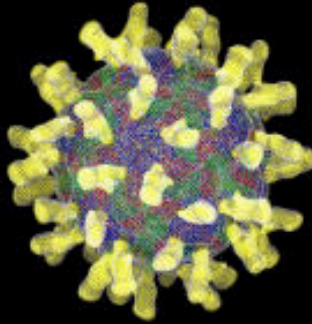# Where is New Zealand in the Race to Eliminate Hepatitis C?
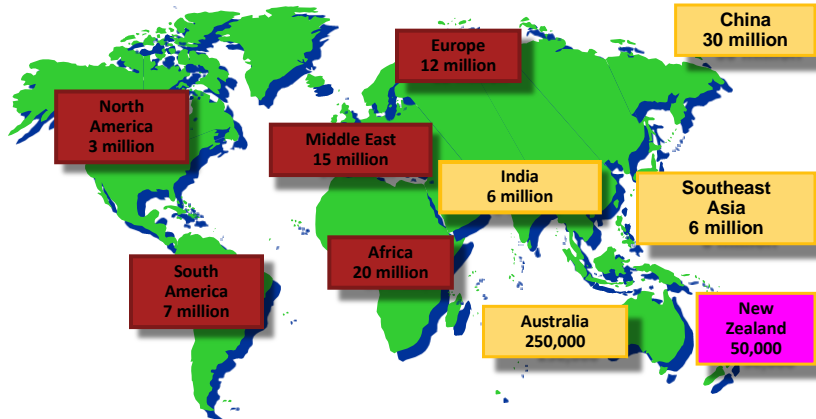
Ed Gane, University of Auckland
Sarah Robbins and Homie Razavi, Centre of Disease Analysis

Declaration of conflicts of interest

- Pharma advisor for HCV, HBV drug development

- Chairperson of the Ministry of Health Hep C Implementation Committee, and the Northern Region DHB Hep C Working Party

- Member of PTAC ID Advisory Committee

- Recipient of Health Research Council grants

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HCV-the silent global epidemic of 21st Century

110–170 million people are now living with chronic hepatitis C (HCV) – most of these people live within the Asia Pacific region

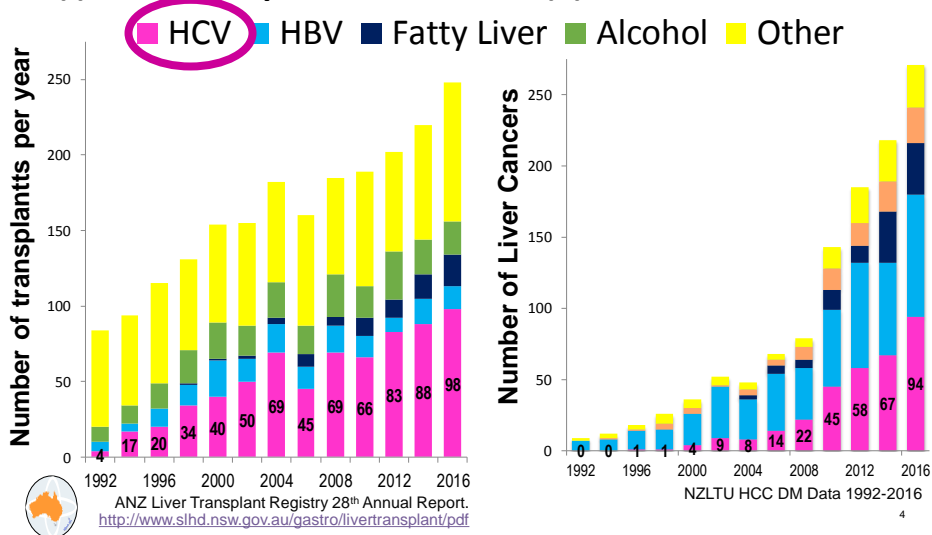|	
China	30 million
Europe	12 million
North America	3 million
Middle East	15 million
India	6 million
Southeast Asia	6 million
South America	7 million
Africa	20 million
Australia	250,000
New Zealand	50,000

Gower E et al. *Journal of Hepatology* 2014. 61(1 Suppl):S45-57.

