development under auspices of the Official Information Act	August 2021	See refs (8), (9).
Pilot survey completion	October 2021	Pilot survey with 1 metro and 1 regional dialysis service.
Revision of pilot survey to final form for national survey	March 2022	Development of final format for quantitative and qualitative aspects of survey.
Engagement with Dialysis Unit Managers and NTA scheme managers	May 2022	Contact through existing clinical networks
National survey responses	June 2022*	Survey delivery through mutually-agreed interviews (COVID-19 pandemic permitting)
Data analysis	July 2022*	Responsibilities shared between project leads
Report development	August 2022*	Approval by project leads and key personnel
Report delivery to NRAB	August 2022[#]	

**National survey responses were received until February 2023, hence data analysis and report development were also delayed to February 2023.*

[#]*Consequently report to delivery was deferred to March 2023, initially in draft form.*

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RESULTS: national overview

100% RESPONSE (JUN 2022 - FEB 2023)

15 RENAL CENTREs

2499 PATIENTS DIALYSED (7 days)

ALL CENTRES → **CAPACITY ISSUES**

ACROSS NEW ZEALAND

PHYSICAL INFRASTRUCTURE
STAFFING
FUNDING

In-centre	Assisted	Interim	Inpatient	Other	HHD training	HHD	**Total**
1555	362	57	6	25	57	437	**2499**

- **All 15 services reported one or more capacity constraints** resulting in an inability to meet current dialysis needs, including insufficient staffing, insufficient funding/haemodialysis arrangements or insufficient space.
- **60% (9 of 15 renal centres) provide more dialysis sessions than they are funded for**.
- **10 from 14 units reported they find capacity** to provide extra HD sessions to patients for medical reasons, using strategies such as glide shifts, staff overtime, reliance on DNAs.

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RESULTS: haemodialysis delivery

HAEMO VS. POP.

6.22 PER 10,000

AVERAGE pts per 10,000 pop

(RANGE 1.42 - 13.96)

NORTH

3.27 - 13.96 pts per 10,000 pop

SOUTH

1.42 - 2.38 pts per 10,000 pop

ACUTE HD

197 SESSIONS

(Over 7 days)

12 OF 15 CENTRES - HD FOR INPATIENTS

BUT

9 OF 10 - REDUCED 'BUSINESS AS USUAL'

Inpatient dialysis negative impacts ability to undertake Business As Usual HD

NEW STARTS

6 OF 13 CENTRES

46% of pop

CANNOT START NEW HD PT

1 x CENTRE - START on 2 x sessions per week

AWAY FROM HOME

11 OF 14 CENTRES

78% of pop

CANNOT OFFER AWAY FROM HOME

3 units able to offer away-from-home dialysis report limitations:

"Mostly do our best"

"Only for home trained patients on [a specified haemodialysis machine]".

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RESULTS: haemodialysis spaces

HAEMO 'CHAIRS'

603 TOTAL

244 'INCENTRE'
164 SATELITTE
33 ASSISTED
21 INPATIENT
52 ACUTE
17 ICU
17 COMMUNITY
55 HHD Training

PATIENTS : HAEMODIALYSIS CHAIRS

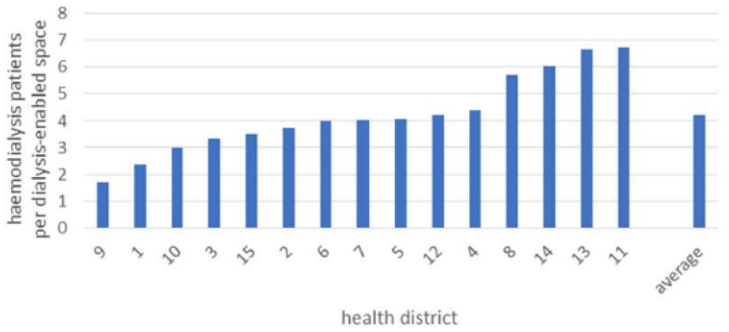
HD PTS PER CHAIR

4.22 TOTAL NZ

IF RATIO > 4
CANNOT DO WITH
6 DAY/WEEK + 2 SESSIONS/DAY
NEEDS
7 DAY/WEEK OR 3 SESSIONS/DAY

9 OF 15
53% UNITS
RATIO > 4

Variability (~4-fold) in number of facility haemodialysis patients per dialysis-enabled spaces in facility units across renal centres in Aotearoa New Zealand



