

# Strategies to Overcome the Barriers for Elimination of Hepatitis C Virus Infection in Taiwan

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## BACKGROUND

Hepatitis C virus (HCV) infection is one of the major issues in public health and threatens to the survival in general population in Taiwan. Since there is no effective vaccine developed as primary prevention of HCV infection and hepatocellular carcinoma, as the successful achievement of hepatitis B management, develop highly effective treatment and overcome the barriers to management of HCV infection are important to achieve the goal of HCV elimination by 2030 set by WHO. We have conducted free hepatitis screen projects in southern

Taiwan by the Taiwan Liver Research Foundation, (TLRF) a NGO founded on Aug. 8, 1999 (Figure 1)



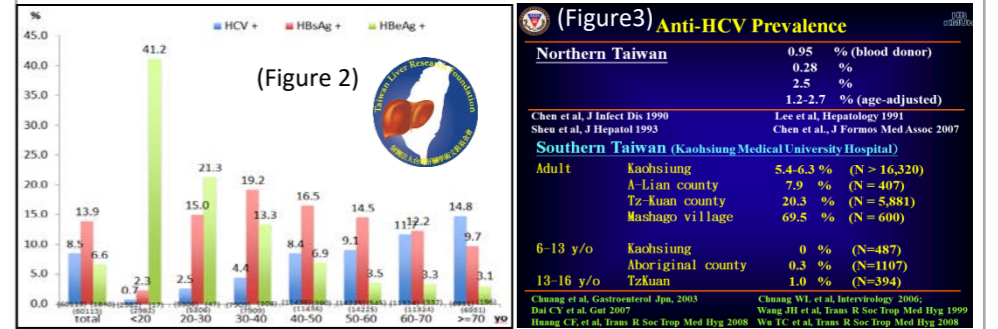
## METHODS

We have designed the strategies under the cooperation of Academic institutions, GOs, and NGOs including:

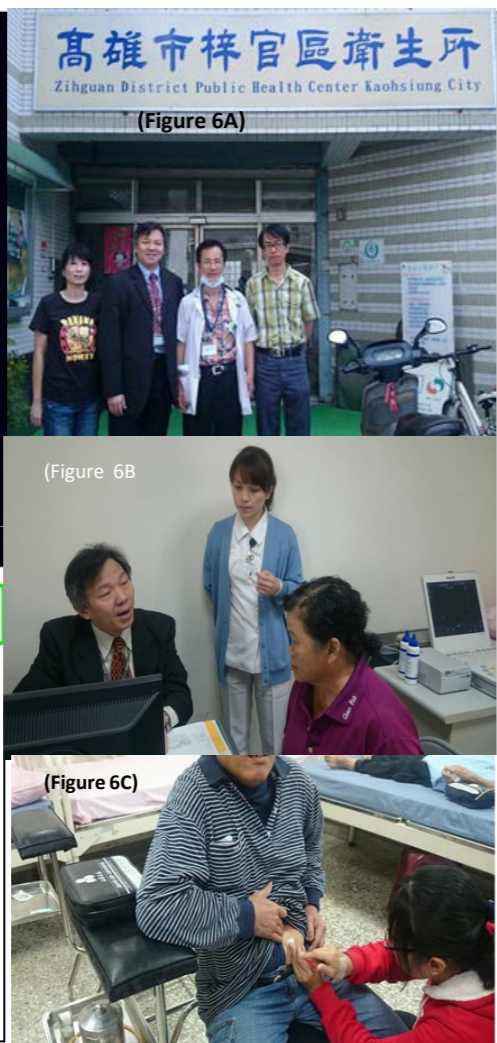
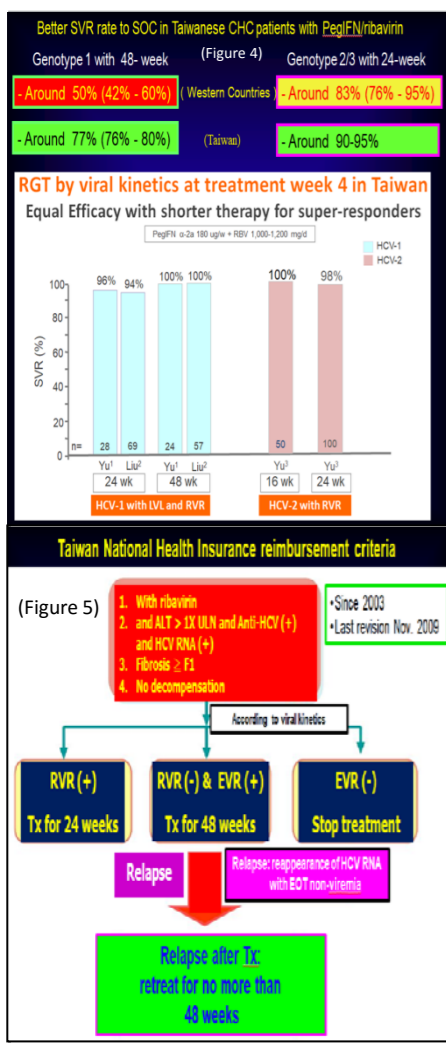
1. Free hepatitis screen projects in southern Taiwan identifying HCV hyperendemic areas.
2. Developing and refining the efficacy of the previous "standard of care" (SOC) (pegylated interferon; Peg-IFN/ribavirin combination therapy) reimbursed by the Taiwanese National Health Insurance (TNHI).
3. Checking the current resources in the hyperendemic townships in southern part of Taiwan and planning to carry out Peg-IFN/ribavirin therapy locally for the chronic hepatitis C (CHC) patients in the suburban area.
4. Encourage the government to arrange special budget and negotiate with the pharmaceutical companies to treat CHC patients by IFN-free direct acting antivirals (DAAs)..