3

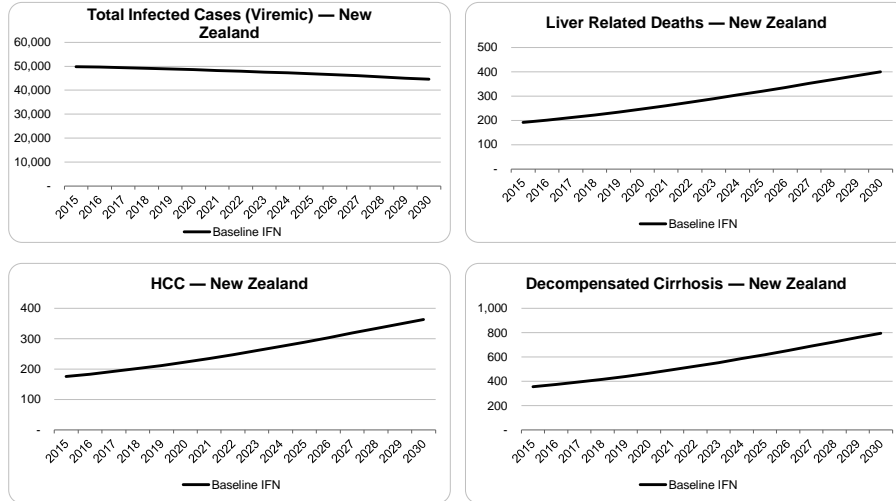# Hepatitis C-related health burden is steadily increasing in New Zealand

(i) Liver Transplants in ANZ (ii) Liver Cancers at ACH

HCV ■ HBV ■ Fatty Liver ■ Alcohol ■ Other

Number of transplantts per year

4 17 20 34 40 50 69 45 69 66 83 88 98

ANZ Liver Transplant Registry 28th Annual Report.
http://www.slhd.nsw.gov.au/gastro/livertransplant/pdf

Number of Liver Cancers

0 0 1 1 4 9 8 14 22 45 58 67 94

NZLTU HCC DM Data 1992-2016

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2015 Scenario: PEG/RBV ± Boceprevir, low diagnosis rates
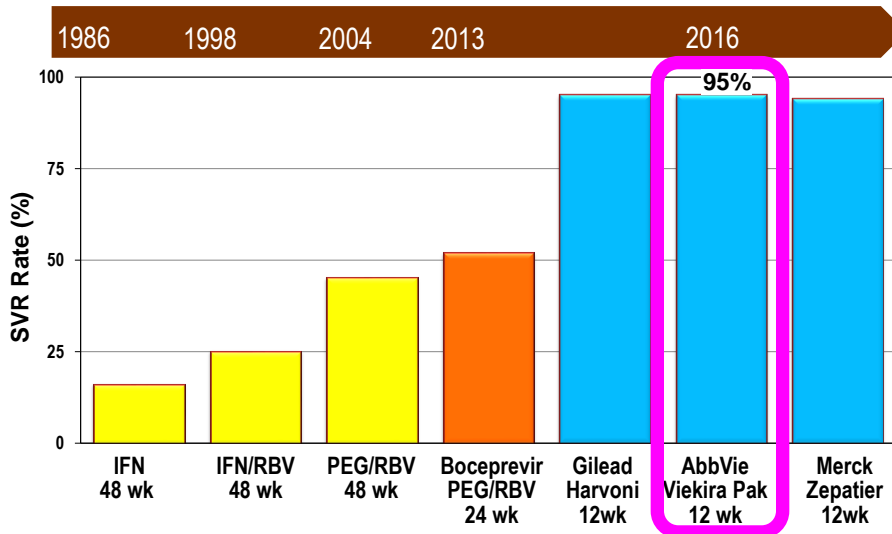**Liver deaths, HCC & cirrhosis will increase 100% by 2030**