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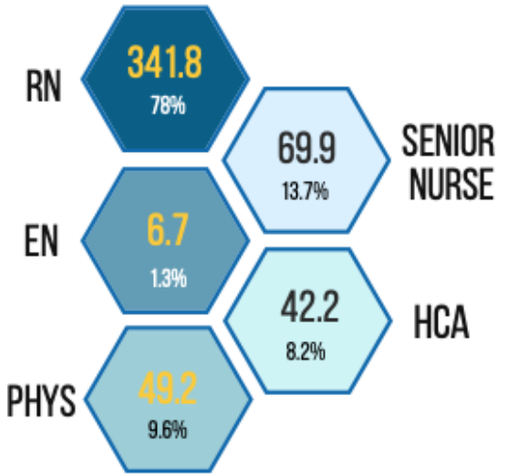
RESULTS: haemodialysis staffing



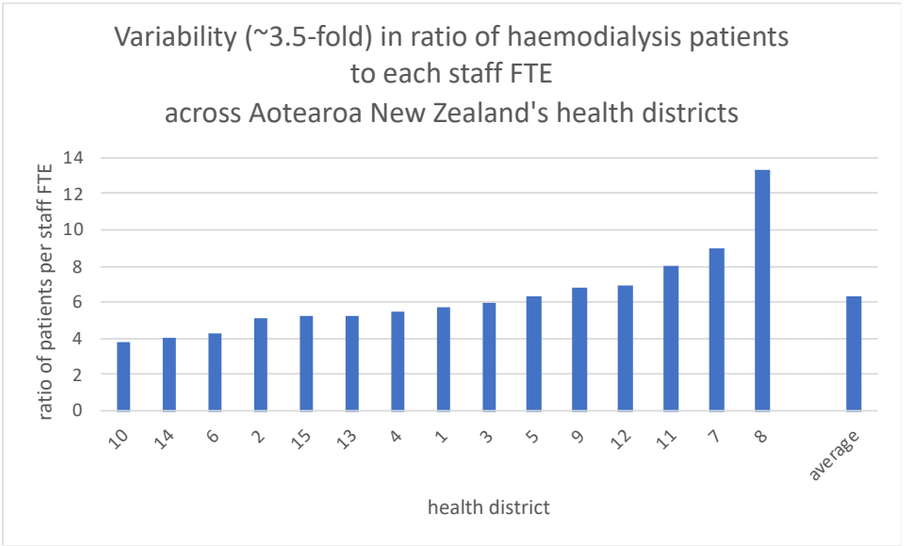
FLOOR FTE
397.7
RN + EN + PHY

TOTAL FTE
509.8
ALL DIALYSIS STAFF

RATIO PATIENT : STAFF FTE

6.28
3.83 - 13.28
FLOOR FTE
RN + EN + PHY

2009 RATIO
6.3
NO CHANGE



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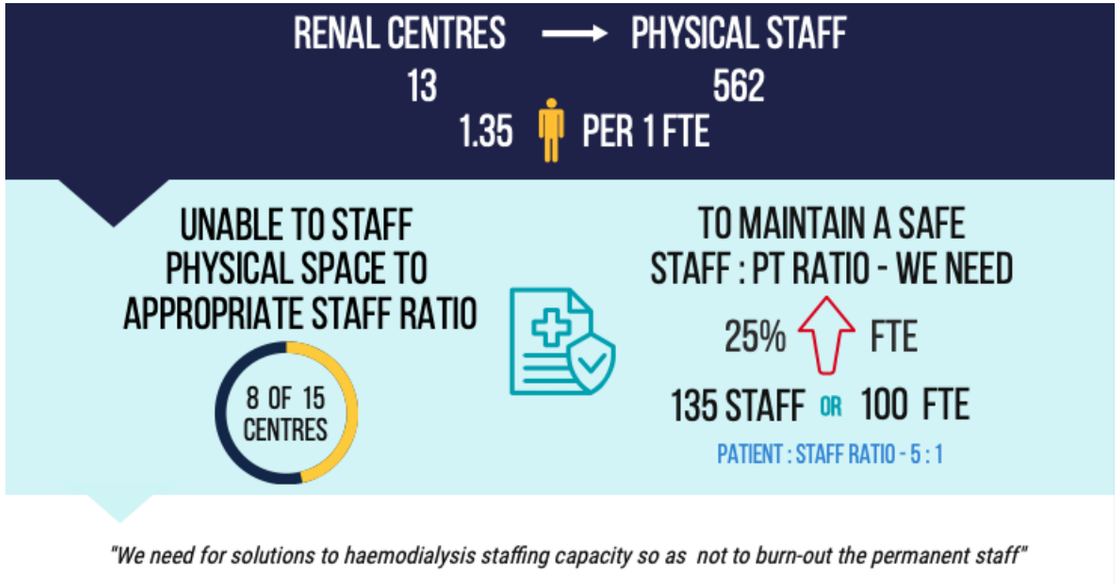
RESULTS: haemodialysis staffing

Nature of dialysis treatment	Staff to patient ratio	Minimum requirements
Dependent haemodialysis	1 to 3	n/a
Assisted care haemodialysis	1 to 4	2 staff (6 stations)
Independent haemodialysis	1 to 6	2 staff (min 10-20 patients)
Acute haemodialysis	1 to 1	n/a
Home haemodialysis training	1 to 2	2 patients at a time
Home haemodialysis support	1 to 25 (urban), 1 to 12 (rural)	
Peritoneal dialysis	1 to 25 (urban), 1 to 12 (rural)	
Technical	1 to 40 machines	

		hospital	satellite	home	total	growth 2009 - 2020
2009	number of patients	681	420	369	1470	
	recommended patient : staff ratio	3 to 1	4 to 1	12 to 1		
	staff needed per treatment	227	105	31	363	
2020	number of patients	1232	541	391	2164	**47% (HD patient growth)**
	recommended patient : staff ratio	3 to 1	4 to 1	12 to 1		
	staff needed per treatment	411	135	33	579	**59% (required staff growth)**
Growth	number of patients	**81%**	**29%**	**6%**		



"We need for solutions to haemodialysis staffing capacity so as not to burn-out the permanent staff"

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RESULTS: mitigation measures used

