Indian Health Service
National Pharmacy and Therapeutics Committee
Formulary Brief: ***Hepatitis C***
February 2015

Background:
In February 2015, the IHS National Pharmacy and Therapeutics Committee (NPTC) reviewed Hepatitis C management and guidelines by the American Association for the Study of Liver Disease and the Infectious Diseases Society of America. Jonathan Iralu, MD, IHS Chief Clinical Consultant in Infectious Disease, and LCDR Amy Nguyen, PharmD, served as subject matter experts for this review. New direct-acting antivirals (DAA) reviewed at this meeting include the fixed combination products, ledipasvir/sofosbuvir (Harvoni®) and ombitasvir/paritaprevir/ritonavir/dasabuvir (Viekira Pak®), as well as the individual products sofosbuvir (Sovaldi®) and simeprevir (Olysio®).

Hepatitis C virus (HCV) affects more than 3.2 million people and is the leading cause of cirrhosis, liver cancer and liver transplantation in the United States (US). High risk patient populations for HCV infection include injection drug users, incarcerated persons, blood transfusion recipients prior to 1992, dialysis patients, as well as "baby-boomers" born between 1945-1965. Since 2012, the addition of "baby-boomers" to the Centers for Disease Control and Prevention (CDC) screening recommendations is anticipated to identify an additional 800,000 HCV infected US patients. American Indian/Alaska Natives (AI/AN) ethnic groups are particularly at risk for HCV infection and death according to the CDC. Between 2011-2012, AI/AN ethnicities were 3-20 times more likely to develop acute hepatitis when compared to other ethnic groups and had a death rate of 10.6 deaths per 100,000 US population.

Guidelines:
HCV genotypes 1, 2 and 3 are the most common genotypes in the US, with genotype 1 accounting for ~70%.

Treatment Naïve

Genotype	Regimen	Duration: Non Cirrhotic	Duration: Compensated Cirrhotic
1a	Ledipasvir/sofosbuvir (Harvoni®) --- Ombitasvir/paritaprevir/ritonavir + dasabuvir (Viekira Pak®) + ribavirin --- Sofosbuvir + simeprevir + ribavirin	12 wks --- 12 wks --- 12 wks	12 wks --- 24 wks --- 24 wks
1b	Ledipasvir/sofosbuvir (Harvoni®) --- Ombitasvir/paritaprevir/ritonavir + dasabuvir (Viekira Pak®) *If cirrhotic: add ribavirin* --- Sofosbuvir + simeprevir + ribavirin	12 wks --- 12 wks --- 12 wks	12 wks --- 12 wks --- 12 wks
2	Sofosbuvir + ribavirin	12 wks	16 wks
3	Sofosbuvir + ribavirin	24 wks	24 wks

Treatment experienced with peginterferon + ribavirin

Genotype	Regimen	Duration: Non Cirrhotic	Duration: Compensated Cirrhotic
1a	Ledipasvir/sofosbuvir (Harvoni®) *If ribavirin added* --- Ombitasvir/paritaprevir/ritonavir + dasabuvir (Viekira Pak®) + ribavirin --- Sofosbuvir + simeprevir ± ribavirin	12 wks xxx --- 12 wks --- 12 wks	24 wks 12 wks --- 24 wks --- 24 wks
1b	Ledipasvir/sofosbuvir (Harvoni®) *If ribavirin added* --- Ombitasvir/paritaprevir/ritonavir + dasabuvir (Viekira Pak®) *If cirrhotic: add ribavirin* --- Sofosbuvir + simeprevir ± ribavirin	12 wks xxx --- 12 wks --- 12 wks	24 wks 12 wks --- 12 wks --- 12 wks
2	Sofosbuvir + ribavirin	12 wks	16 wks
3	Sofosbuvir + ribavirin	24 wks	24 wks

Treatment experienced with peginterferon + ribavirin + HCV protease inhibitor

Genotype	Regimen	Duration: Non Cirrhotic	Duration: Compensated Cirrhotic
1a and 1b	Ledipasvir/sofosbuvir (Harvoni®) *If ribavirin added*	12 wks xxx	24 wks 12 wks

Discussion:
HCV infection has a significant impact on morbidity, mortality and healthcare resources. New DAA treatment options for HCV offer cure rates up to 99%, 95% and 84% for genotypes 1,2, and 3, respectively. Curing HCV has been shown to decrease liver inflammation and reduce progression to liver fibrosis, carcinoma and transplantation. This in turn reduces hospitalizations and liver transplants (costing ~$600,000), providing much needed healthcare cost savings.

Potential barriers to HCV cure include financial hardship, access to healthcare and treatment adherence. Wholesale pricing for DAAs averages $1,000 per pill and cost per treatment regimens can range from $38,000 to $93,000. The IHS has traditionally utilized outside resources to obtain medications for patients through state and federal insurance, private insurance as well as patient assistance programs offered by drug manufacturers. In 2011, IHS sites connected with the Extension for Community Healthcare Outcomes (ECHO) program, named Project ECHO, created by the University of New Mexico Health Science Center. Project ECHO is a system used to disseminate specialized expert medical knowledge to the rural underserved areas, including many IHS clinics and hospitals.Through Project ECHO, community clinicians (e.g., physicians, pharmacists, nurse practitioners and physician assistants) ensure patient adherence, safety and potential cure.

Findings:
Treatment for HCV has improved dramatically over recent years with better outcomes, shorter durations and fewer medication side effects. However, drug cost remains a barrier to the affordability of this treatment for our patients. Although not added to the IHS National Core Formulary, the NPTC recognizes the proven efficacy and tolerability of these agents. IHS programs should continue to work with patients to obtain HCV medications through outside resources, providing access to new DAA treatment regimens.

If you have any questions regarding this document, please contact the NPTC at IHSNPTC1@ihs.gov. For more information about the NPTC, please visit the NPTC website.

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