Total Infected Cases (Viremic) — New Zealand

Liver Related Deaths — New Zealand

HCC — New Zealand

Decompensated Cirrhosis — New Zealand

Gane E, et al. *NZ Med J* 2014;127(1407):6_ _

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Disease Analysis

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New Direct Acting Antivirals are better tolerated and more effective than Interferons

| 1986 | 1998 | 2004 | 2013 | | 2016 | |

95%

SVR Rate (%)

| IFN 48 wk | IFN/RBV 48 wk | PEG/RBV 48 wk | Boceprevir PEG/RBV 24 wk | Gilead Harvoni 12wk | AbbVie Viekira Pak 12 wk | Merck Zepatier 12wk |

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The availability of new DAAs has triggered a National Hepatitis C Elimination Strategy

Minister's announcement 1.30pm 9th June 2016
"PHARMAC is funding two new hepatitis C treatments, Harvoni and Viekira Pak, which are a major advancement in treatment with cure rates of more than 90 per cent. Around 50,000 New Zealanders are affected by hepatitis C, and many patients progress to liver cancer and liver failure.
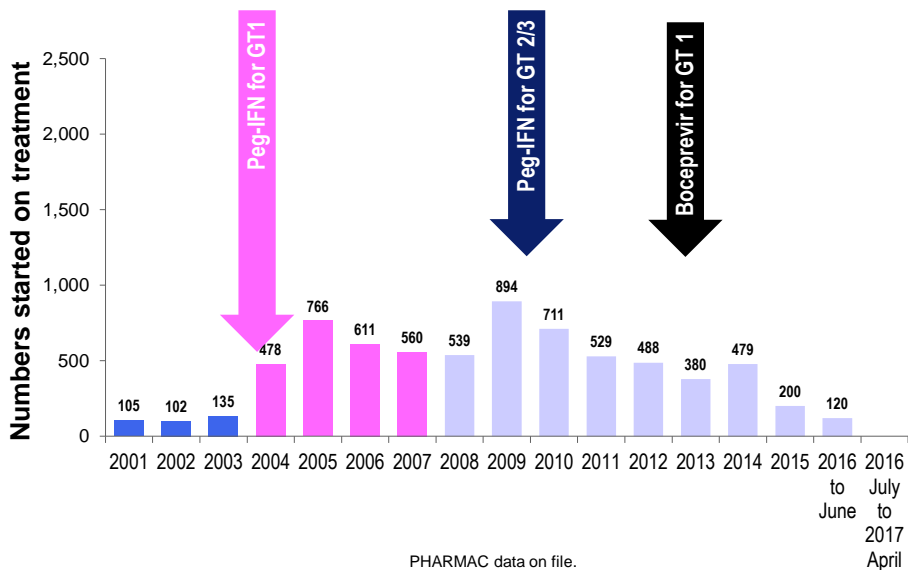
These new treatments will make considerable difference to the lives of many New Zealanders and their families."

From 1 October, once additional support has been put in place, Viekira Pak would be funded on prescriptions written by ALL eligible prescribers, including GPs
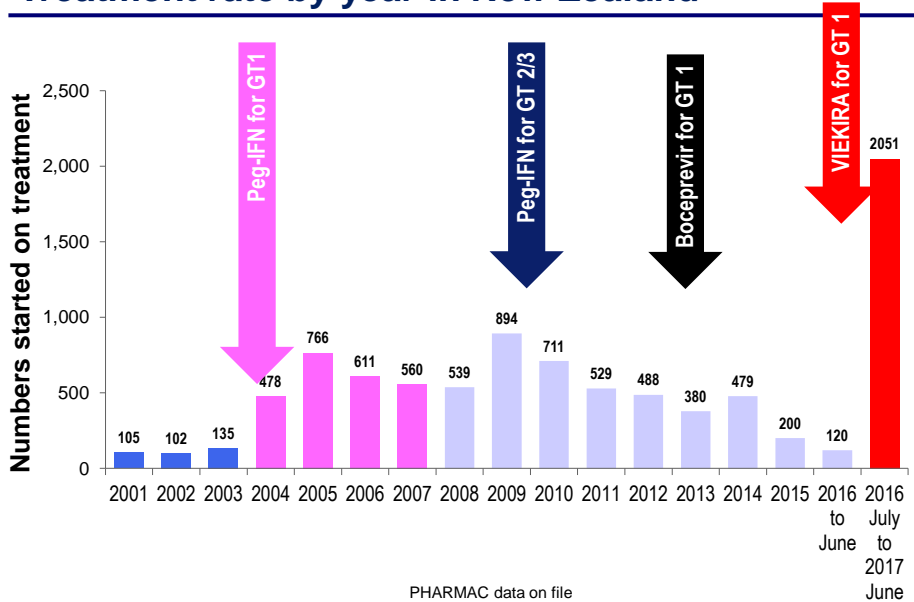
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Treatment rate by year in New Zealand

