Curing hepatitis C in General Practice

Dr Tony Farrell
Fellow Chapter of Addiction Medicine
FRNZCGP
Disclosure

• The Ministry of Health has been very nice to me

• FACHAM 2003 FRNZCGP

Clinical director of GP based methadone programme 17 years
GP for 26 years at Mount Medical Centre
Trustee for Hanmer clinic Tauranga (abstinence based) 14 years
Fellow of Chapter of Addiction Medicine since 2003
RNZCGP rep for Hepatitis C implementation Advisory Group
National spokesperson for Alcohol Action NZ
Hepatitis C has become the silent global epidemic of the 21st Century

- Almost 240 million now infected 71 M chronic infection

The HCV disease burden model

Acute Hepatitis \rightarrow Spontaneously Cured

Chronic Hepatitis – F0 \rightarrow Chronic Hepatitis – F1 \rightarrow Chronic Hepatitis – F2 \rightarrow Chronic Hepatitis – F3 \rightarrow Compensated Cirrhosis

Hepatocellular Carcinoma

Decompensated Cirrhosis

Liver Related Death

Liver Transplantation

Assumptions in Modeling HCV in NZ

- Key assumptions:
  - Total HCV infections (2013): 50,000 RNA+
  - Treated (since 2014): 6500
  - Total HCV infections (2017): 45,200 RNA+
  - Total diagnosed (2017): 23,000
  - Newly diagnosed (2017): 910

- 1.15% of Kiwis have HCV, about half undiagnosed
- 4.01% prevalence in Dunedin among individuals 40-59 years of age

The NZ HCV+ Population: Age and Sex

- Age and Sex Distribution (Hepatitis Foundation of NZ, Christchurch Community Clinic)

The NZ HCV+ Population: Ethnicity

1. Hepatitis Foundation Pilots cf. 2013 Census

**Bay of Plenty**
- Pilot: 21
- Census: 17

**Wellington Region**
- Pilot: 18
- Census: 12

Hepatitis Foundation Report Nov 2014
Risk of future complications is linked to severity of liver fibrosis

**CHeCS: Chronic Hepatitis Cohort Study – clinical outcomes after baseline biopsy**

- **Mild fibrosis**
  - Transplant: 1.1%, Liver Cancer: 1.7%, Death: 11.3%, Decompensate: 5.2%
- **Mod fibrosis**
  - Transplant: 4.6%, Liver Cancer: 6%, Death: 10.8%, Decompensate: 11.9%
- **Cirrhosis**
  - Transplant: 11.9%, Liver Cancer: 28.6%, Death: 23.1%, Decompensate: 11.9%

P-values: P<0.0001 for all comparisons between groups.

Moorman AC, et al. AASLD 2014; Oral #174

DAA: direct-acting antiviral agent; LTx: liver transplant
Of 517 cases of hepatitis C-related liver cancer (NZLTU) between January 2000 and December 2017, 21 percent were Māori (Schauer et al 2019) (general population 15 percent).
Decreased life expectancy from hepatitis C

Premature death (<65 years) and median age at death among all deaths, NYC (2000–2011)¹

- 25% died prematurely
- 64% died prematurely

HCV has been shown to double the rate of all-cause mortality

NYC=New York City.

Increasing Sustained virologic response (SVR) without increase in number treated will have small impact on morbidity & mortality.

Increasing SVR and increasing number treated from 1 to 5% (i.e. 4000 p.a.) could eliminate HCV.

Total infections decrease by 83%
2300 deaths & 1600 HCCs averted

We run out of patients by 2031!!

75% reduction

70% reduction

72% reduction

Proposed National Hep C plan

- Political will
- Harm reduction
- Funding
- National REGISTRY and screening programme
- National awareness programme
- Coordination of care programmes, multifaceted points of care
- Monitoring and evaluation
- Expand primary care and allied health capacity for screening and treatment
  eg Nurse prescribers, Dentists, AOD treatment providers, Needle Exchange

