DIVERSE HCV SCREENING PRACTICES AMONGST OBSTETRICIANS IN A LARGE REGIONAL HEALTHCARE SYSTEM

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BACKGROUND

- The incidence of HIV and hepatitis C (HCV) infection is increasing in reproductive age women secondary to the opioid epidemic.
- HCV infection in pregnancy is associated with cholestasis of pregnancy, preterm delivery, lower birth weight in neonates and an increase in neonatal abstinence syndrome.
- CDC estimates 29,000 HCV-infected women will give birth to 1,700 HCV infected infants annually, given 5.8% rates of vertical transmission in HCV mono-infected women; 10.8% HCV-HIV co-infection.[1]
- The only current recommendation to prevent mother to child transmission is treating HCV-infected women prior to pregnancy.[2]
- HCV testing in pregnancy was risk-based until AASLD/IDSA amended their guidelines in September 2018 – CDC, ACOG and USPSTF have not yet updated their recommendations.[2]
- We hypothesized that prior to revised screening recommendations there was diversity in HCV testing practices amongst obstetrical practices – and that this variability would miss HCV identification if based solely on risk-factor based testing.

METHODS

- This is a cross-sectional study of all women seen between January 2017 and April 2018 for their first outpatient prenatal visit, using the MedStar Health EHR.
- Data was collected for all women who were either HCV antibody or HCV RNA tested.
- A chart review was performed on all patients who were HCV antibody positive/reactive and/or RNA detected.
- Data extracted included age, sex, race/ethnicity, geographic region and hospital, insurance, identifiable HCV risk factors, and rates of other viral testing (HIV and HBV).
- We compared pregnant women who were HCV tested to those who were not tested, as well as those who were HCV positive to those HCV negative.
- We used Chi-square, Fisher's Exact and Student's t-tests, as appropriate, for the bivariate analyses and multivariate logistic regression to determine predictors of HCV screening and antibody positivity.
- SAS statistical software was used for the analyses.
- Institutional Review Board approval was obtained from MedStar Health Research Institute, and included a waiver of consent and HIPAA.

RESULTS

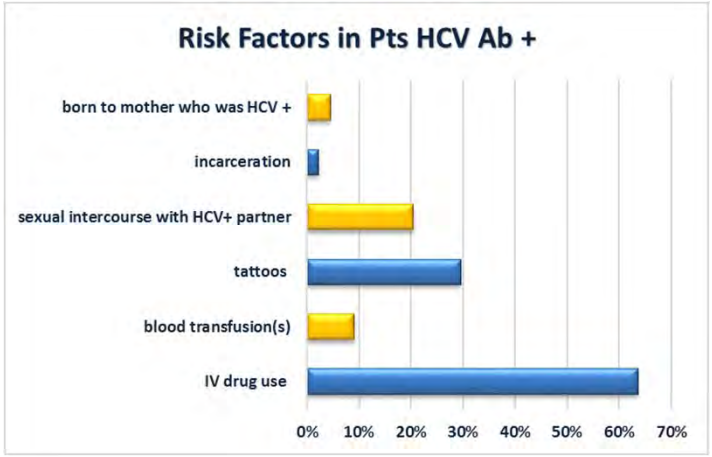
- 10,415 women met study eligibility; 3,081 (29.6%)were HCV tested between 1/17 - 4/18
- 44 (1.4%) were HCV antibody positive.
- The mean age of all patients HCV tested was 29.9 ± 6 years, and for those who tested HCV+ was 30.7 ± 5. (this does not include patients already known to be HCV infected).
- In the women who had liver fibrosis staging (n=32), all had stage F0, or no liver fibrosis.
- 46% of women who were diagnosed with HCV had at least one identifiable risk factor noted in the EHR (*Fig 1*): injection drug use (63%), history of tattoos (29%), sexual intercourse with a HCV+ partner (20%).
- 45% of the women had one risk factor, 20% - two, 8% - three and four; 20% of the women did not have any risk factor documented in their medical record (*Fig 2*).

References: [1]Jhaveri, Benova L, et al. Clin Infect Dis 2014; 59:765-73; [2] hcvguidelines.org

Table 1.