## RESULTS

1. The TLRF has totally screened more than 60,000 individuals for hepatitis B and C infection. The overall prevalence of hepatitis B carrier and CHC were 13.9% and 8.5%, respectively. (Figure 2). The hepatitis C endemic townships were also discovered with more than 20% of the anti-HCV positive rates in some suburban areas. (Figure 3)



2. Treatment of CHC has been evolving soon. With the higher sustained virological response rate than the Western countries by previous PegIFN plus ribavirin (PR), the reimbursement of the costs by the for PR by the TNHI has been lunched since October. 2003. The further refining of the regimens by the response-guided therapy since November. 2009 till now (Figure 4, 5)



3. After some hyperendemic townships have been identified with high prevalence of CHC and HCC, ex. the TzKuan Strict in suburb Kaohsiung city with prevalence of anti-HCV more than 30%, we try to overcome the transportation barriers for accessing medical consultation by the specialists and the treatment, the clinics offering services of the hepatologists for diagnosis and screening have been set up in the major medical units (the Public Health Centers; PHC) (Figure 6A) of the aboriginal and remote townships where the resources are limited. The further available sonographic examination (Figure 6C) and undergoing treatment of the PR has been settle down in the PHC with the availability of the tests and medication. Also Health education for medical staffs, volunteers and residents are provided.

4. With the development of the new SOC (IFN-free DAAs), in Taiwan six five DAAs regimens have been approved by Taiwan FDA since 2015 till 2017. For dealing with issues for applying the DAAs for the CHC patients, an Office for Management of the HCV Infection has been set in 2017 by the Government. The DAAs regimens for genotype 1b (ausnoprivir+daclatasvir) and genotype 1b/1a (peritaprevir/ritonavir/ombitasvir/dasabuvir) have been reimbursed since Jan. 24, and grazoprevir/elbsvir for genotype 1/4 since Aug. 1 2017 by the TNHI with the special budget of around 6 million US dollars for 8,000 patients in 2017. In 2018, A special budget of around 160 million US dollars for 17,000 patients will be used for therapy of CHC. The sofosbuvir-based therapies have been expected to be reimbursed.

## CONCLUSIONS

The screening projects by NGO for hepatitis have revealed the epidemiological distribution of hepatitis in southern Taiwan which is helpful for identifying the hyperendemic areas which exist, particularly for hepatitis C. With relative high SVR rates achieved by the PR regimen reimbursed by the TNHI, further refining the regimens remained mandatory and helpful before the available DAAs for all HCV genotypes. Offering resources and empowering the communities to screen and treatment is critical to overcome the barriers in the hyperendemic remote areas. The barrier for TNHI reimbursement, a high unaffordable cost, to use the new DAAs for treatment of all HCV genotypes have to be overcome for the patients who are not eligible or intolerable for IFN-based therapy before the WHO goal to eliminate HCV in by 2030 achieves in Taiwan.

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## CONFLICTS OF INTEREST

No conflicts of interest to disclose.

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