Care of Patients with HIV/HBV and HCV/HIV Co-Infections
Part I

May 6, 2015

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CME Disclosures: Planning Committee and Speaker

AETC-Capitol Region Telehealth Project
Planning Committee : The following committee members have nothing to disclose in relation to this activity:

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Goulda A. Downer, PhD, RD, LN, CNS – Principal Investigator/Project Director

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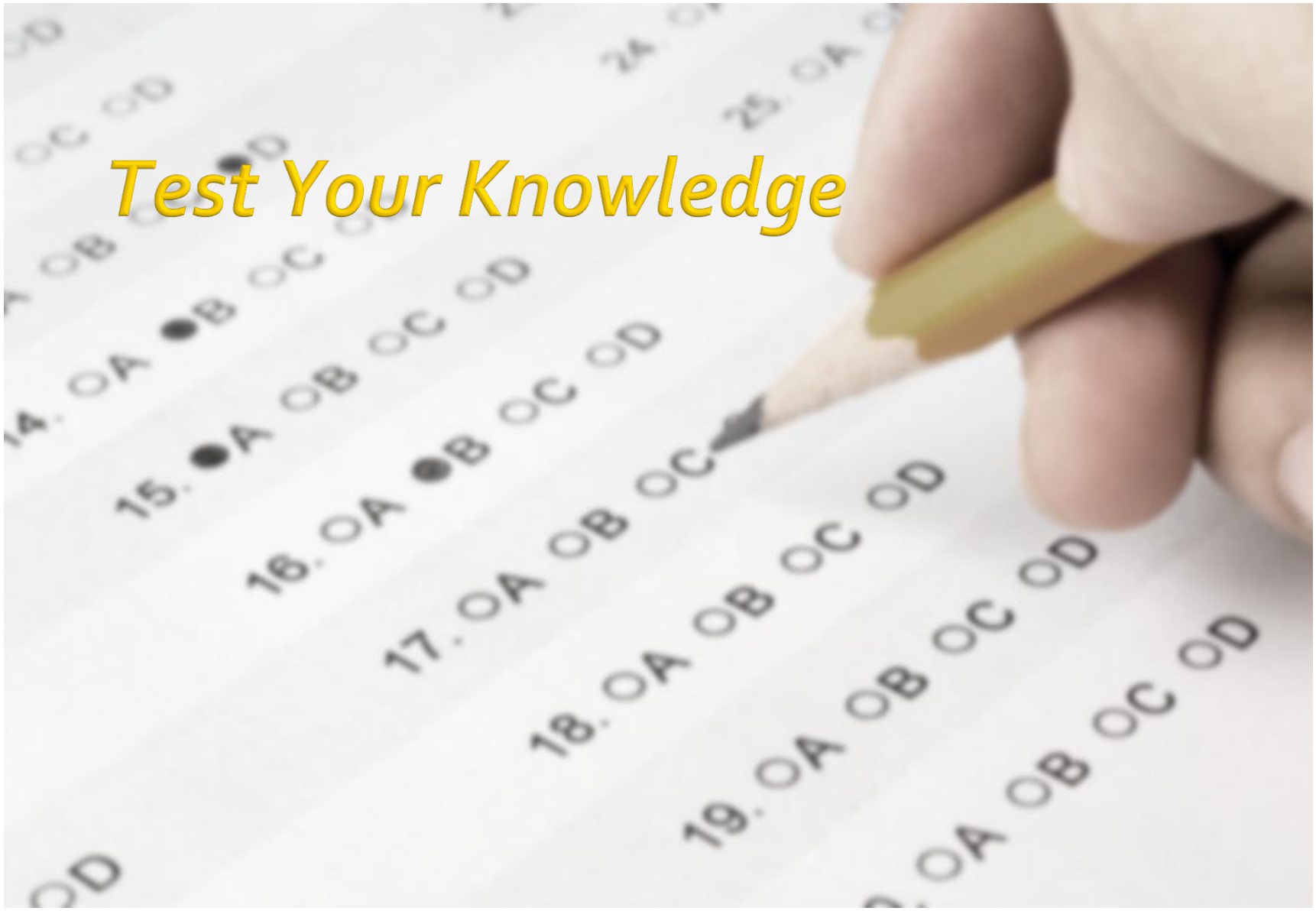
Howard University CME Accreditation Requirements for Internet Viewers

Intended Audience: Low volume clinicians (i.e., those with fewer than 25 patients in their case load who are HIV positive): Physicians, Physician Assistants, Nurse Practitioners, Pharmacists, Dentists, Nurses, Social Workers, Case Managers and other Clinical Personnel.