PHARMAC data on file.

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Treatment rate by year in New Zealand

Numbers started on treatment (y-axis)

- Peg-IFN for GT1
- Peg-IFN for GT 2/3
- Boceprevir for GT 1
- VIEKIRA for GT 1

Year	Number
2001	105
2002	102
2003	135
2004	478
2005	766
2006	611
2007	560
2008	539
2009	894
2010	711
2011	529
2012	488
2013	380
2014	479
2015	200
2016 to June	120
2016 July to 2017 June	2051

PHARMAC data on file
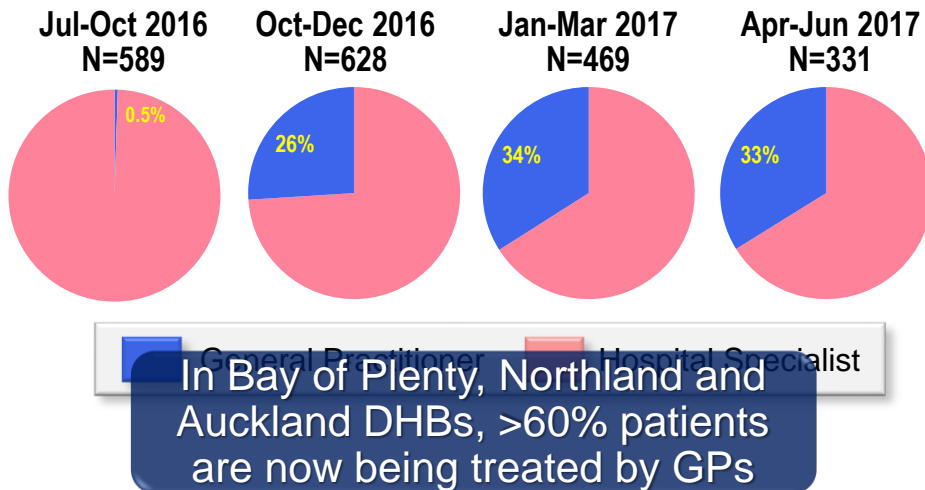
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Treatment Uptake in General Practice

- Prescriber split by quarter (July 2016 - June 2017)

Jul-Oct 2016 N=589 — 0.5%
Oct-Dec 2016 N=628 — 26%
Jan-Mar 2017 N=469 — 34%
Apr-Jun 2017 N=331 — 33%

General Practitioner   Hospital Specialist

In Bay of Plenty, Northland and Auckland DHBs, >60% patients are now being treated by GPs

PHARMAC Data on file

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CDA HCV Disease Burden Model
Base 2015 scenario

- Treated 600 patients in 2015 (200 PHARMAC IFN, 400 trials/EAPs)
- Diagnosed 910 patients in 2015