MITIGATION MEASURES TO COPE

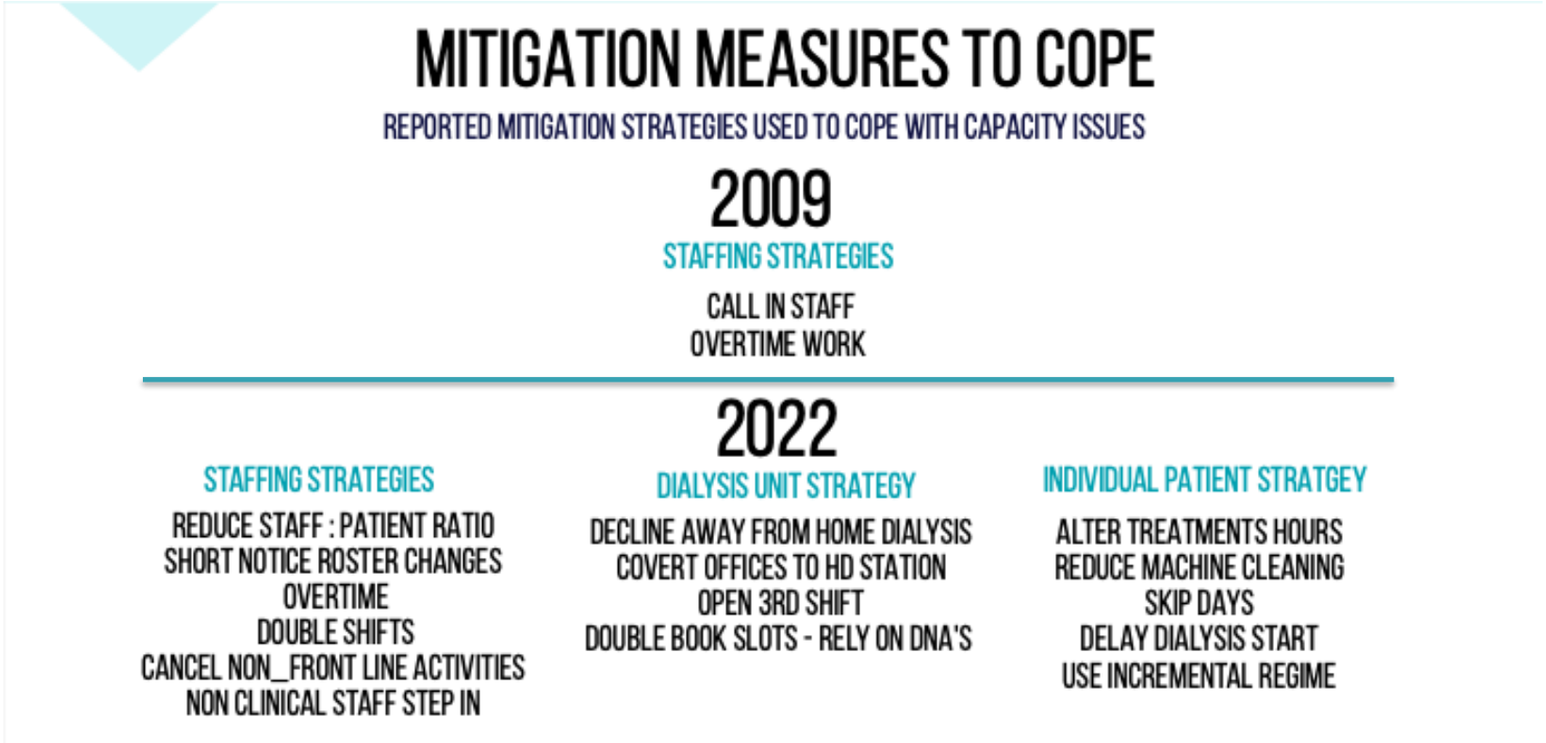
REPORTED MITIGATION STRATEGIES USED TO COPE WITH CAPACITY ISSUES

2009

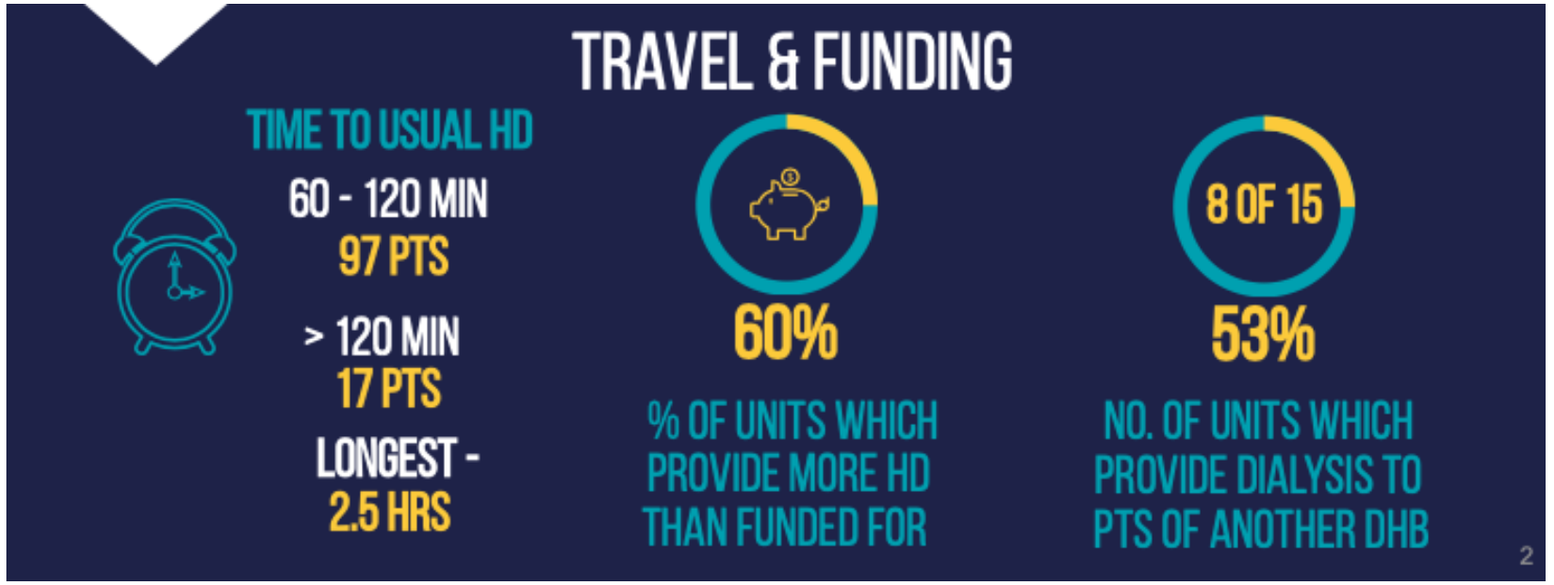
STAFFING STRATEGIES

CALL IN STAFF
OVERTIME WORK

RESULTS: mitigation measures used



RESULTS: haemodialysis capacity constraints impact



Travel 50-100km	Travel 100-200km	Centres where patients travel >100km	Max travel distance	Travel 1-2hrs	Travel >2hrs	Centres where patients travel >2hrs	Max travel time
75	34	10	169km	97	17	6	2.5hr (one-way)

Capacity constraints directly impacted centres' ability to train patients for HHD.

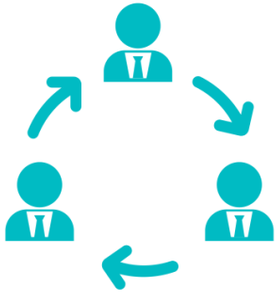
Additional barriers: "*Erosion of home haemodialysis philosophy by patient undertaking home haemodialysis and being exposed to incentre patients being cared for by staff and witnessing any adverse events in the incentre may create fear and a barrier to a safe learning environment for home training patients*".

RESULTS: illustrative service delivery models

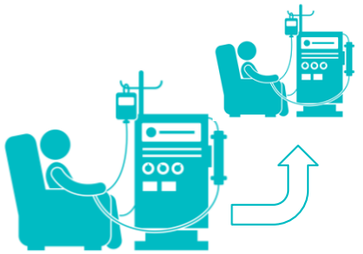
Twice-weekly haemodialysis for planned new starts

Dedicated acute inpatient haemodialysis facility

Supported haemodialysis In the community



Registered nurses, Enrolled nurses & Dialysis Physiologists



Glide shifts (additional shifts)

