Hepatitis C, Diagnosis and Management: A Survey of Practicing Physicians in Hawaii

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Abstract

We surveyed 652 Hawaii physicians who diagnosed hepatitis C (HCV) since 1997. Less than 20% of licensed physicians have diagnosed HCV and initial estimates suggest there are 12,000 to 18,000 undiagnosed HCV cases in Hawaii. Treatment is concentrated among twelve physicians and aggressive case finding may overwhelm present resources. More primary care physicians need to participate in the detection and management of HCV.

Introduction

Hepatitis C virus (HCV) is the most common cause of liver failure and liver transplants in the United States. Nationally, HCV causes about 70% of chronic liver disease, an illness responsible for 10,000 fatalities annually.[1] The US prevalence is estimated to be between 1.4% and 1.8% and two thirds of cases are asymptomatic. This incidence applied to Hawaii would mean that between 16,000 and 21,000 persons are HCV positive. At the completion of this study in March of 2000, we have identified 3,600 HCV cases with possibly another 12,000 to 18,000 persons not aware they are infected. Often HCV infected persons are unaware of the risk factors or the need to be tested.

Due to the insidious nature of HCV infection, initial diagnosis depends on a high index of suspicion. Knowledge of this disease has expanded rapidly over the last few years, and diagnostic procedures and recommendations for treatment are changing. Treatment is prolonged, has significant adverse effects, has less than a 50% success rate and decisions to initiate or continue antiviral therapy can be a challenge to medical judgment. The potential frequency of this disease in Hawaii's population could overwhelm the services provided by local Gastroenterolosists and Hepatologists (GI). Much of the burden of care may fall on family practitioners (FP) and internists (IM) and it is important they remain current in the ramifications of HCV.

Everhart et. al.[2] reported on a national questionnaire to Hepatologists and Gastroenterolosists on the management of HCV. Using their survey, forwarded to us by Dr. Hoofnagle, we developed our own questionnaire (appendix 1) and assessed physician management of HCV from those who had made that diagnosis since the beginning of mandatory reporting. Physicians were questioned on advice to patients and the management of two hypothetical cases.

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Materials and Methods

Since October 1997, all laboratories in Hawaii have reported all positive tests for HCV to the Hepatitis Control Section, Epidemiology Branch, Hawaii Department of Health. We identified all physicians who have diagnosed at least one case of HCV infection. We mailed our questionnaire to 652 physicians. The mail-out included, as an incentive to respond, the NIH National Consensus Statement, Management of Hepatitis C.[3] Physicians were asked to answer the questions as they applied to their own practice and not refer to the NIH statement until after they answered the questionnaire. To maintain anonymity we destroyed identifiers to the questionnaires. We made a second contact by telephone to non-responders, faxed a second survey and asked them to fax us their completed response. Of the remaining who still did not respond, we sent a second mail out with a Coppertone gift certificate of ten dollars. This last effort generated about 35 more surveys. Initial response to the first mail-out was about 25% while total responders to all three contacts numbered 314 (48%). We analyzed the data by comparison of proportions in EPI INFO 6.04b, 1999, and results were considered significant at alpha = 0. 05. Discrepancies in total numbers reported on specific survey questions were due to some responders returning incomplete surveys. The Department of Health (DOH) Institutional Review Board approved the study design.

Results

Of the 314 responders almost 80% reported their specialty as internal medicine, family/general practitioner or gastroenterology/hepatology. When compared to our registry of 3,362 practicing physicians in Hawaii, our study group was weighted toward the above specialties. During the study year, 86% of respondents reported they saw fewer than 10 HCV patients and 14% saw more than 10 patients. Of GI, 75% reported seeing more than 10 patients. Over 75% of respondents referred their patients once they made the diagnosis. Most GI (96%) did not refer their patients and 10 of the 12 physicians who treat more than ten patients per year were GI. IM and FP showed a similar distribution to non-GI in all survey responses.