Webinar Requirements: A computer, phone, etc., with Internet accessibility and a telephone line.

- Your presence on the call must be acknowledged at the start of each session. Please log in for the session then **announce your name loudly and clearly at the beginning of the session.**
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Test Your Knowledge

Test Your Knowledge
Question #1

When it occurs, drug resistance is permanent for both HIV and HBV:

A. True

B. False

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Test Your Knowledge
Question #2

Currently, the standard dosing for Peg Interferon is:

A. 150mg once daily

B. 180mg once weekly

C. 200mg once daily

D. 200mg once weekly

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Test Your Knowledge
Question #3

Because monotherapy is effective, combination therapy is not required for HBV:

A. True

B. False

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Care of Patients with HIV/HBV and HCV/HIV Co-Infections
Part I

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Objectives

Upon completion of this webinar, participating providers will have the enhanced ability to:

- Discuss the epidemiology and transmission of HIV/HBV and HCV/ HVC Co-infections
- Describe signs, symptoms, testing and treatment of HBV and HCV
- Discuss treatment indications for HIV/HBV and HCV/HIV Co-infections
- Discuss the diagnostic and treatment challenges with HIV/HBV and HCV/HIV Co-infections
- Discuss strategies to support patients in accessing care in the presence of HIV/HBV and HCV/HIV Co-infections

Case Study

- Mr. WW is a 61-year-old with HIV infection and Hep C, initial diagnosis of HIV was in 2001; during routine screening in the jail
- The last CD_4 counts and viral load was 280; viral load was 1561 respectively performed on Jan. 2013
- Mr. WW hepatitis C discovered after diagnosis of his HIV
- His ex-wife was HCV positive and she advised him to get tested for Hep C. Patient has never been on HCV treatment

From Case Study Authors Dr. Folasade Osagie, MD and Oritsetsemaye Otubu MD, MPH

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Clinical Hepatitis C

A 44-year-old, man who is HCV positive feels bad after a recent alcohol binge. He has a chronic rash on arms that is worse and elevated ALT and AST.



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Clinical Hepatitis C

Most likely diagnosis is:

1. Cirrhosis due to HCV and alcohol
2. HAV superinfection
3. Porphyria cutanea tarda
4. Essential mixed cryoglobulinemia
5. Yersinia infection

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Hepatitis C

Clinical features

- Acute asymptomatic infection
- Extra hepatic disease: mixed cryglobulinemia vasculitis, glomerulonephritis, PCT, lymphoma

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Hepatitis C

- A 44-year-old Caucasian man found to be HCV positive by his PMD after noting an elevated ALT. HCV RNA is 4 million IU/L; Genotype 1. Brief IDU when 20-21; moderate ETOH; otherwise in good health.
- Which of the following is most accurate?
  1. He has a 70 to 80% chance of cure with IFN/ribavirin
  2. Chance of cure would be better if HCV RNA were 400,000 IU/L and same genotype
  3. He should start using a condom with his wife
  4. There is a 50% chance he has cirrhosis
  5. His chances of cure would be better if he were African American

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Hepatitis C

Who should be treated:

- High Priority
  - Advanced fibrosis(F3), Compensated Cirrhosis(F4)
  - Organ Transplantation
  - Essential Mixed Cryoglobulemia(vasculitis)
  - Proteinuria, Nephrotic Syndrome, MPGN

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Hepatitis C

Who should be treated:

- Next Priority
  - Fibrosis F2
  - HIV co-infection
  - HBV co-infection
  - Co-existing liver disease-NAFLD
  - Type 2 Diabetes
  - PCT