	HCV Testing			HCV Antibody Positive		
	Not Tested n (%)	Tested n (%)	*p*-Value	HCV Tested Negative n (%)	HCV Tested Positive n (%)	*p*-Value
Total (N=10,415)	7334 (70.4)	3081 (29.6)		3037 (98.6)	44 (1.4)	
Mean Age ± SD	29.5 ± 5.7	29.9 ± 5.9	0.002	29.9 ± 5.9	30.7 ± 5.3	0.36
Race/Ethnicity:			< 0.001			< 0.001
African American	2558 (34.9)	1464 (47.5)		1455 (47.9)	9 (20.5)	
Caucasian	3437 (46.9)	1000 (32.5)		969 (31.9)	31 (70.5)	
Other	1166 (15.9)	549 (17.8)		545(18.0)	4 (9.1)	
HIV Infected	21 (0.3)	44 (1.4)	< 0.001	44 (1.5)	0 (0.0)	0.42
HBV Infected	25 (0.3)	19 (0.6)	0.05	17 (0.6)	2 (4.6)	0.03
HCV Testing Location (by state):						<0.001
District of Columbia				2090 (70.3)	11 (25.0)	
Maryland				884 (29.7)	33 (75.0)	
Insurance:			0.002			<0.001
Public						
Medicare	51 (0.7)	34 (1.1)		34 (1.1)	0 (0.0)	
Medicaid	3114 (42.7)	1199 (39.5)		1164 (38.9)	35 (79.6)	
Private	3905 (53.6)	1710 (56.4)		1702 (56.9)	8 (18.2)	

Figure 1.



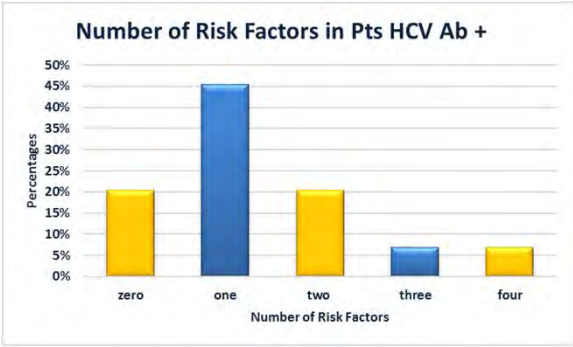
RESULTS (cont'd)

- In the women HCV *tested:* African American (47%) > Caucasian (33%)
- In women *HCV Ab +:* Caucasian (71%) > African American (21%)

On multivariate analysis, pregnant women were more likely to be *tested* for HCV if they were:
- Older (OR_{adj} 1.02, CI_{95} [1.01-1.02])
- African American or other race as compared to Caucasian (2.24 [2.02-2.49]; 1.74 [1.53-1.98]),
- HIV tested (4.25 [3.65-4.94]),
- HIV infected (8.37 [4.77-14.70]), and
- Privately insured (1.51 [1.37-1.66])

On multivariate analysis, pregnant women were more likely to be *HCV Ab +* if they were:
- Caucasian as compared to African American (OR_{adj} 11.44 [CI_{95} 3.99-32.82]),
- HBV infected (15.27 [2.32-100.46]), and
- Living in Maryland vs. District of Columbia (2.93 [1.17-7.32])
- There was no difference for age, ethnicity, HIV status, birth outcome or insurance

Figure 2.



CONCLUSION

- Universal HCV testing has not yet been fully adopted in pregnant women at this large healthcare system, which includes urban, suburban and rural practices.
- However, the 30% screening rate is higher than other published reports.
- There appears to be racial disparities in screening practices, with more African Americans tested; however, more Caucasians were HCV antibody positive. This could be due to prior universal testing adoption in the urban vs. the suburban/rural environment and requires further exploration.
- Unfortunately, many state Medicaid divisions still have minimum fibrosis restrictions for treatment – Maryland is one and require a fibrosis ≥ 2 to treat. Importantly, all the women in our study have F0 fibrosis, have Medicaid insurance and live in Maryland, and thus will not be able to be treated with the current restrictions (unless there is some other allowable reason).
- The study is limited by its retrospective design, we did not review risk factors of all HCV tested (n=3,081); and could not prospectively follow infant outcomes and their HCV status.
- Providers and practices will need to adapt to changing universal screening guidelines, especially given the demographics and burgeoning of the opioid epidemic.