More GI than the other Hawaii physicians (non-GI) reported

increased restrictions in case management from their patient's managed care or insurance company (67% vs. 38%, P = .005). The same was true when grouping physicians by experience. Sixty-three percent of the 44 physicians, 18 GI and 26 non-GI, who saw more than 10 patients in the past year reported increased restrictions while 38% of 231 physicians who saw 1 to 10 patients in the past year reported increased difficulties (P = .0005).

Comparing the general management of patients (Table 1), the questionnaire prompted physicians to answer "almost always", "sometimes" or "almost never" to the specific management questions. Significant differences were that the GI group did not recommend condoms in monogamous sex as often as non-GI (21% vs. 59%, P < .001) and recommended hepatitis A and B immunizations more frequently (83% vs. 57%, P = .01) and (88% vs. 66%, P = .02). There were no other significant differences in the suggested management questions.

In Case 1 (A 36 year old woman with positive antibody for HCV, no risk factors and normal liver enzymes, Table 2), most physicians would confirm the diagnosis with antibody tests (RIBA), or qualitative antigen identification (PCR). There was an inverse relationship between GI and non-GI with the use of RIBA or qualitative PCR. More GI would use the qualitative PCR (P = 0.01) while more non-GI preferred the RIBA (P = 0.001). Importantly most of the study group seemed to understand that in this case the positive EIA should be confirmed. For all other responses there were no significant differences.

If HCV infection were confirmed 65% of GI and 57% of non-GI would do or consider a liver biopsy. Fifty-eight percent of GI and 71% of non-GI would do or consider quantitative PCR and about one-third of both groups would do or consider an HCV genotype. These tests are normally done only if treatment is considered, yet no GI marked "yes" to treatment of this patient with interferon. However, 50% would consider it. Forty-six percent of non-GI would do or consider treatment and many physicians marked plus Ribavirin. About 70% of both groups would do or consider ultrasound of the abdomen, a test for extensive fibrosis or hepatic cell carcinoma (HCC) and about 60% of both groups would consider liver biopsy. Over 90% of both groups would follow this patient with serial liver enzyme studies and 25% of GI and 20% of non-GI would reassure and counsel only. There is an overlap on these latter two responses which may reflect a limitation of the survey and an inconsistent understanding of "counsel."

Table 1: Patient Lifestyle Recommendations: Compare Hawaii Gastroenterolosists to all other reporting Physicians (Almost Always responses).

Physician Group	GI* %	Non-GI %	P value
Not share toothbrush or razor	92	75	ns
Not share drinking glass	8	23	ns
Not hug or kiss a child	0	5	ns
Not donate blood or organs	91	85	ns
Minimize drinking alcohol	92	90	ns
Abstain from alcohol	96	79	ns
Condoms monogamous sex	21	59	<.001
Check sex partner	75	86	ns
Vaccinate hepatitis a	83	57	0.01
Vaccinate hepatitis b	88	66	0.03
Use herbal/alt. remedies	8	9	ns

• Physicians who identify themselves as Hepatologists or Gastroenterolosists

Table 2: Management of Case 1 (A 36 yo woman with a positive HCV antibody screen, normal liver enzymes and no risk factors): Compare GI to all other Hawaii Physicians (All = all responders less GI)

Response	Yes %		Maybe %		No %		P* value
Physician Group	GI	All	GI	All	GI	All	
Anti HCV	23	58	9	15	68	27	.001
Genotype	9	16	26	18	65	66	ns
Qualitative PCR	57	28	17	19	26	58	.004
Quantitative PCR	38	49	21	22	42	29	ns
If HCV is confirmed							
Liver biopsy	17	27	48	31	35	42	ns
Ultrasound of abdomen	54	52	17	17	29	31	ns
ALT every 6-12 mo.	92	91	0	5	8	4	ns
Counseling only	25	20	21	22	54	59	ns
Antiviral Rx	0	16	50	40	50	44	ns

* Calculated as comparison of proportions for yes answers

Table 3: Management of Case II 9A 54 yo man with positive antibody, a history of blood transfusions, intermittent fatigue and elevated liver enzymes): Compare GI to all other Hawaii physicians (all = all responders less GI)