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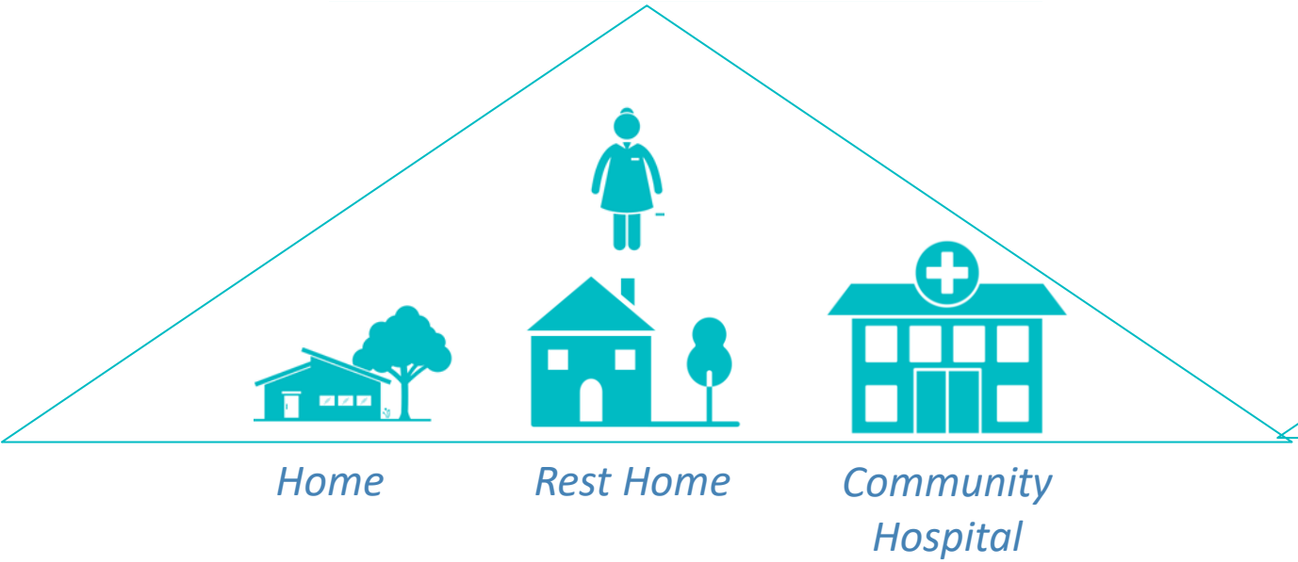
HORISON SCANNING FOR COMMUNITY DIALYSIS

