

Medical Writers' Circle

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a series of articles
written by medical
professionals about
the management
and treatment of
hepatitis C

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Hepatitis C and Telemedicine: 2006

Introduction

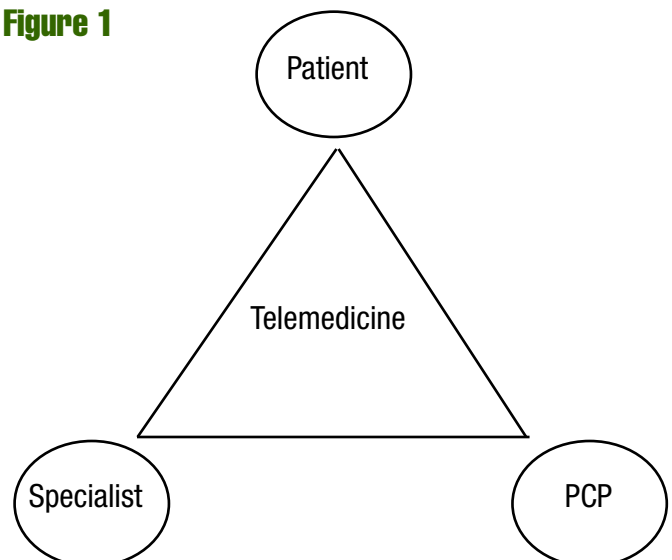
The most recent National Health and Nutrition Examination Survey (1999 to 2002 NHANES) showed the prevalence of anti-HCV in the United States to be at 1.6% of the population, equating to 3.4 million to 4.9 million people.¹ Among these individuals approximately 80% had chronic HCV infection. These numbers are probably even higher as incarcerated and homeless persons were not included in the survey. Abnormal serum ALT level, history of injection drug use and history of blood transfusion before 1992 are three characteristics that identified 85% of chronic HCV participants between 20 and 59 years of age. Although routine screening for all asymptomatic adults is not recommended, serologic testing for HCV should be done in high-risk groups including spouses of persons with chronic HCV.²

Pegylated interferon alfa and ribavirin combination therapy is currently available for the treatment of chronic HCV. Genotypes

dictate the length and the dose regimen. Sustained viral response (SVR, as measured by negative HCV-RNA 6 months after the end of treatment, also considered as "cure") can be achieved in 42-52% of patients who are genotype 1 and 76-84% of those with genotype 2 and 3.² If patients are able to demonstrate virological response (negative HCV-RNA or a substantial drop of 2 figures – i.e. 2 logs) at 12 weeks, current guidelines recommend 48 weeks of treatment for genotype 1. If patients do not have

a drop or negative viral load at week 12, it is very unlikely that they will clear the virus in 48 weeks of treatment, and treatment discontinuation has been recommended, except for selected cases. Whether or not the 12 week "stopping rule" should be applied to all patients is controversial. Also, in patients with genotype 2 or 3 measuring HCV-RNA at week 12 may not be practically useful, since in the vast majority is negative and treatment duration is only 24 weeks total. Recent data show that 12 weeks of treatment may be