Response	Yes %		Maybe %		No %		P* value
Physician Group	GI	All	GI	All	GI	All	
Anti HCV	8	52	0	11	92	37	<.0001
Genotype	54	41	33	22	13	37	.02
Qualitative PCR	21	30	0	17	79	53	01
Quantitative PCR	79	76	13	10	8	14	ns
If HCV is confirmed							
Liver biopsy	50	76	33	18	17	8	.007
Ultrasound of abdomen	92	82	4	9	4	10	ns
ALT every 6-12 mo.	48	87	13	5	39	8	<.0001
Counseling only	0	9	26	11	74	80	ns
Antiviral Rx	92	82	8	10	0	9	ns

* Calculated as comparison of proportions for yes answers

In Case 2 (A 54 year old man with positive antibody, a history of blood transfusions, intermittent fatigue and elevated liver enzymes, Table 3), most GI would not confirm the diagnosis with a RIBA or qualitative PCR but would go directly to a quantitative PCR. Fifty-two-percent of non-GI would do a RIBA, 30% would do a qualitative PCR and almost 80% would do a quantitative PCR. In this case confirmation of the EIA is not necessary and it is best to go directly to evaluation for treatment. Almost 90% of GI and more than 60% of non-GI would do or consider a genotype and almost 90% of non-GI would do or consider a quantitative PCR. Most of both groups (>80%) would do or consider liver biopsy, however, GI are more reluctant to mark a definitive yes (76% vs. 50%, P = .007). Most of both groups would do ultrasound of the abdomen. A higher percentage of GI than non-GI would not follow with serial ALTs (39% vs. 8%, P < .0001). Most of both groups would not follow this patient with counseling only and would treat this patient with Interferon and Ribavirin.

Discussion

The respondents are heavily weighted toward family practice, internal medicine and gastroenterology and are not representative of all Hawaii physicians. Due to the anonymous nature of the study, we could not identify the specialties of the original 652 to whom we sent survey forms; the respondents are compared to the total population of licensed physicians in the state. Twenty-four of twenty-five Gastroenterolosists returned the survey but only 24% of IM and 30% of FP returned the survey. The respondents most likely represented those who are most knowledgeable about HCV. Since we have identified only 3600 cases in a population that may contain up to 21,000 at the time this study was completed, there are likely a number of physicians who are not looking for HCV infection. It is possible that we overestimated prevalence. Fischer et. al.[4] reported a prevalence of 0.8% screening for hepatitis C in a health maintenance organization and quoted other studies reporting a prevalence lower than the national average. However preliminary data from an ongoing HCV survey of Hawaii citizens suggests a local prevalence of 1.6%.

Of all the respondents, most refer their patients, and treatment is concentrated among fewer than half of the Gastroenterolosists. If there are truly 21,000 cases in our population this group cannot do all of the care. Seef[5] reports that only 15-20% of those with chronic HCV develop cirrhosis and/or hepatitic cell carcinoma. Recent studies from Germany [6] in iatrogenically infected women and from Baltimore[7] in injection drug users show low risk of progression to cirrhosis. However other studies[8] suggest that approximately one-third of patients will progress to cirrhosis by twenty years and another third will have cirrhosis by thirty years. HCV patients need long term follow up and although Gastroenterolosists may need to evaluate and stage their disease, due to patient volume, primary care physicians may have to do much of the work. Much of the follow-up and patient education can be done in conjunction with physician sponsored support groups. Many patients need support groups to overcome their guilt and/or anger, and to verify outside information sources, such as the Internet. Also some patients on treatment suffer serious psychological side effects and physician monitored support groups can more easily identify these effects in their early stages. Presently, there are several support groups in Hawaii.

Gastroenterolosists and other physicians who see more than ten HCV patients per year report more difficulty with restrictions from managed care organizations. Those who have the most expertise probably have more encounters with the managed care organizations and request more expensive procedures. Indications for appropriate follow up and treatment are not clearly defined in all cases and managed care organizations may have difficulty defining what is appropriate treatment and follow up. However managed care organizations should know who are truly knowledgeable in the field.