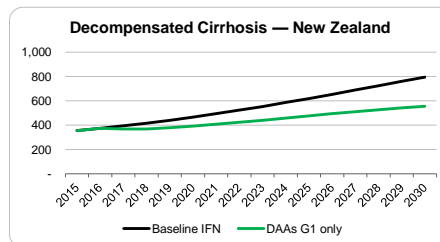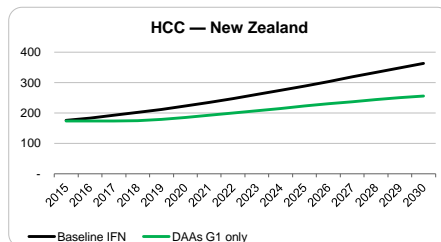|	2015
Treated	600
Newly Diagnosed	910
Fibrosis Stage	
G1	≥F0
G2-G6	≥F3
Treated Age	15-59
SVR	65%

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CDA HCV Disease Burden Model
Base 2016 scenario

- Treated 600 patients in 2015 (200 PHARMAC IFN, 400 trials/EAPs)
- Diagnosed 910 patients in 2015
- In 2016, PHARMAC-funded VIEKIRA PAK for all GT 1 but for G2-G6 restricted to decompensated cirrhosis (HARVONI+RBV)
- Treat 1,900 patients in 2016, decreasing to 940 per annum by 2025
- No national testing programme ⇨ no increase in diagnosis rate

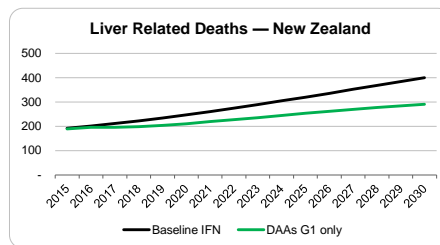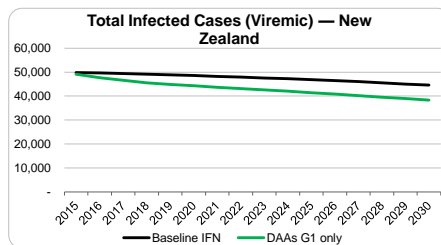|	2015
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Newly Diagnosed	910
Fibrosis Stage	
G1	≥F0
G2-G6	≥F3
Treated Age	15-59
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CDA HCV Disease Burden Model
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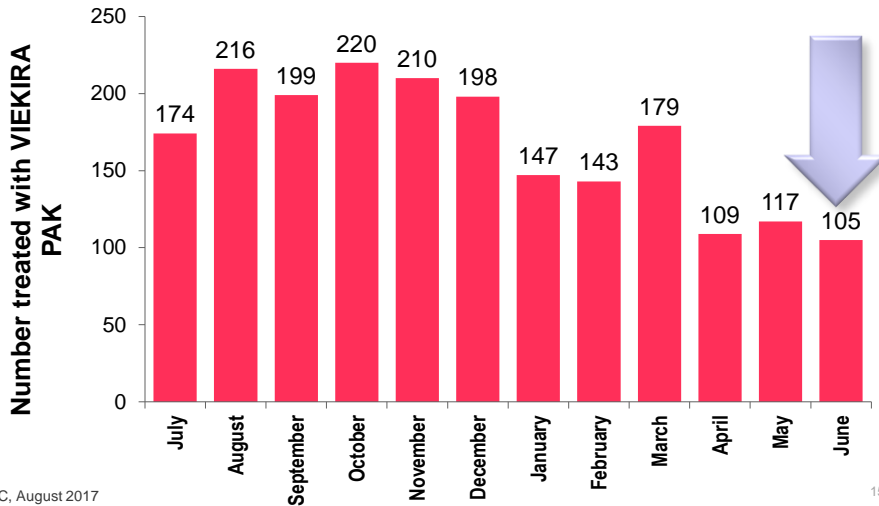- No national testing programme ⇨ no increase in diagnosis rate

	2015	2016	2017	2018	2019	≥2020
Treated	600	**1,900**	1,600	1,400	1,200	940
Newly Diagnosed	910	**910**	910	910	910	910
Fibrosis Stage **G1** **G2-G6**	≥F0 ≥F3	**≥F0** **≥Decomp**	≥F0 ≥Decomp	≥F0 ≥Decomp	≥F0 ≥Decomp	≥F0 ≥Decomp
Treated Age	15-59	**15-74**	15-74	15-74	15-74	15-74
SVR	65%	**95%**	95%	95%	95%	95%