Primary care treatment is essential to significantly impact the prevalence of HCV and its associated future morbidity and mortality.
<table>
<thead>
<tr>
<th>DHB</th>
<th>Count of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auckland</td>
<td>169</td>
</tr>
<tr>
<td>Bay of Plenty</td>
<td>95</td>
</tr>
<tr>
<td>Canterbury</td>
<td>263</td>
</tr>
<tr>
<td>Capital and Coast</td>
<td>77</td>
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<tr>
<td>Counties Manukau</td>
<td>106</td>
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<tr>
<td>Hawkes Bay</td>
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<tr>
<td>Hutt Valley</td>
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<tr>
<td>Lakes</td>
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<tr>
<td>MidCentral</td>
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<tr>
<td>Nelson Marlborough</td>
<td>111</td>
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<tr>
<td>Northland</td>
<td>56</td>
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<tr>
<td>South Canterbury</td>
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</tr>
<tr>
<td>Southern</td>
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<tr>
<td>Tairawhiti</td>
<td>19</td>
</tr>
<tr>
<td>Taranaki</td>
<td>90</td>
</tr>
<tr>
<td>Waikato</td>
<td>129</td>
</tr>
<tr>
<td>Wairarapa</td>
<td>11</td>
</tr>
<tr>
<td>Waitemata</td>
<td>158</td>
</tr>
<tr>
<td>West Coast</td>
<td>21</td>
</tr>
<tr>
<td>Whanganui</td>
<td>34</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>1707</strong></td>
</tr>
</tbody>
</table>

**Pharmac:**

**Prescribing of Maviret by DHB to 31/5/2019**

**Note:** many of these patients will be those with G3 who waited in specialist services for fully funded pangenotypic DAAs

Updated number - **2054 Rx**
How can we increase treatment uptake?

1. Find the Undiagnosed
2. Improve Linkage to Care
3. Access to Pangentotypic DAAs
Stigma- “felt “ and/or “enacted”

- Transmission related - fear of being infectious
- Disclosure related - fear of losing job, trauma memory
- Health care related - eg double gloving large warnings on file
- Relationship based - intimacy, partner’s reaction, past IVDU

PWID engage in a highly stigmatised behaviour which compounds their stigma.
Social impact of living with hepatitis C

Patients diagnosed with hepatitis C face stigma and discrimination. These can be linked to perceptions of intravenous drug use.

Unemployment
- Low/no income
- Inadequate/no housing
- Inability to afford transportation

Increased use of alcohol, tobacco, and other drugs
- Exacerbation of mental health issues
- Antisocial or aggressive behaviour

Increased engagement with the justice system

Disengagement with the health system
- Lack of medical care
- Poor health (inc. dental health)

Social isolation and Lack of support

Poor dentition!
Barriers to identifying HCV

People may be reluctant to discuss and get tested for HCV for various reasons including:

- Lack of awareness
- Thinking no symptoms means hep C is not important
- Fear of treatment – interferon was a gruelling treatment
- Believing they have been vaccinated
- Embarrassment and perceived stigma of having HCV due to associated risk factors, especially drug use
- Preferring not to know if they are infected

1. **Find the undiagnosed**

1. **Targeted testing (ANZ/UK approach)**
   - Using recognised risk factors – IDU, tattoos, prison
   - Limited by stigma of IDU

2. **Birth Cohort Testing (US approach)**
   - Born 1945-65 “Woodstock” and Vietnam War era
   - Not relevant in most countries

3. **Universal Testing (French approach)**
   - Cost-effective only if we have a national registry and access to cheaper diagnostics
## Barriers to testing and treatment in primary care

**21%** GPs reported they are currently prescribing HCV medications.

**70% indicated that no GP in their practice has no interest in managing HCV therapy**

### Reimbursement:
- Cited as barrier by **44%**

### Case Load
- 40% say not enough numbers in their practice
- 40% say too busy

### Fibroscan Availability
- 35% say not enough access

### Training
- 32% cited as barrier

### Attitudes
- 30% GPs thought hep C Rx should be with specialists

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Steve Johnson, Kristina Aluzaite, Anna Tarr, Michael Schultz  
Department of Medicine, Gastroenterology Unit, The University of Otago, Southern DHB  
Postal Survey of GPs.
How to test for hepatitis C

1. Serology for anti-HCV antibodies
   - Positive: Patient has been exposed to the HCV virus
   - Negative: Patient is unlikely to have HCV infection

2. HCV RNA assay† or HCV core antigen assay
   - Positive: Patient has current HCV infection (acute or chronic)
   - Negative: Patient was previously infected; repeat assay after 3 months to confirm negative result*

3. Pre-treatment assessment

†Some regions employ reflex testing for HCV RNA based on a positive antibody test. Check your local health pathway for more information.