Eighty-three percent of GI "almost always" recommend Hepatitis A immunization and 79% "almost always" recommend Hepatitis B immunization, while 57% of non-GI "almost always" recommend Hepatitis A and 66% "almost always" recommend Hepatitis B. This difference is significant (Table 1). Patients with chronic hepatitis are more susceptible to severe disease if infected with other forms of hepatitis[3,9] and all HCV positive patients should be immunized against Hepatitis A and B.

Most Hawaii Physicians agree that materials that might harbor blood should not be shared with individuals with HCV. Open wounds should be covered and bloody articles from the HCV positive person should be disposed using universal precaution techniques. Patients and their families need some basic instructions in these techniques. Most respondents also agree that casual contacts such as common chinaware or touching another (kiss a child) do not pose any real risk.

Though most respondents (83%) would test the sexual partners of HCV patients, there is a significant difference between GI and non-GI recommending condoms in monogamous relationships (21% GI and 59% non-GI). Risk of sexual transmission of HCV is not well defined. STD clinic attendees have a higher prevalence than the general population but lower than IV drug users.[10] Cross sectional studies from Northern Europe and the US show a low incidence in partners of index cases. Southern Europe and Asia report higher incidences, however it seems that the risk of transmission in monogamous discordant couples is low.[10] The question becomes, is having multiple sexual partners a cause of transmission, a confounder or an unrelated association? The NIH Consensus states that there is insufficient data to recommend changes in the sexual practices of monogamous partners.

The NIH recommends that drinking alcohol is a contraindication to interferon therapy. A number of studies demonstrate the deleterious effect of drinking alcohol in patients with chronic HCV.[11,12,13,14] These effects include a more rapid progression to fibrosis and hepatic cell carcinoma. Bellentani et al[15] report that alcohol consumption of greater than 30 grams/day significantly aggravates the natural course of HCV and Loguercio et. al.[16] show the abstainers respond better to interferon treatment and have lower HCV RNA levels than those who drink less than 40 grams of alcohol per day. However the adverse effects of small doses of alcohol are not universally accepted and recommendations vary from allowing an occasional drink[17] to total abstinence.[11, 16,18] Of Hawaii physicians, 96% of GI and 79% of non-GI recommend total abstinence. Members of the St. Francis Hepatitis C patient support group strongly recommend total abstinence and presently this is the wisest course.

Although third generation enzyme linked immunosorbant assays (EIA-3) are more specific than their predecessors, false positives are present among low risk patients or blood donors.[18,19] A positive

RIBA demonstrates the presence of antibodies but does not confirm viremia. Usually a negative RIBA indicates a false positive EIA. In Case 1 (Table 2), 23% of the GI and 68% of non-GI would do RIBA ($P < .0001$) while 57% of GI and 28% of non-GI would do qualitative PCR ($P = .004$). The difference between the 2 groups is significant and reciprocal. In Case 1, the EIA needs to be confirmed by either a RIBA or qualitative PCR. The qualitative PCR is more expensive than the RIBA by several hundred dollars but does answer if the patient is viremic or not. RIBA merely confirms the presence of anti HCV antibodies.

The NIH Consensus does not consider genotyping as part of the routine management of patients. Genetic variants respond differently to therapy and genotyping predicts response rate and treatment duration.[19,20] Treatment of patients with genotype 1 requires a longer duration. The position of the NIH Consensus is that there is no rationale for treatment of patients with normal aminotransferase levels[3]; therefore there is no need for genotyping in the routine treatment of Case 1. Only a small percentage of our study group would order this test (9% GI and 16% non-GI).

There is little or no correlation between HCV-RNA titers and disease severity and progression. Current quantitative assays are not as sensitive as the qualitative PCR[3], however, low titers are correlated with a better response to treatment.[21] The NIH Consensus states that treatment of patients with persistently normal ALT levels is not beneficial and may actually induce liver enzyme abnormalities. We can infer from the NIH Consensus that the quantitative test is not indicated. Yet over a third of the GI and almost half of non-GI would order this test and, in light of more recent studies, some patients like Case 1 might benefit from treatment. Therefore Case 1 could require genotype and quantitative PCR testing.