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Hepatitis C

Who should be treated

- Next Priority
  - MSM
  - IDU
  - ESRD/HD
  - HCV women of child bearing age wanting to get pregnant

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Hepatitis C

Decisions to treat now or to wait:

- Degree of fibrosis
- Co-morbidities
- High risk behaviors
- Adherence
- Patient preference
- Insurance
- Provider expertise

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HCV DAA Glossary

Generic name	Code name	Class
sovaprevir	ACH-1625	PI
setrobuvir	ANA598	NNI
faldaprevir	BI 201335	PI
daclatasvir	BMS 790052	NS5A
asunaprevir	BMS-650032	PI
ledipasvir	GS-5885	NS5A
sofosbuvir	GS-7977	Nuc
vaniprevir	MK-7009	PI
mericitabine	RG 7128	Nuc
danoprevir	RG 7227	PI
boceprevir	SCH 503034	PI
simeprevir	TMC435	PI
telaprevir	VX-950	PI

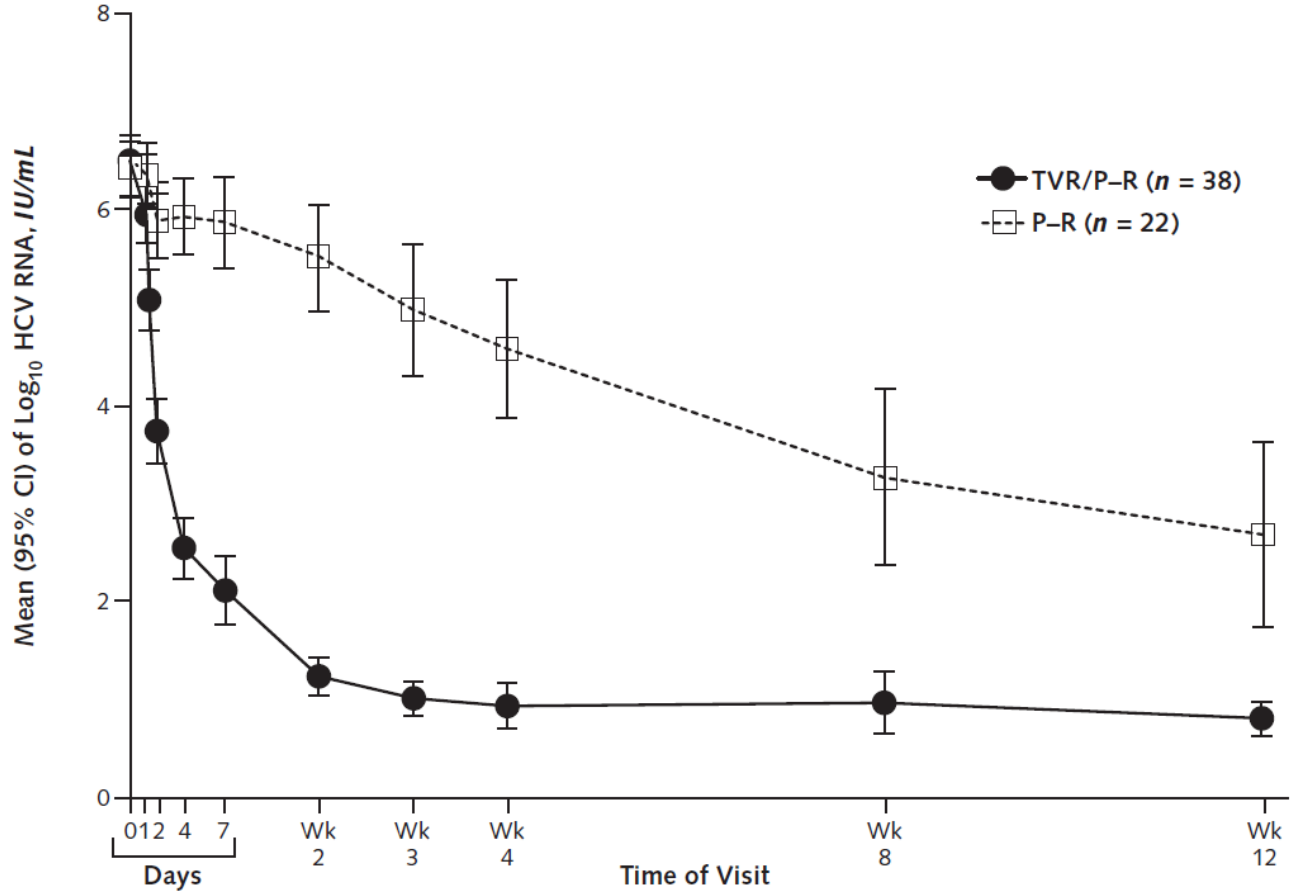
From SC Ray, MD, at Chicago, IL: May 20, 2013, IAS-USA.