Figure 1



**UC Davis Health System
Center for Health and Technology**

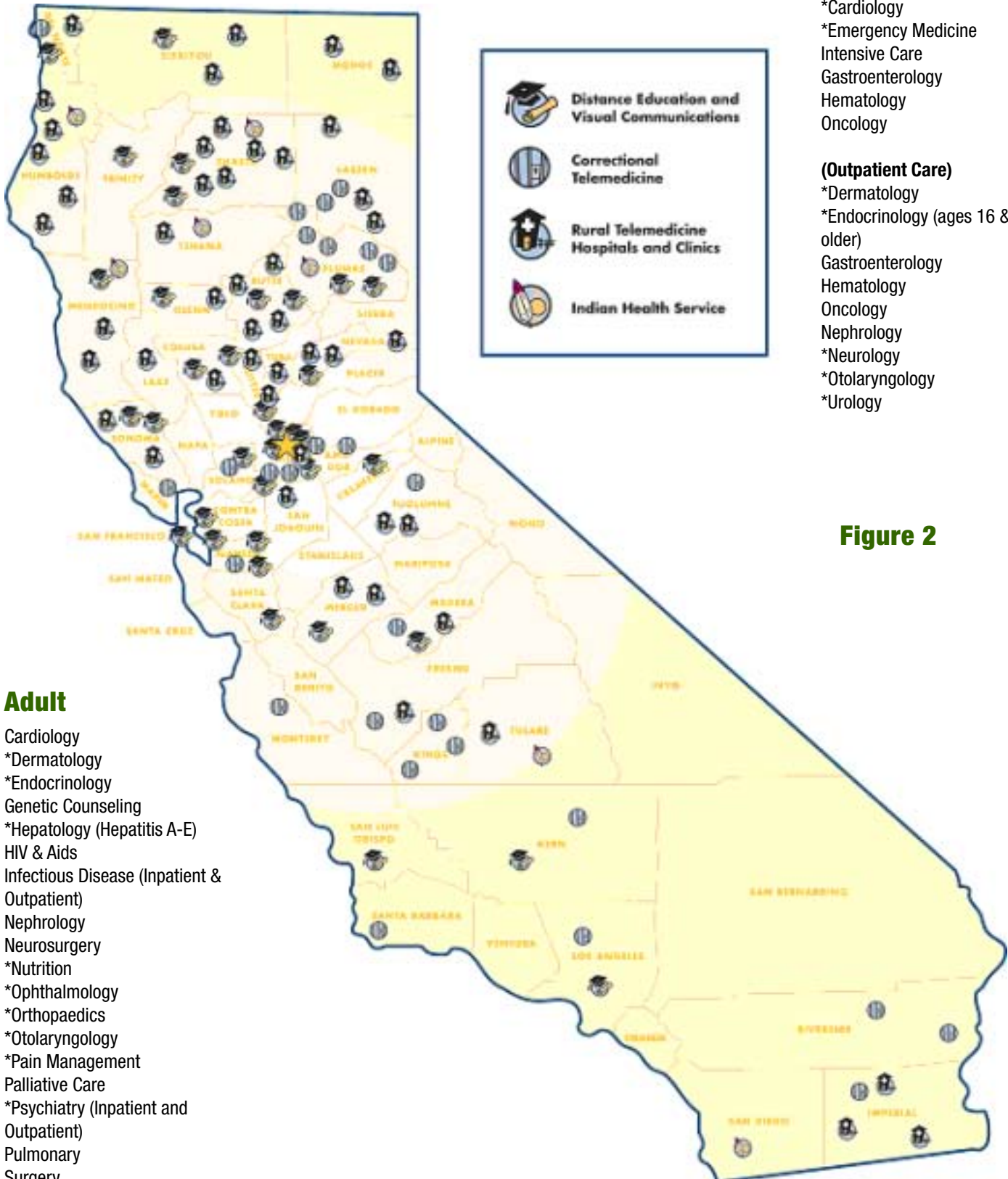
Pediatrics

(Inpatient Care)

- *Cardiology
- *Emergency Medicine Intensive Care
- Gastroenterology
- Hematology
- Oncology

(Outpatient Care)

- *Dermatology
- *Endocrinology (ages 16 & older)
- Gastroenterology
- Hematology
- Oncology
- Nephrology
- *Neurology
- *Otolaryngology
- *Urology



Adult

- Cardiology
- *Dermatology
- *Endocrinology
- Genetic Counseling
- *Hepatology (Hepatitis A-E)
- HIV & Aids
- Infectious Disease (Inpatient & Outpatient)
- Nephrology
- Neurosurgery
- *Nutrition
- *Ophthalmology
- *Orthopaedics
- *Otolaryngology
- *Pain Management
- Palliative Care
- *Psychiatry (Inpatient and Outpatient)
- Pulmonary
- Surgery
- Urology

Figure 2

considered for genotype 2 and 3 patients who show rapid virological response (RVR, undetectable HCV RNA levels at week 4). Many hepatologists are now using week 4 response in tailoring treatment to each individual patient in regard to both duration and dose regimen.

Left untreated HCV patients can develop serious liver diseases including cirrhosis, hepatocellular carcinoma and need for liver transplant. Gastroenterologists, hepatologists, infectious disease specialists primarily manage the treatment for HCV. However, these subspecialists are usually located in major urban areas or academic centers. HCV patients in the rural communities often have to travel long distances to find treatment unless local providers are comfortable managing their HCV. Access to care remains a major issue in the field of HCV. However, progress has been made. With recent advances in the field of information and communication technologies, telemedicine is allowing the geographic and socio-economic disadvantaged patients paths to treatment and cure.³

Telemedicine and HCV

Telemedicine is the delivery of health care across dis-

tances.⁴ Hence, it involves a variety of activities related to the practice of medicine including evaluation, diagnosis, treatment and education. Telemedicine is being practiced globally but particularly in industrialized countries such as the US, Canada, Australia and the UK. Today, many programs in the US are performing teleconsultations. According to one survey, over 85,000 teleconsultations (excluding teleradiology) were done in 2002 by more than 200 programs in over 30 specialties.⁵ Half of the teleconsultations involved the use of interactive video.