The NIH Consensus does not give clear indications for liver biopsy in HCV patients. Histologic comparison of liver biopsies in patients with normal or elevated ALTs can show similar degrees of injury.[18] Patients with normal ALTs tend to have milder degrees of hepatic injury but 14% still progress to fibrosis.[22] Dienes et. al.[23] also report that significant fibrosis occurs in some HCV patients with persistently normal ALT levels and normal serial ALTs or even a negative PCR cannot absolutely predict the absence of fibrosis. Those who have HCV with normal ALTs tend to be female and those persons who contract the disease after 40 or 50 years of age tend to have a more rapid progression. It would seem that the only way to document progression or non-progression in all HCV patients is by serial liver biopsies. This procedure does have risks, however, if there is progression of disease, it may be best to treat these patients in spite of the NIH recommendations. Studies of treatment of these patients are currently underway.[24] Fifty percent of GI would consider the possibility of treatment and 56% of non-GI would do or consider treatment in this patient. Twenty-five percent of the GI and 20% of non-GI would counsel only, however it is better to continue with follow up of all HCV positive patients.

In Case 2 (Table 3) there is little need to do RIBA confirmation. In high-risk populations the sensitivity of the ELISA-3 is greater than 90%.[18] As this patient is likely to be a candidate for treatment, the qualitative PCR test will confirm active infection and a genotype will indicate the duration of treatment. Quantitative PCR also confirms viremia and indicates treatment prognosis but is not as sensitive as the qualitative test. Of GI, only 8% would do a RIBA and only 21% would do a qualitative PCR. Seventy-nine percent of GI would do a quantitative PCR and 54% would do a genotype. Fifty-two percent of non-GI would do a RIBA and the difference between non-GI and GI is highly significant ($P < .0001$). Thirty percent of non-GI would do a qualitative PCR and 76% of non-GI would also do a quantitative PCR. It seems that physicians prefer a quantitative PCR in this patient, probably as a cost saving measure.

Interestingly, only 50% of the GI would definitely do a liver biopsy while 76% of the non-GI would do so. However, another third of GI would consider liver biopsy. Liver biopsy is the only definitive method of determining the presence of fibrosis and the imperative for treatment. The more cautious approach of GI with liver biopsy may be a result of more personal experiences with complications.

Ninety-two percent of GI and 82% of the non-GI would do ultrasound of the abdomen. There is a difference in opinion about monitoring with serial ALTs between GI and non-GI (48% vs. 87%, $P < .0001$). HCV liver disease can progress even when the patient demonstrates repeated normal ALTs. Although less invasive, serial ALTs do not seem to be a completely satisfactory means to monitor these patients but the only alternative is serial liver biopsies. Most Hawaii physicians would not be content with counseling only, but would treat case 2 with Interferon and Ribavirin. This combination therapy is now the standard for treatment.

There is confusion among some Hawaii physicians about the management of these cases. Some of the discrepancies are due to the limits of the questionnaire but some are due to incomplete knowledge of HCV diagnosis and management. Another source of confusion is the new information that challenges the position of the NIH recommendations.[25] Busy physicians who see only a few HCV patients would feel the pressure to update themselves on present cases rather than the data on HCV unless they encountered a new HCV case. In Case 1 it would seem best to establish if this patient is viremic. If the test is positive, then consider liver biopsy and if there is liver damage, then consider treatment. The definitive factor is progressive liver disease rather than abnormal ALTs as the NIH recommendations suggest. If treatment is an option then quantitative PCR and genotyping are indicated. In Case 2 it would seem more efficient to go right to quantitative testing, genotype and liver biopsy.

We compared our non-GI results to the National Survey of Gastroenterologists[2] (NS GI) done three to four years prior to this study and before the development of the NIH recommendations (Tables 4 & 5). These responses reflect both the Hawaii Family Practice and Internal Medicine responses. Table 4 shows the Hawaii non-GI recommend Hepatitis A & B vaccination more frequently. They have a greater concern about the effects of alcohol and sexual transmission than does the NS GI surveyed 4 years previously. The Hawaii group also has a better grasp of the value of genotype and quantitative PCR testing, especially in Case 2.

