HCV is a significant cause of mortality and morbidity with about 180 million people chronically infected worldwide [1]. In 1989, Hepatitis C virus (HCV) was identified as the agent responsible for viral hepatitis not attributed to either hepatitis A or hepatitis B virus (so called “Non A, Non B hepatitis”) [2]. HCV is a small RNA virus within the genus hepacivirus, family Flaviridae that is hard to grow in regular viral cell culture. Genetic analysis has identified 6 distinct genotypes of HCV that circulate in particular geographic areas. In the US and Western Europe the most common genotype is 1 and in South Africa genotype 5 is the commonest. The average prevalence of HCV infection in South Africa is 2.4% (1-3.8%) [3].

HCV is spread primarily by contact with infected blood and blood products. Risk factors for HCV are:

- unsafe use of injecting devices or needles
- blood transfusions or factor concentrate transfusions before 1987 i.e. before routine HCV screening was instituted
- solid organ transplants from infected patients
- haemodialysis
- being born to an HCV infected mother
- needlestick injury from an HCV infected patient
- sex with an infected partner
- sex with multiple partners.

HCV infection can be either "acute" or "chronic". Between 70-80% of people infected with HCV, will become chronically infected, of which 20% will develop cirrhosis and 5% will die of the consequences of chronic liver infection [2]. Multiple factors contribute to liver damage in chronic HCV infection, including viral cytopathic effect, liver cell apoptosis (programmed cell death) and the hosts own immune response with immune antibody complexes and inflammatory cytokines [4].

HCV Diagnosis
Serology and viral amplification by PCR are important in HCV diagnosis. The interpretation of these results is influenced by the chronic nature and periodic viraemia that occurs in HCV infection. From October 2010 HCV testing at Lancet Laboratories follows internationally recommended testing algorithms using combinations of HCV antibody and PCR testing (Figure 1) [5].

1. Screening using sensitive EIA/ELISA tests to detect HCV IgG antibodies is the first step. HCV antibodies indicate either past or present HCV infection. All positive screening HCV antibody tests must be confirmed because HCV screening tests are relatively non specific.

2. Confirmation of an initial HCV positive EIA/ELISA test is done either by repeating the screening ELISA on a second specimen or by using another more specific serological assay. The most common supplemental confirmatory serologic test for anti-HCV is the strip immunoblot assay (Chiron RIBA HCV 3.0 SIA, Chiron Corp.). A positive RIBA result is interpreted as a confirmation that HCV antibodies are present. Further testing is required to distinguish between current or past HCV infection.

3. A qualitative PCR for HCV detection and liver function test (in particular ALT) to assess liver damage is done next. Note, HCV RNA may be negative even if HCV antibodies have been confirmed if there is an intermittent viraemia or during early infection when there is an increase in antibodies and a concurrent decrease in circulating HCV RNA.

4. To document resolution of HCV infection, a negative HCV RNA result should be demonstrated on multiple occasions. Follow-up testing is only indicated in persons with initial confirmed HCV antibody positive results.

5. HCV genotype and quantitative HCV PCR is used in persons with chronic hepatitis C being considered for antiviral therapy or as a follow-up after initiation of therapy. HCV genotype determines the duration and dose of ribavirin treatment.
Recently, an assay that measures the presence of HCV antigen has been developed. This assay has the potential to assist in the diagnosis of HCV infection and to provide a more affordable alternative to HCV RNA PCR to monitor the status of HCV infected individuals on treatment. This test is currently undergoing validation at Lancet and will be introduced in 2011 if it's diagnostic specificity is acceptable.

References