*For patients diagnosed during the acute stage of infection, repeat testing after 3 months is recommended to confirm the negative result.
Reiterate confidentiality
Follow up conversations when people decline (processing)
Follow up questions eg ‘not even once...’
In many patients with chronic HCV, the virus can also cause negative effects beyond the liver, including cardiovascular, renal, metabolic, neurological, and immune diseases.
2. Improve Linkage to Care

- Move treatment from hospital into community
  
  1. Safer
     - GPs and nurses know medical and psychosocial comorbidities
     - GPs and nurses know co-meds ⇒ avoid drug-drug interactions
     - GPs know the support networks in the community and link to secondary care

  2. Reduced travel and costs
     - Less travel
     - GP payments from DHB via PHO processes
     - Patient payment from WINZ

  3. Increased awareness and testing- Prisons, community initiatives

  4. Reduced stigmatisation – peer based services eg needle exchange
Client centred destigmatisation and **process**

- Treat people with kindness and respect - always
- It doesn’t matter how you got it – trust comes with time
- Reduce visits eg fax Rx to pharmacy or calculate APRI versus a Fibroscan.
  Think of the patient’s situation.
- Reduce blood tests – once antibody positive check patient file for viral load!
  Try to order all in one draw – venous access
3. Access to Pangenotypic DAAs

• Introducing MAVIRET (glicaprevir and pibrentasvir)

<table>
<thead>
<tr>
<th>Glecaprevir (GLE)</th>
<th>Pibrentasvir (PIB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>pangenotypic NS3/4A protease inhibitor</td>
<td>Pangenotypic NS5A inhibitor</td>
</tr>
</tbody>
</table>

• Pre treatment assessment
• Treatment
• Follow up - SVR

Harm minimisation indicated for the treatment of adults and adolescents 12 years and older with chronic HCV infection without cirrhosis and with compensated cirrhosis (Child-Pugh A)
Mechanism of action

Glecaprevir acts as an NS3/4A protease inhibitor, to block viral protein processing.

Pibrentasvir is an NS5A inhibitor, which blocks viral replication and virion assembly.

Other DAAs act as NS5B inhibitors, blocking RNA replication. Sofosbuvir (combined with ledipasvir in Harvoni®) is an example of an NS5B inhibitor.

Indications, contraindications, and precautions

**INDICATIONS**

MAVIRET is indicated for the treatment of adults and adolescents aged 12 years and over with chronic HCV.

**CONTRAINDICATIONS**

MAVIRET is contraindicated:
- In patients with severe hepatic impairment (Child-Pugh C)
- With atazanavir containing products and rifampicin; hypersensitivity to the active substances or to any of the excipients.

**PRECAUTIONS - DIABETES**

- Risk of Hepatitis B virus (HBV) reactivation
- MAVIRET is not recommended in patients with moderate hepatic impairment (Child-Pugh B).
- Lactose deficiency nor intolerance
- **Risk of symptomatic hypoglycaemia**: Treatment with MAVIRET may cause improvement of liver function resulting in improved glucose metabolism by the liver. In diabetic patients, this could lead to improved glucose control. **MONITOR CLOSELY**
PRE-TREATMENT ASSESSMENT
Key elements of HCV pre-treatment assessment

• **Evaluate for the presence of** CIRRHOSIS

• **Coexisting liver disease**: fatty liver, heavy alcohol intake

• Determine whether **PREVIOUS TREATMENT** for hepatitis C has been taken

• **drug–drug interactions**

• **Clinical stigmata** of chronic liver disease

• Test for **pregnancy** and discuss the need for **contraception**

• Evaluate for the presence of **hepatitis B virus** (HBV) or human immunodeficiency virus (HIV) coinfection, or other major co-morbidities

• Check **renal function**
Non-invasive assessment for cirrhosis – APRI score

- AST to Platelet Ratio Index

- Calculate the AST to platelet ratio index (APRI) using an online calculator (www.mdcalc.com/ast-platelet-ratio-index-apri);

- if score >1.0 the patient is at significant risk of cirrhosis

*In some regions AST is not included in the standard panel for liver function tests (LFTs) therefore AST will have to be specifically requested in addition to LFTs.