2016 Scenario: VIEKIRA PAK for G1, HARVONI for decomp
Liver deaths, HCC & cirrhosis will increase 50-55% by 2030

Total Infected Cases (Viremic) — New Zealand

Liver Related Deaths — New Zealand

HCC — New Zealand

Decompensated Cirrhosis — New Zealand

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Treatment Uptake – Trends by month

• Numbers per month (total period July 2016-June 2017)

Chart: Number treated with VIEKIRA PAK by month

- July: 174
- August: 216
- September: 199
- October: 220
- November: 210
- December: 198
- January: 147
- February: 143
- March: 179
- April: 109
- May: 117
- June: 105

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We will run out of patients to treat!

What must we do?

1. Treat the 20,000 with GT 2-6

2. Find the 25,000 undiagnosed

3. Treat in the community

Most easy-to-reach patients will be cured

(1) Treat the 20,000 patients with GT 2–6?

6130 patients genotyped at LabPlus (2005–2014)

45% New Zealanders with HCV are infected with genotypes 2,3,4 or 6

VIEKIRA PAK is licensed only for HCV genotype 1

GT6 1%
GT4 1%
GT3 35%
GT1a 43%
GT2 8%
GT1b 12%
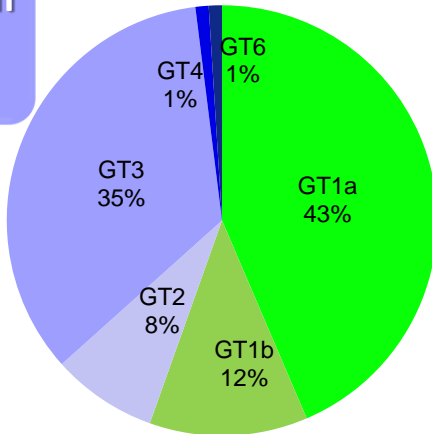
Gane E, et al. *NZ Med J* 2014;127(1407):61–74
AbbVie Limited. VIEKIRA PAK and VIEKIRA PAK-RBV Data Sheets. Medsafe New Zealand; version 9: December 2016.

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(1) Treat the 20,000 patients with GT 2–6?

- **Generic pangenotypic DAAs can be imported**
  - Daclatasvir-sofosbuvir, velpatasvir-sofosbuvir for GT 1-6
  - 500 Kiwis have accessed generics for USD1200-1500

Pre-July 2016

Post-July 2016

- LDV/SOF (GT 1)
- DAC/SOF (GT 2-6)
- VEL/SOF (GT 1-6)
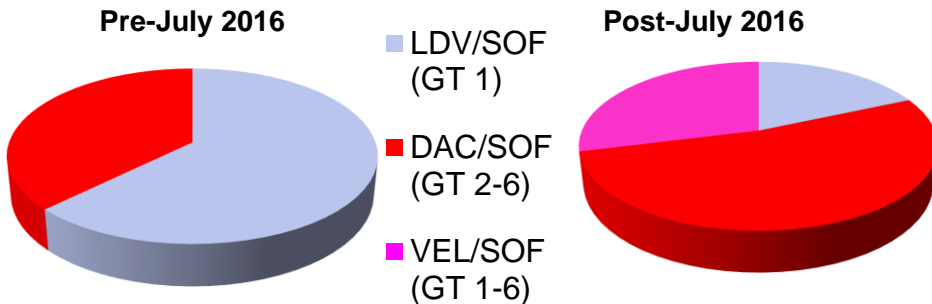
Data provided by James Freeman, FixHepC Buyers Club
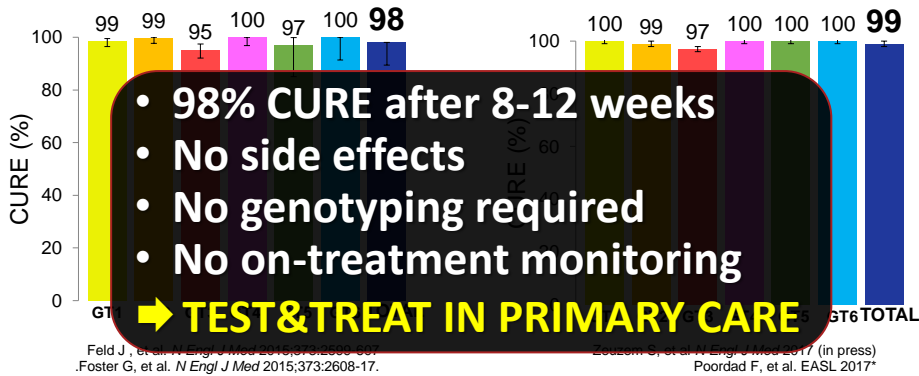
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(1) Treat the 20,000 patients with GT 2–6?