The responders to this survey are not representative of Hawaii physicians but represent those who are most aware and most interested in HCV disease. It is likely that a number of physicians in primary care settings are not looking for the disease, and diagnosis and treatment of HCV are concentrated among a small group. Most treatment is concentrated among 10 Gastroenterologists and the potentially large number of cases in the community could over-

Table 4: Patient Lifestyle Recommendations: Compare Hawaii non-GI to National Survey[2] results (Almost Always responses).

Physician Group	non-GI %	NS* %
Not share toothbrush or razor	75	81
Not share drinking glass	23	14
Not hug or kiss a child	5	2
Minimize drinking alcohol	90	74
Abstain from alcohol	79	33
Use condoms in mono. Sex	39	30
Check sex partner	86	54
Vaccinate hepatitis A	570	18
Vaccinate hepatitis B	66	32

* National Survey Gastroenterolosists

Table 5: Management of Cases 1 & 2, Compare Hawaii non-GI to NS GI (Yes answers).

	Case 1		Case 2	
Physician Group	non-GI	NS GI	non-GI	NS GI
Frequency/%	%	%	%	%
Anti HCV	58	61	52	45
HCV genotype	16	5	41	13
Qualitative PCR	28	49	30	52
Quantitative PCR	49	17	76	33
Liver biopsy	27	45	76	91
Ultrasound	52	32	82	64
ALT6-12mo.	91	78	87	57

whelm present treatment resources. Much of the follow-up could be done through physician-sponsored support groups and primary care/family practice physicians are well suited for this.

HCV is under-reported and there is a clear need to develop and publish guidelines for HCV screening. Risk factors that should alert physicians include: blood or blood product transfusions before 1993, drug and alcohol abuse especially when it involves IV drugs, multiple sexual partners, tattoos done non-professionally, and homosexual male sex.

The NIH National Consensus Statement[3] and update[1] does not address all the issues and is in part outdated. There are differences of opinions in patient management among experts familiar with these patients. Diagnostic tests are improved and have helped to more easily identify patients and predict treatment outcome. Indications for treatment are changing and there is frank disagreement with the position of the NIH Consensus Statement on the treatment of patients with normal ALTs. Managed care organizations that do aggressive case finding to identify high-risk patients for early intervention and promote support groups for these patients may reduce treatment costs in the long run. Patient support and education in groups can be more effective and cheaper than one-on-one patient education in the physician's office. Hawaii physicians seem to be quite cautious about liver biopsy in these patients when compared to NS GI. Present information suggests that all patients diagnosed should be considered for liver biopsy. Periodic educational updates to increase index of suspicion, especially for primary care physicians who see occasional HCV patients, are essential.

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Appendix 1

State of Hawaii Department of Health Hepatitis C Physician Survey, see pp.153-154.

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State of Hawaii Department of Health
Hepatitis C Physician Survey

Please blacken your responses using a lead pencil or a black ballpoint pen. Thank You.

1. **What is your medical specialty? (check all that apply)**

Emergency Medicine ◯	Family Practice ◯	Gastroenterology ◯	Hem/Onc ◯
Hepatology ◯	Infectious Disease ◯	Internal Medicine ◯	Nephrology/Urology ◯
OB/GYN ◯	Pediatrics ◯	Other _____ ◯	

2. In the past 12 months, how many patients have you diagnosed or treated for Hepatitis C?	None ◯	1-5 ◯	6-10 ◯	>10 ◯
3. Do you generally refer patients with suspected or confirmed hepatitis C to other physicians for further evaluation and treatment?	Yes ◯	No ◯		
4. In the past 12 months, how many patients with hepatitis C have you treated with interferon?	None ◯	1-5 ◯	6-10 ◯	>10 ◯
5. Today, are you more or less likely to treat hepatitis C with interferon than you were 12 months ago?	More ◯	Less ◯	No Difference ◯	
6. For any of your hepatitis C patients, are there restrictions placed on the care you provide by the patient's health care plan or managed care company? For example, must you obtain prior approval for diagnostic tests or before prescribing anti-hepatitis C pharmaceuticals?	Yes ◯	No ◯	Not Sure ◯	