Hepatitis C management in primary care has changed.
Fibroscan

- Fibroscan® is non-invasive Transient Elastography (TE)
- Measures velocity of shear wave, correlates to tissue stiffness (liver fibrosis)

<table>
<thead>
<tr>
<th>Fibroscan Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F0-F1</td>
<td>No/minimal fibrosis</td>
</tr>
<tr>
<td>F2</td>
<td>Moderate fibrosis</td>
</tr>
<tr>
<td>F3</td>
<td>Severe fibrosis</td>
</tr>
<tr>
<td>F4</td>
<td>Cirrhosis</td>
</tr>
</tbody>
</table>

*Fatty changes in the liver (from BMI > 30 kg/m² & diabetes) can cause a higher Fibroscan score.*
# When referral to secondary care is recommended

<table>
<thead>
<tr>
<th>Pre-treatment assessment</th>
<th>Refer to specialist if:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assess liver fibrosis</strong></td>
<td>• Cirrhosis</td>
</tr>
<tr>
<td>• Clinical exam</td>
<td>• HBV /HIV co-infection</td>
</tr>
<tr>
<td>• APRI</td>
<td></td>
</tr>
<tr>
<td>• Fibroscan</td>
<td></td>
</tr>
<tr>
<td><strong>Detect other causes of liver disease</strong></td>
<td></td>
</tr>
<tr>
<td>• Hep A Hep B HIV</td>
<td>• Renal disease egfr &lt; 30</td>
</tr>
<tr>
<td>• Fatty liver</td>
<td></td>
</tr>
<tr>
<td>• Alcoholic fatty disease</td>
<td></td>
</tr>
<tr>
<td><strong>Detect other major co-morbidities</strong></td>
<td></td>
</tr>
<tr>
<td>• Renal disease</td>
<td></td>
</tr>
<tr>
<td>• Severe mental health issues</td>
<td></td>
</tr>
<tr>
<td>• Severe alcohol and other drug issues</td>
<td></td>
</tr>
<tr>
<td><strong>Review previous HCV treatment</strong></td>
<td></td>
</tr>
<tr>
<td>• Prior treatment experience</td>
<td>• Previously treated for HCV</td>
</tr>
</tbody>
</table>

APRI=AST to platelet ratio index. HCC=hepatocellular carcinoma. HBV=hepatitis B. HIV=human immunodeficiency virus. eGFR=estimated glomerular filtration rate. HCV=hepatitis C virus.

# Treatment duration

Recommended treatment duration for **treatment-naïve non-cirrhotic** patients

<table>
<thead>
<tr>
<th>Patient populations</th>
<th>Recommended Treatment Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cirrhosis</td>
<td>8 weeks</td>
</tr>
<tr>
<td>TN Genotype 1,2,3,4,5 or 6</td>
<td>8 weeks</td>
</tr>
</tbody>
</table>

It is recommended that patients with cirrhosis are referred to secondary care.

MAVIRET Data Sheet. Available at [www.medsafe.govt.nz](http://www.medsafe.govt.nz)
Integrated subgroup analysis of treatment-naive non-cirrhotic patients with HCV GT 1–6

High SVR12 was achieved irrespective of baseline patient and viral characteristics

8 weeks of MAVIRET treatment (mITT)

APRI=aspartate aminotransferase to platelet ratio. BMI=body mass index. GT=genotype. HCV=hepatitis C virus. HIV=human immunodeficiency virus. mITT=modified ITT (excludes patients with non virologic failure). OST=opioid substitution therapy. pegIFN=peginterferon. PPI=proton pump inhibitor. RBV=ribavirin. RNA=ribonucleic acid. SVR=sustained virologic response. SVR12=HCV RNA below the lower limit of detection at 12 weeks post end-of-treatment. TE=treatment experienced. <80% or >120% compliance measured by pill count with adherence defined as taking between ≥80% and ≤120% of the assigned pills at treatment visits at week 4 and week 8.

Puoti M et al. J Hepatol 2018; doi: 10.1016/j.hep.2018.03.007

MAVIRET Data Sheet. Available at www.medsafe.govt.nz
Safety profile and common side effects

<table>
<thead>
<tr>
<th>Side Effect</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatigue</td>
<td>11.4%</td>
</tr>
<tr>
<td>Headache</td>
<td>13.2%</td>
</tr>
<tr>
<td>Nausea</td>
<td>7.6%</td>
</tr>
</tbody>
</table>

Fatigue, headache and nausea were the most common side effects observed.

