Individuals exposed to the hepatitis C virus will undergo seroconversion, developing life-long hepatitis C antibodies. It is estimated that within 6 months, 25% of patients will clear the virus naturally and therefore no longer be infected. Conversely, an estimated 75% of patients will develop chronic hepatitis C, becoming vulnerable to complications and remaining infective to contacts.

Hepatitis C polymerase chain reaction (PCR) testing is routinely used to distinguish between patients who have cleared the virus and those who remain chronically infected. Ideally, PCR testing should be requested when the patient is initially notified as positive for hepatitis C antibody, and again 6 months later. It is crucial to test 6 months after the initial serology result to ensure chronic infection is distinguished from those who have spontaneously cleared the virus.

Previous studies have identified gaps in general practitioners’ (GPs’) knowledge of hepatitis C testing: 22% of GPs thought the presence of hepatitis C antibodies differentiated between cleared and chronic infection and only 32% recognised that PCR testing could identify patients who had naturally cleared the virus. Patients who have cleared the virus can become re-infected if exposed to the virus again; however, 20–29% of GPs thought that detection of hepatitis C antibodies signified immunity. It could be assumed that this confusion translates into suboptimal patient care. The aim of this pilot study was to formally assess the practical application of hepatitis C PCR testing by regional Australian GPs in patients notified as positive for hepatitis C antibody.

Background
Approximately 75% of patients exposed to the hepatitis C virus will become chronically infected. Polymerase chain reaction (PCR) testing more than 6 months after exposure is necessary to identify this group. This pilot study assessed the practical application of PCR testing in the general practice context.

Methods
General practitioners of patients newly notified as positive for hepatitis C antibody between 1 August 2007 and 1 August 2012 were invited to participate. They completed a self-administered survey, recording details on the use of hepatitis C PCR testing in their patients.

Results
The survey found that 16 patients (46%) did not undergo any PCR testing for hepatitis C. Of those who underwent PCR testing, 11 (58%) were positive on PCR testing but only six (55%) of those with a positive PCR test were retested 6 months later.

Discussion
Appropriate use of PCR is necessary to identify patients with chronic hepatitis C and offer appropriate referral and treatment.

Keywords
clinical audit; diagnosis; disease management; hepatitis C
(46%) did not. The use of hepatitis C PCR testing in this sample group is summarised in Table 1.

Hepatitis C RNA was not detected in eight patients, signifying that they had naturally cleared the virus. Hepatitis C RNA was detected in 11 patients; five of these patients were not tested after 6 months of their initial hepatitis C antibody notification.

Discussion
Distinguishing patients with chronic hepatitis C from those who have cleared the virus is crucial. Further management should be directed at those who are chronically infected, including referral for treatment, monitoring for cirrhosis and monitoring for hepatocellular carcinoma.

Just under 50% of patients included in the study did not have any hepatitis C PCR testing and so decisions regarding further management in these patients was not possible. Of those who underwent PCR testing 42% had cleared the hepatitis C virus; this clearance rate is higher than traditionally expected.1 The remaining patients who underwent testing were positive for hepatitis C RNA; however, five patients were not tested 6 months after their initial hepatitis C antibody notification and therefore it was not possible to differentiate chronic infection from viral clearance.

This pilot study is limited by the small numbers of GPs and patients who fulfilled the inclusion criteria in this regional area, and by the low response rate. GPs who agreed to participate may also have had a greater awareness and interest in hepatitis C, leading to a degree of recruitment bias.

The population residing in the regional setting of this study, while broadly similar to the population of Western Australia, differs with respect to two main characteristics: the region has a higher proportion of Aboriginal people, compared with the statewide population (11.6% and 3.2%, respectively) and a lower proportion of working-age people—a greater proportion of the people are aged <20 years and >64 years.5 It is not clear if there are differences between the practice of GPs in urban areas and in regional areas, but the findings of this study are consistent with previous research in this area suggesting that the results are generalisable to the populations of other geographic areas.2,3

The aim of this pilot study was to assess the practical application of hepatitis C PCR testing in primary care. There are, however, several factors that may influence hepatitis C PCR testing. The availability of the test, poor patient compliance with testing and difficulty contacting patients may be barriers to further testing. Previous research suggests that confusion among GPs about hepatitis C serology and PCR testing may also be influential.2,3 Knowledge of the appropriate testing for hepatitis C is also a readily modifiable factor.

The development of new directly acting antiviral agents increases the likelihood of hepatitis C viral clearance in a greater proportion of infected individuals, without the side effects associated with interferon-based therapies.6 These developments reinforce the importance of hepatitis C PCR testing to identify those who are chronically infected and in whom treatment should therefore be considered. This pilot study highlights that hepatitis C PCR testing is currently underused by GPs. Neglecting PCR testing prevents diagnosis and appropriate management, and ultimately impedes the initiation of potentially curative treatment.

Similar studies are recommended to evaluate the practical use of hepatitis C PCR testing and educate GPs on the recommended management of this infection. Further studies investigating the barriers to hepatitis C PCR testing are also recommended.

<p>| PCR testing for hepatitis C in 35 patients positive for hepatitis C antibody |
|-----------------------------|-----------------------------|-----------------------------|</p>
<table>
<thead>
<tr>
<th>PCR test</th>
<th>PCR result</th>
<th>PCR test at least 6 months after hepatitis C antibody notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed</td>
<td>Positive 11</td>
<td>Performed 6</td>
</tr>
<tr>
<td>Not performed</td>
<td>Negative 8</td>
<td>Not performed 5</td>
</tr>
</tbody>
</table>

Implications for general practice
- Hepatitis C serology detects only previous exposure to the hepatitis C virus but is the sole test performed on many patients.
- Hepatitis C PCR testing is required at the time of initial hepatitis C serology and 6 months later to distinguish chronic infection from a patient who has cleared the virus. This study suggests that appropriate testing is being performed in the minority of patients.

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References