▪ **PHARMAC assessing 2 new pangenotypic DAAs**

1.EPCLUSA for 12 weeks   **2.GLE/PIB for 8 weeks**

CURE (%)

99 99 95 100 97 100 **98**   100 100 99 97 100 100 100 **99**

- **98% CURE after 8-12 weeks**
- **No side effects**
- **No genotyping required**
- **No on-treatment monitoring**
➡ **TEST&TREAT IN PRIMARY CARE**

GT1   GT6 TOTAL

Feld J , et al. *N Engl J Med* 2015;373:2599-607
.Foster G, et al. *N Engl J Med* 2015;373:2608-17.

Zeuzem S, et al *N Engl J Med* 2017 (in press)
Poordad F, et al. EASL 2017*

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(2) Find the 25,000 undiagnosed HCV+ Kiwis?

1. Universal Testing
  – Probably not cost-effective

2. Birth Cohort Testing (US approach: born 1945-65)
  – High risk in the "Woodstock" and Vietnam War era
  – But the ANZ epidemics continue…..

3. Targeted testing (ANZ approach)
  – Needs to be community-based
  – Needs nationwide public awareness
  – Helped by "good news" about new cure
  – Using recognised risk factors for exposure

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AUCKLAND CITY MISSION

Care for city's homeless and destitute
- **GPs, nurse, social worker, pharmacist**
- **30 on VIEKIRA PAK, 125 waiting!**
  - **Daily or weekly dispensing**
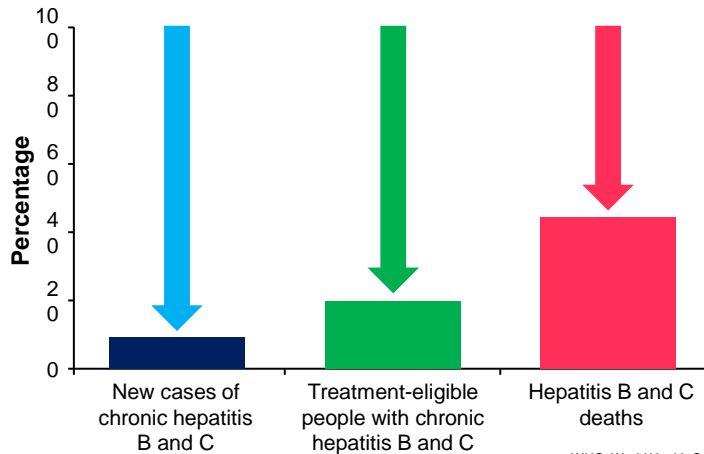 - **to-date, no drop-outs, no failures**
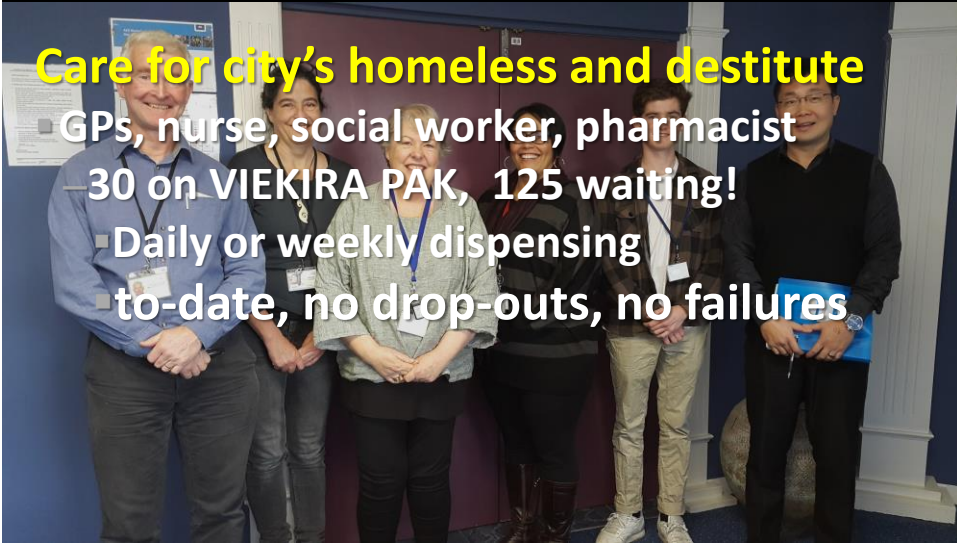
➡**New special needs benefit to support anyone undergoing HCV treatment**