Hepatitis C

NS3 Protease Inhibitors	NS5A Replication Complex Inhibitors	NS5B Nucleoside Inhibitors	NS5B non Nucleoside Inhibitors	Other
Telaprivir Boceprevir Paritaprevir(Previously ABT-450) Simeprevir	Ledipasivir Ombitasvir (Daclatasvir)	Sofosbuvir	Dasabuvir	Ribavarin Peginterferon

From SC Ray, MD, at Chicago, IL: May 20, 2013, IAS-USA.

Telaprevir Added to P+R in patients with HIV and HCV-1



Participants With HCV RNA Measures, *n*							
TVR/P–R	38	38	36	36	36	35	33
P–R	22	22	21	22	22	21	21

From SC Ray, MD, at Chicago, IL: May 20, 2013, IAS-USA.

Sulkowski MS, et al. NEJM 2013

Resistance: Common Themes and Some Differences

- Nonsuppressive therapy generates resistance
- Combination therapy:
  - Reduces risk of resistance with HIV and HCV
  - Not required for HBV (monotherapy is effective)
- For HIV and HBV, resistance is "permanent"
  - Not known for HCV

From SC Ray, MD, at Chicago, IL: May 20, 2013, IAS-USA.

Standard Dosing

- Sofosbuvir – 400mg once daily
- Simeprevir – 150mg once daily
- Peg Interferon – 180mcg once weekly
- Ribavirin – weight based dosing
  - <75kg – 1000mg daily in divided doses
  - ≥75 kg – 1200mg daily in divided doses

From SC Ray, MD, at Chicago, IL: May 20, 2013, IAS-USA.

Drug Interactions Considerations

- Sofosbuvir
  - Substrate for P-glycoprotein and breast cancer resistance protein
  - Intracellular metabolism mediated by hydrolase and nucleotide phosphorylation pathways
  - Minimal drug interactions expected
- Simeprevir
  - Mild inhibitor of CYP1A2 activity and intestinal CYP3A4
  - Does not affect hepatic CYP3A4 activity
  - Inhibits OATP1B1/3 and P-glycoprotein
  - Multiple drug interactions expected

From SC Ray, MD, at Chicago, IL: May 20, 2013, IAS-USA.

Sofosbuvir and HIV Medications (1 of 2)

Concurrent Medication	Recommendation
HIV Protease Inhibitors	
All HIV PIs, with or without ritonavir, except tipranavir	• Concurrent use at standard doses acceptable. Interactions not expected based upon metabolism of sofosbuvir.
Tipranavir (Aptivus®)	• Co-administration not recommended
HIV Non Nucleoside Reverse Transcriptase Inhibitors	
All NNRTIs	• Concurrent use at standard doses acceptable.

From SC Ray, MD, at Chicago, IL: May 20, 2013, IAS-USA.

Sofosbuvir and HIV Medications (2 of 2)

Concurrent Medication	Recommendation
HIV Integrase Strand Transfer Inhibitors	
Dolutegravir (Tivicay®)	• Concurrent use at standard doses acceptable. Interactions not expected based upon metabolism of sofosbuvir.
Elvitegravir (contained in Stribild®)	• Concurrent use at standard doses acceptable. Interactions not expected based upon metabolism of sofosbuvir.
Raltegravir (Isentress®)	• Concurrent use at standard doses acceptable.
HIV Entry Inhibitors	
Maraviroc (Selzentry®)	• Concurrent use at standard doses acceptable. Interactions not expected based upon metabolism of sofosbuvir.
HIV Nucleoside/Nucleotide Reverse Transcriptase Inhibitors	
All NRTIs	• Concurrent use at standard doses acceptable. Interactions not expected based upon metabolism of sofosbuvir.