Please indicate the frequency with which you recommend the following to your patients:

I counsel my Hepatitis C patients to:	**Almost Always**	**Sometimes**	**Almost Never**
7. Not share toothbrushes or razors	◯	◯	◯
8. Not share drinking glasses	◯	◯	◯
9. Not hug or kiss children	◯	◯	◯
10. Not donate blood or organs	◯	◯	◯
11. Minimize alcohol consumption	◯	◯	◯
12. Abstain from alcohol consumption	◯	◯	◯
13. Use condoms in a monogamous sexual relationship	◯	◯	◯
14. Have sexual partners checked for HCV	◯	◯	◯
15. Be vaccinated against hepatitis A	◯	◯	◯
16. Be vaccinated against hepatitis B	◯	◯	◯
17. Use alternative/supplemental treatments such as herbal remedies	◯	◯	◯

Case History #1

After attempting to donate blood for the first time, a 36 year old woman was told she is positive for antibody to hepatitis C virus (HCV) and referred to you. She has no symptoms and has no history of hepatitis or jaundice. Examination is normal. Blood tests show normal activities of serum aminotransferases (ALT and AST, also known as SGPT and SGOT) and normal bilirubin and albumin concentrations.

For this patient, would you order the following tests?

	Yes	**No**	**Maybe**
18. Antibody to HCV by recombinant immunoblot assay (Matrix, RIBA)	◯	◯	◯
19. HCV Genotyping	◯	◯	◯
20. Qualitative PCR for HCV RNA	◯	◯	◯
21. Quantitative PCR for HCV RNA	◯	◯	◯

(Continued on back)

Case History #1 - continued

If HCV infection is confirmed in this patient, would you recommend the following?

	Yes	No	Maybe
22. Liver biopsy	○	○	○
23. Ultrasound of the abdomen	○	○	○
24. Monitoring by aminotransferase every 6-12 months	○	○	○
25. Counseling only	○	○	○
26. Treatment with interferon	○	○	○

If yes,				
	what kind of interferon?	Consensus ○	Alpha ○	Other ○
	what dosing schedule?	3 - 6 million units 3x weekly ○	3 - 6 million units daily ○	
	follow-up how often?	2x a year ○	3-4x a year ○	>5x a year ○

Case History #2

A 54 year old man has a history of trauma requiring blood transfusions 15 years ago. He has intermittent symptoms of fatigue. Other than the liver being mildly tender, physical examination is normal. Blood tests show raised serum aminotransferase activities (ALT=267, AST=132); normal bilirubin and albumin concentrations, and normal prothrombin time. He is positive for anti-HCV.

For this patient, would you order the following tests?

	Yes	No	Maybe
27. Antibody to HCV by recombinant immunoblot assay (Matrix, RIBA)	○	○	○
28. HCV Genotyping	○	○	○
29. Qualitative PCR for HCV RNA	○	○	○
30. Quantitative PCR for HCV RNA	○	○	○

If HCV infection is confirmed in this patient, would you recommend the following?

	Yes	No	Maybe
31. Liver biopsy	○	○	○
32. Ultrasound of the abdomen	○	○	○
33. Monitoring by aminotransferase every 6-12 months	○	○	○
34. Counseling only	○	○	○
35. Treatment with interferon	○	○	○

If yes,				
	what kind of interferon?	Consensus ○	Alpha ○	Other ○
	what dosing schedule?	3 - 6 million units 3x weekly ○	3 - 6 million units daily ○	Other ○
	follow-up how often?	2x a year ○	3-4x a year ○	>5x a year ○

36. Treatment with interferon + ribavirin	○	○	○	
If yes,	what treatment protocol?	Standard/Schering ○	Research ○	Other ○
	follow-up how often?	2x a year ○	3-4x a year ○	>5x a year ○

Thank you for your participation.
Please return this anonymous survey in the envelope provided to:
State of Hawaii Department of Health,
Epidemiology Branch,
1250 Punchbowl Street, Rm 444,
Honolulu, HI 96813