Most adverse events were of mild severity across all trials.

- Similar to placebo
- Only 0.1% discontinued maviret
- Side effects for cirrhotics similar to non cirrhotics

MAVIRET Data Sheet. Available at www.medsafe.govt.nz
Do a thorough medications review

Current medications
OTC
New or recent meds by other providers

Most interactions are clinically insignificant, but some medications may need adjustment, or cessation

There is no dose adjustment for MAVIRET itself.
**Drug-drug interactions**

<table>
<thead>
<tr>
<th>Contraindicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atazanavir</td>
</tr>
<tr>
<td>Rifampicin</td>
</tr>
</tbody>
</table>

*This is not an exhaustive list*

<table>
<thead>
<tr>
<th><strong>Not Recommended</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>May lead to increased concentrations of MAVIRET</td>
</tr>
<tr>
<td>Ciclosporin &gt;100mg</td>
</tr>
<tr>
<td>Darunavir</td>
</tr>
<tr>
<td>Lopinavir/ritonavir</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Not Recommended</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>May lead to reduced therapeutic effect of MAVIRET</td>
</tr>
<tr>
<td>Carbamazepine</td>
</tr>
<tr>
<td>Efavirenz</td>
</tr>
<tr>
<td>St John's Wort</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Not Recommended</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>May increase concentrations of co-administered drug</td>
</tr>
<tr>
<td>Atrovastatin†</td>
</tr>
<tr>
<td>Lovastatin†</td>
</tr>
<tr>
<td>Dabigatran</td>
</tr>
<tr>
<td>Simvastatin†</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Not Recommended</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of ALT elevations</td>
</tr>
<tr>
<td>Ethinyloestradiol</td>
</tr>
</tbody>
</table>
MAVIRET has no expected interactions with OST or the majority of illicit drugs

<table>
<thead>
<tr>
<th>OST</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone</td>
<td>No interaction expected</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>No interaction expected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ILlicit Drugs</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis</td>
<td>No interaction expected</td>
</tr>
<tr>
<td>Cocaine</td>
<td>No interaction expected</td>
</tr>
<tr>
<td>Lysergic acid diethylamide (LSD)</td>
<td>No interaction expected</td>
</tr>
<tr>
<td>MDMA (Ecstasy)</td>
<td>No interaction expected</td>
</tr>
<tr>
<td>Mephedrone</td>
<td>No interaction expected</td>
</tr>
<tr>
<td>Amphetamine</td>
<td>No interaction expected</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>No interaction expected</td>
</tr>
<tr>
<td>Phencyclidine</td>
<td>No interaction expected</td>
</tr>
<tr>
<td>Gamma-hydroxybutyrate (GHB)</td>
<td>Potential interaction</td>
</tr>
</tbody>
</table>

This is not an exhaustive list.
Tools to support management of drug interactions

1. Medsafe-approved Data Sheet: [www.medsafe.govt.nz](http://www.medsafe.govt.nz)

   - A mobile app is also available

3. 0800 900 030, [medinfoanz@abbvie.com](mailto:medinfoanz@abbvie.com)

4. [www.maviret.co.nz](http://www.maviret.co.nz) for written and electronic info

ALSO TO FIND YOUR CLOSEST MAVIRET ACCREDITED PHARMACY
<table>
<thead>
<tr>
<th>HEP Drugs</th>
<th>Co-medications</th>
<th>Drug Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type in “maviret “</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search HEP drugs...</td>
<td>warfa</td>
<td></td>
</tr>
<tr>
<td>A-Z</td>
<td>A-Z</td>
<td></td>
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<tr>
<td>Class</td>
<td>Class</td>
<td>Check HEP/HEP drug interactions</td>
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<tr>
<td>Trade</td>
<td></td>
<td>Switch to table view</td>
</tr>
<tr>
<td>Glecaprevir/Pibrentasvir</td>
<td>Omeprazole</td>
<td>Potential Interaction</td>
</tr>
<tr>
<td></td>
<td>Warfarin</td>
<td>Warfarin</td>
</tr>
<tr>
<td>Adefovir</td>
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<tr>
<td>Boceprevir</td>
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<tr>
<td>Daclatasvir</td>
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<tr>
<td>Elbasvir/Grazoprevir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entecavir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glecaprevir/Pibrentasvir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lamivudine (HBV)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ledipasvir/Sofosbuvir</td>
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</tr>
</tbody>
</table>