From SC Ray, MD, at Chicago, IL: May 20, 2013, IAS-USA.

Simeprevir and HIV Medications (1 of 2)

Concurrent Medication	Recommendation
HIV Protease Inhibitors	
All HIV PIs	• Significant increases or decreases in simeprevir levels expected when used with any HIV protease inhibitor, when used with or without ritonavir. Co-administration not recommended
HIV Non Nucleoside Reverse Transcriptase Inhibitors	
Efavirenz (Sustiva®), Etravirine (Intelence®), Nevirapine (Viramune®)	• Significant reductions in simeprevir levels and reduced simeprevir efficacy due to CYP3A4 induction. Co-administration not recommended.
Rilpivirine (Edurant®)	• Concurrent use at standard doses acceptable.

From SC Ray, MD, at Chicago, IL: May 20, 2013, IAS-USA.

Simeprevir and HIV Medications (2 of 2)

Concurrent Medication	Recommendation
HIV Integrase Strand Transfer Inhibitors	
Dolutegravir (Tivicay®)	• Concurrent use at standard doses acceptable. Interactions not expected based upon metabolism of simeprevir.
Elvitegravir (contained in Stribild®)	• Significant increase in simeprevir levels expected when used with a cobicistat containing regimen. Co-administration not recommended.
Raltegravir (Isentress®)	• Concurrent use at standard doses acceptable.
HIV Entry Inhibitors	
Maraviroc (Selzentry®)	• Concurrent use at standard doses acceptable. Interactions not expected based upon metabolism of simeprevir.
HIV Nucleoside/Nucelotide Reverse Transcriptase Inhibitors	
All NRTIs	• Concurrent use at standard doses acceptable. Interactions not expected based upon metabolism of simeprevir.

From SC Ray, MD, at Chicago, IL: May 20, 2013, IAS-USA.

Case Study Discussion

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Case Study

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What Would You Do?

Case Study

- WW has experienced the following disease complications: candidiasis, eczematous dermatitis, and seborrheic dermatitis
- Pertinent medical history: diabetes, hypertension, COPD, back pain, bipolar disorder, and depression
- WW has severe COPD and is on home oxygen 24/7 for 7 years and has Dyspnea on exertion at 1 block, so his mobility is limited. He has had COPD X 12 yrs
- He is sexually active with one female partner who is also HIV+ on HAART and they don't use condoms

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What Would You Do?

Case Study

- He admits to a history of IVDA, heroin and cocaine and quit in 2007 but resumed intermittent use of illicit drugs 2012
- He is currently on Atripla which was initially associated with side effects of somnolence and bad dreams, both now resolved
- Was on other HAART prior to Atripla but patient couldn't recall which medications
- He transferred to our clinic due to proximity of clinic to his home

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Case Study

- WW is non-adherent with clinic appointments and this got worse after he "fired" his Home Health Aide and separated from his previous girlfriend. After this separation he was also noted to have more hospital admissions