WHO has set ambitious global targets to control viral hepatitis by 2030

World Health Organization

90% reduction in new cases of Hep C   **80%** eligible people receive Hep C treatment   **65%** reduction in deaths from Hep C

WHO global health sector strategy on viral hepatitis. Available at:
http://apps.who.int/iris/bitstream/10665/246177/1/WHO-HIV-2016.06-
eng.pdf?ua=1 (accessed April 2017)

WHO: World Health Organization

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CDA HCV Disease Burden Model
2018 scenario

CDA
Center for
Disease Analysis

- In 2018, PHARMAC funds pan-genotypic DAAs for G1-G6
- Treat 3100 patients in 2018

	2015	2016	2018
Treated	600	1,900	**3,100**
Newly Diagnosed	910	910	**910**
Fibrosis Stage			
G1	≥F0	≥F0	**≥F0**
G2-G3	≥F3	≥Decomp	**≥F0**
G4-G6	≥F3	≥Decomp	**≥F0**
Treated Age	15-59	15-74	**15-74**
SVR	95%	95%	**95%**

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CDA HCV Disease Burden Model
Beyond 2018

CDA Center for Disease Analysis

- In 2018, PHARMAC funds pan-genotypic DAAs for G1-G6
- Treat 3100 patients in 2018
- National targeted testing programme rolled out in 2018 ⇨double diagnosis rate ⇨treat 5200 patients per annum
- Run out of patients to treat in 2025

	2015	2016	2018	2019	2020	≥2025
Treated	600	1,900	3,100	5,200	5,200	1,900
Newly Diagnosed	910	910	910	1,800	1,800	1,800
Fibrosis Stage						
G1	≥F0	≥F0	≥F0	≥F0	≥F0	≥F0
G2-G3	≥F3	≥Decomp	≥F0	≥F0	≥F0	≥F0
G4-G6	≥F3	≥Decomp	≥F0	≥F0	≥F0	≥F0
Treated Age	15-59	15-74	15-74	15-74	15-74	15-74
SVR	95%	95%	95%	95%	95%	95%

50,000

Know it. Test it. Treat it.

New Zealanders have **Hepatitis C**

Its not a race ….

Thank you!

- **Centre for Disease Analysis: Homie Razavi, Sarah Robbins, Sarah Blach, Chris Estes**
- **Kirby Institute: Greg Dore**
- **NRA HCV Working Party: Michael Wilson, Victoria Oliver, Bridget Faire, Lesley McTurk**
- **MoH HCV implementation committee: Tracy Moore, Karen Evison, Ailsa Jacobson, Jeff Wong**
- **Sarah Fitt, PHARMAC**