**Potential Interaction**

Glecaprevir/Pibrentasvir

Warfarin

Look for alternatives

More Info

**Potential Weak Interaction**

Glecaprevir/Pibrentasvir

Omeprazole

More Info
Dosing

Recommended oral dose is 3 tablets taken once daily with food

- Missed doses, advice to patients:
  - If less than 18 hours from the usual time, take dose as soon as possible and take next dose at usual time
  - If more than 18 hours has passed, do not take missed dose and take the next dose at the usual time. Do not take a double dose

MAVIRET Data Sheet. Available at www.medsafe.govt.nz
Follow up after 4 weeks of treatment is recommended to assess for adverse events and reinforce adherence.

In non-cirrhotic patients treated in primary care, no blood tests are required during treatment.

Advice for patients during treatment

The following advice will help to give your patient the best chance of achieving cure† of their HCV infection:

- Adherence is important; discuss strategies which will help individual patients

- Tablets must be taken daily with food as directed

- Repeat monthly boxes of medication must be picked up from the pharmacist on time, to make sure there are no gaps in treatment

- Avoid starting any new medicines during treatment (without consultation on potential drug interactions with their doctor or pharmacist)

- Lifestyle changes such as reducing or eliminating alcohol consumption, cannabis use, and other illicit drug use, especially during treatment, may help to improve their liver health

www.medsafe.govt.nz
Post treatment follow up

Check HCV RNA and Liver Function Tests (LFTs) 12 weeks after treatment has finished.

- No Viral load 12 weeks AFTER treatment = SVR
- If viral load detected- REFER to gastroenterologist
- No cirrhosis no follow up for hepatitis C
- If LFTs are elevated despite SVR the patient requires further assessment for other causes of liver disease.
- Any patient with cirrhosis requires long term follow up for hepatoma

- NOTE: Patients with ongoing risk factors for HCV, such as continued injecting drug use, should be monitored for HCV infection with annual HCV RNA or HCV core antigen assays.
Post treatment advice for patients

- **HCV antibodies will remain positive for life**, despite successful treatment.
- Cure does **NOT** protect against reinfection.
- Harm reduction strategies will help to avoid reinfection.
- High risk activities that could lead to reinfection include:
  - sharing drug injecting or snorting equipment,
  - receiving a tattoo or body piercing with unsterilised equipment
  - sexual behaviours which may risk blood contact.
Special populations

Paediatric population
• The safety and efficacy of MAVIRET in children and adolescents aged less than 12 years have not yet been established.

Elderly patients:
• No dose adjustment of MAVIRET is required in elderly patients.

Patients with renal impairment
• No dose adjustment of MAVIRET is required in patients with any degree of renal impairment, including patients on dialysis.

Patients with liver or kidney transplant
• MAVIRET may be used in patients with liver or kidney transplants; please refer to the data sheet for full prescribing information.

Pregnant female patients, or those trying to become pregnant
• There is no data from the use of MAVIRET in pregnant women. As a precautionary measure, MAVIRET use is not recommended in pregnancy.

Breastfeeding mothers
• It is unknown whether glecaprevir or pibrentasvir are excreted in human milk.
• Therefore, a decision must be made whether to discontinue breastfeeding or to discontinue or defer MAVIRET based on risks and benefits.

MAVIRET Data Sheet. Available at www.medsafe.govt.nz
Summary

• Hepatitis C is a malevolent virus that causes significant morbidity and mortality
• We can cure and eradicate it- Treatment is Prevention
• Stigma is a barrier to testing and treatment
• This can be overcome!
• Maviret is a safe and effective treatment for non cirrhotics

• Let’s engage the power of primary care to find and cure our patients!
Mount Medical Centre- audit

• 81 patients classified with READ CODE hepatitis C A70z0.00

• SVR 51 patients (5 cleared spontaneously)
• Currently on treatment 15 (needing SVR and follow up)
• Needing contact, workup and treatment 10
• Currently referred for fibroscan 5

• 3 patients who have had liver transplant
• One patient end stage hepatoma
WE SHALL OVERCOMB

Thanks Angelle Lockie, Abbvie and MOH