The use of telemedicine connects patients in rural areas to specialists in urban and academic centers. However, primary care providers are still deeply involved in the care of these patients (*see Figure 1*). Primary providers should be present at these teleconsultation visits to provide necessary exams as requested by the specialist. As with traditional consultations, primary providers may gain knowledge and skills that can be used in future encounters. Hence, telemedicine is not only providing care to patient but is also playing a role in the continuing medical education process of primary providers.

Successful implementation of a telemedicine program requires effective management in the changing health

care system.⁶ Yellowlees points out that there are many examples where telemedicine programs are introduced and quickly abandoned because they were not integrated into the surrounding health and business environment. Of course there are barriers to setting up a telemedicine program. However, a successful telemedicine program can thrive with good business planning, involvement from interested parties and support for clinician drivers.⁶

The University of California Davis Health System (UCDHS) began telehealth services in 1992. The successes of the program lead to the establishment of UCDHS Center for Health and Technology in 2000. Currently UCDHS is providing telemedicine services to over 100 remote sites and consistently ranks as one of the top telemedicine program in the nation. The sites include Native American health clinics, correctional sites and county health offices (*see Figure 2*).

In past few years, UCDHS has provided over 350 teleconsultations regarding HCV management. Telemedicine referral guidelines have been developed to expedite the referral process. First, the primary care site must fax a referral form to the UCDHS telemedicine program including any authorization if needed, clinic

notes, required lab and imaging results. Required labs for HCV consults include comprehensive chemistry panel, complete blood count, coagulation parameters, thyroid function study, alpha-feto protein level, HCV genotyping and quantitative viral load. If available, ultrasound or other abdominal imaging reports and liver biopsy results are also collected. Once the relevant labs and notes have been transmitted and reviewed, the telemedicine coordinator at the primary care site will then be contacted to make an appointment for the patient. With the success of the program, the demand has required UCDHS to double its current allotted time for hepatology teleconsultations beginning 7/2006.

One particular success story involves the Peach Tree Clinic in Marysville, California. It began treating underserved patients with HCV in 2005 and has to date seen almost 9000 HCV-related visits. Although only a small fraction needed teleconsultations with UCHS, the number of consultations on less complex cases has lessened as the primary providers feel more comfortable in the management of HCV. The clinic still uses teleconsultations on more advanced cases of HCV. According to the Executive Director of the Peach Tree Clinic, Joseph Coulter, MD, tele-

medicine has allowed them to treat a larger number of HCV patients with more advanced diseases because it gives them access to subspecialty consultation with a minimum of inconvenience to the patients.

Conclusion

Approximately half of HCV cases can now be eradicated with currently available treatment regimen. New drugs are coming down the pipeline including protease and polymerase inhibitors that may enhance the cure rate. With so many cases of HCV, primary care providers are playing a bigger role in the treatment of HCV. This is especially true in geographically and socioeconomically disadvantaged locations. Advances in information and communication technologies have allowed these sites to be connected with specialists in urban and academic settings via telemedicine. This modality is contributing to the ultimate goal of all those involved in the field of HCV – eradicating and halting disease progression in those who may be infected with HCV.

The UCDHS telemedicine program has assisted many primary providers in the Northern California region and throughout the state in the management of HCV. Patients who are interested in the UCDHS

program should contact their providers to see if telemedicine is available in their areas. To learn more about the UCDHS telemedicine program, patients may visit the program web site: <http://www.ucdmc.ucdavis.edu/cht/programs/tlc/>

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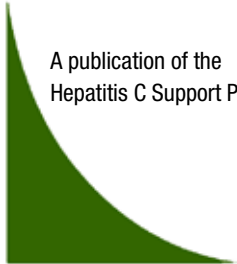
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A publication of the
Hepatitis C Support Project

Medical Writers' Circle

The Mission of the Hepatitis C Support Project is to offer support to those who are affected by the hepatitis C Virus (HCV), hepatitis B Virus (HBV) and HCV coinfections.

Support is provided broadly, through information and education, as well as access to support groups. The Project seeks to serve the HCV community as well as the general public.

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