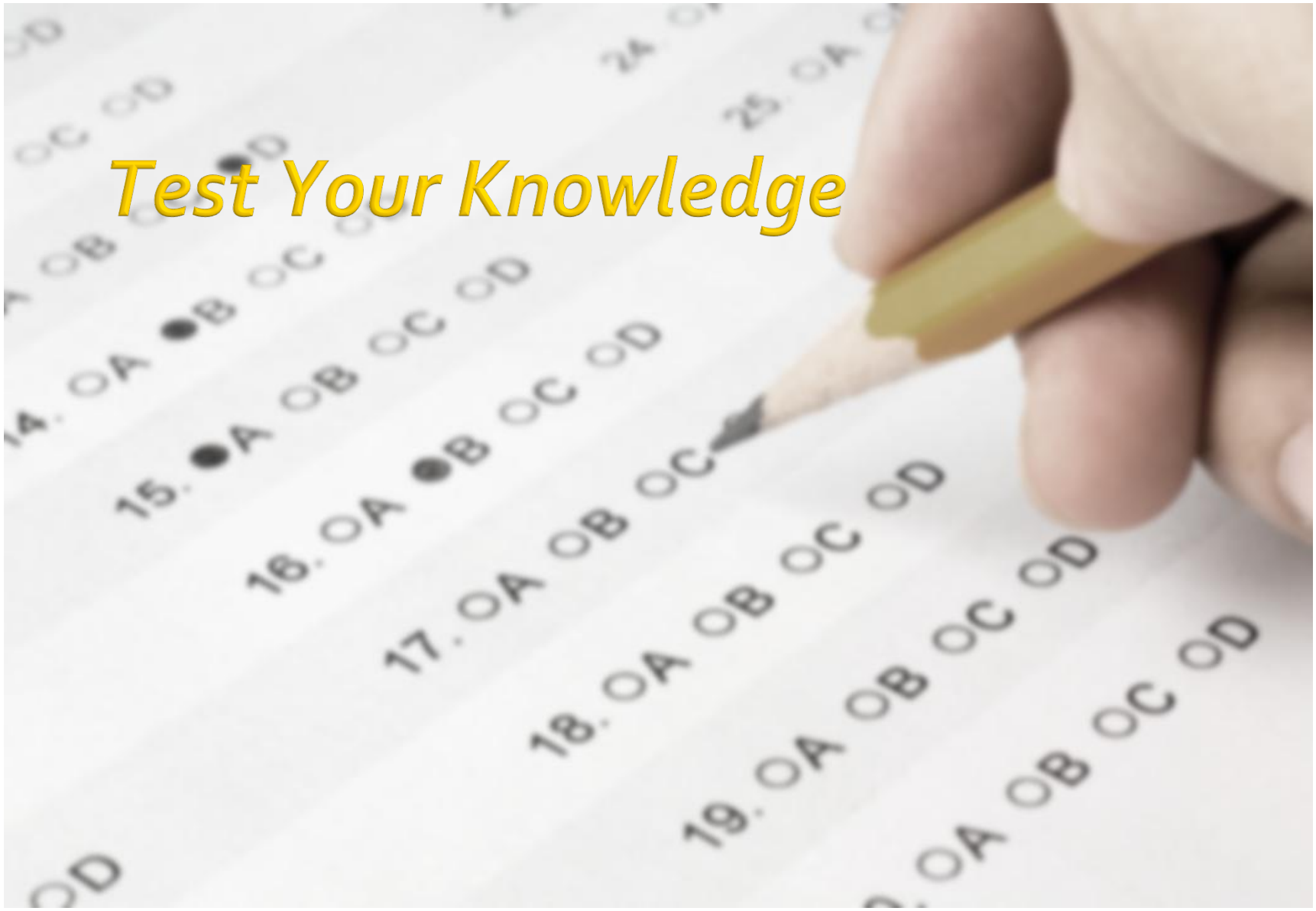
- He recently got another girlfriend who is currently in rehab for drug treatment

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Resources

- http://www.cdc.gov/hepatitis/Statistics/2012Surveillance/Table2.1.htm
- http://www.cdc.gov/hepatitis/Statistics/index.htm
- http://www.cdc.gov/aids2012/diseases/hepatitis/
- http://www.cdc.gov/nchhstp/stateprofiles/pdf/District_of_Columbia_profile.pdf
- http://www.cdc.gov/nchhstp/stateprofiles/pdf/delaware_profile.pdf
- http://www.cdc.gov/nchhstp/stateprofiles/pdf/maryland_profile.pdf

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Test Your Knowledge

Test Your Knowledge
Question #4

When it occurs, drug resistance is permanent for both HIV and HBV:

A. True

B. False

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Test Your Knowledge
Question #5

Currently, the standard dosing for Peg Interferon is:

A. 150mg once daily

B. 180mg once weekly

C. 200mg once daily

D. 200mg once weekly

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Test Your Knowledge
Question #6

Because monotherapy is effective, combination therapy is not required for HBV:

A. True

B. False

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