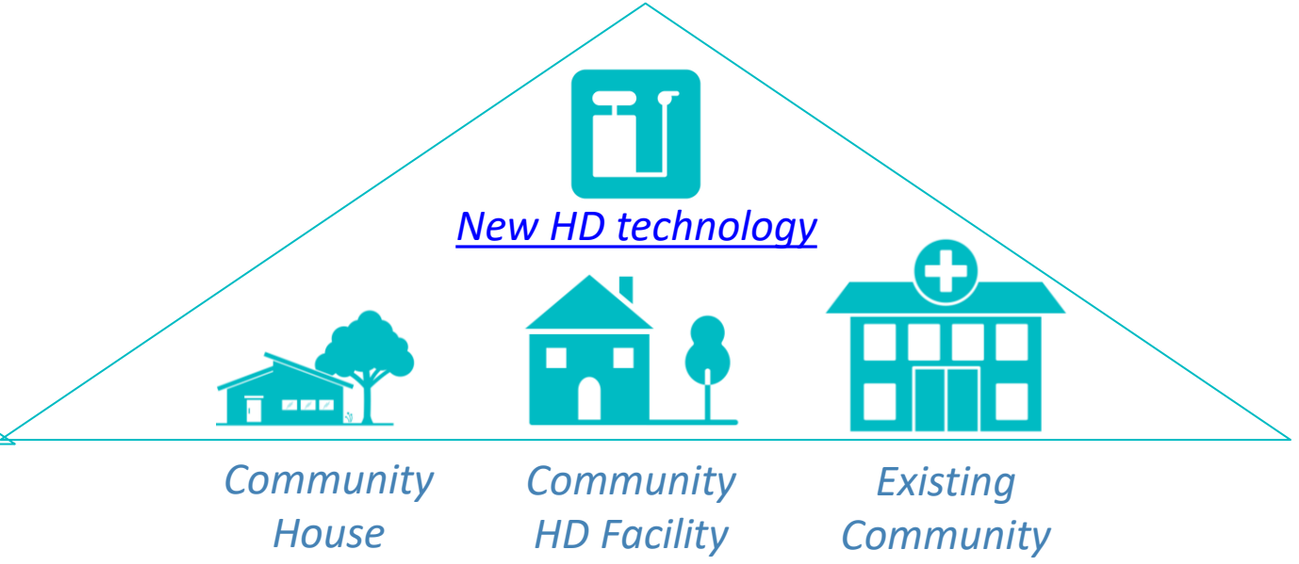
"DEPENDENT" DIALYSIS

SUPPORTED
haemodialysis in the community
(HCP / Kaiāwhina / other)



"INDEPENDENT" DIALYSIS

ENABLED
haemodialysis in the community
(infrastructure / technology)



RECOMMENDATIONS

Agency responsible	Recommendation
Te Whatu Ora, Te Aka Whai Ora and local funders	**Acknowledge capacity constraints**, associated risks and current impacts of current haemodialysis services in Aotearoa New Zealand
	Enable an immediate 25% increase in the dialysis-delivering workforce, and plan for further increases in the dialysis-delivering workforce
National Renal Advisory Board, KHNZ, Te Whatu Ora, Te Aka Whai Ora, local funders and renal centres	**Work with partners in Māori and Pacific communities to develop national and local leadership, governance and accountability frameworks** that involve these communities to support optimisation of renal service delivery to meet the needs of patients and communities
	Complete/disseminate/implement guidelines on kidney disease care for Māori
	Enable equitable access to planned starts onto haemodialysis without delay
	Establish a formal programme to enable away-from-home dialysis for patients (alongside work to address capacity limitations), including expectations, national coordination and reciprocal agreements
	Establish a working group with the National Travel Assistance Scheme to review whether current supports for HD patients are up-to-date and fit-for-purpose
	Acknowledge that solutions to home HD and facility-based HD capacity constraints are required in tandem, since capacity issues in both areas are inter-twined and self-perpetuating

Agency responsible	Recommendation
National Renal Advisory Board	**Commission data on other factors informing dialysis capacity requirements** (fixed/flexible sessions, inpatients, frailty, staff factors)
	Provide definitions of "lengthy' and "unreasonable" travel burdens
	Work with paediatric renal services in Aotearoa New Zealand to assess whether there are concerns about the capacity of paediatric renal services to meet current or anticipated future service demands
National Renal Advisory Board, ANZDATA	**Create a New Zealand-wide system for regular review of patient experience** of receiving haemodialysis services
	Create registries of conservative care and advanced CKD / renal replacement therapy assessment programmes that include patient-prioritised decision-making
	Expand data capture to include fixed-schedule and flexible/acute HD treatments
	Audit the total number of physical spaces in which haemodialysis can be provided by a renal service, and the use of each of those spaces on a repeated snapshot-audit basis
	Include haemodialysis workforce diversity metrics in future surveys
	Repeat haemodialysis capacity surveys regularly, and incorporate with routine ANZDATA processes

Agency responsible	Recommendation
Local health district funders and renal centres	**Define whether physical infrastructure and/or staffing capacity are the major factor** impacting local haemodialysis service delivery
	Where physical infrastructure constraints exist/are impending, set an interim plan for service delivery until solutions are delivered
	Review pandemic preparedness in haemodialysis facilities
	Consider local feasibility of novel options for local HD service delivery (see "illustrative service model" section)
	Consider separate rosters for flexible/acute inpatient services including staff roles with deferrable tasks
	Consider establishing acute inpatient haemodialysis centres with dedicated staffing
	Consider establishing transition units

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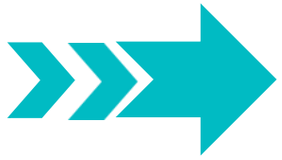

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