DISCLOSURES

This activity is jointly provided by Northwest Portland Area Indian Health Board and Cardea

Cardea Services is approved as a provider of continuing nursing education by Montana Nurses Association, an accredited approver with distinction by the American Nurses Credentialing Center's Commission on Accreditation.

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Institute for Medical Quality/California Medical Association (IMQ/CMA) through the joint providership of Cardea and Northwest Portland Area Indian Health Board. Cardea is accredited by the IMQ/CMA to provide continuing medical education for physicians.

Cardea designates this live web-based training for a maximum of 1 *AMA PRA Category 1 Credit(s)™*. Physicians should claim credit commensurate with the extent of their participation in the activity.

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COMPLETING THIS ACTIVITY

Upon successful completion of this activity 1 contact hour will be awarded

Successful completion of this continuing education activity includes the following:

- Attending the entire CE activity;
- Completing the online evaluation;
- Submitting an online CE request.

Your certificate will be sent via email

If you have any questions about this CE activity, contact Michelle Daugherty at mdaugherty@cardeaservices.org or (206) 447-9538

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CONFLICT OF INTEREST

Paulina Deming is on an advisory committee for Gilead.

None of the other planners or presenters of this CE activity have any relevant financial relationships with any commercial entities pertaining to this activity.

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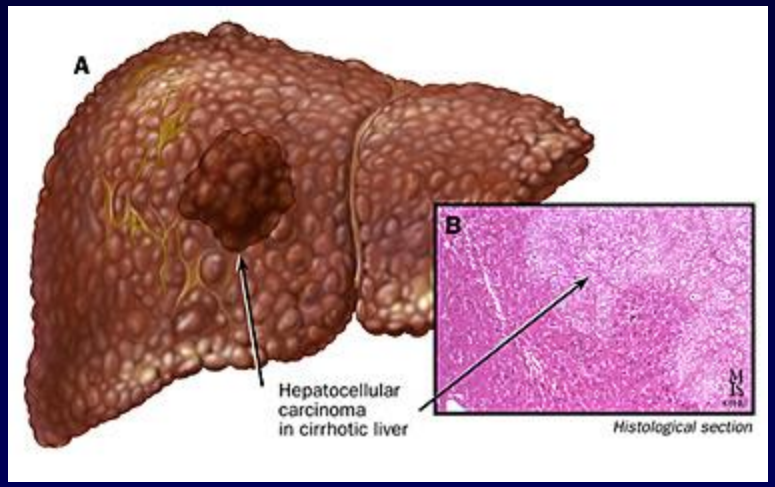
HCC Screening and Follow-Up



Pippa Newell, M.D.

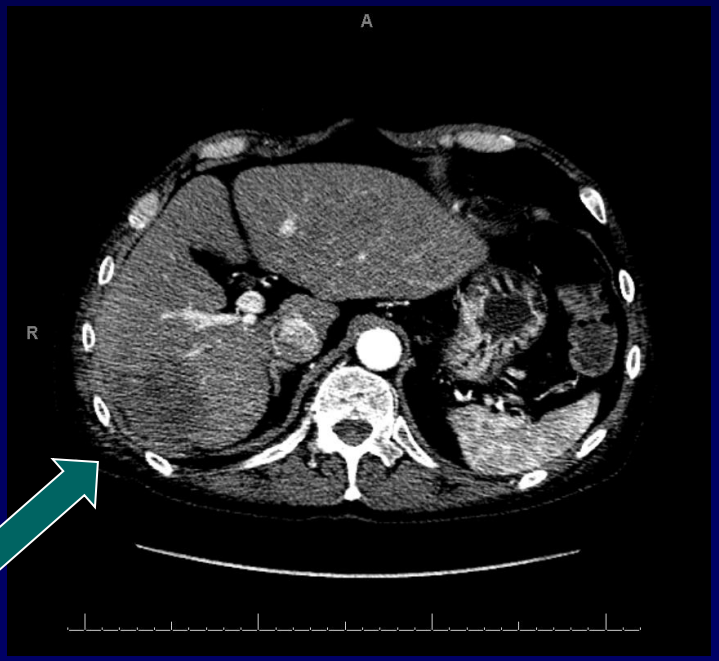
Medical Director, Liver Cancer Program
Providence Cancer Center, Portland

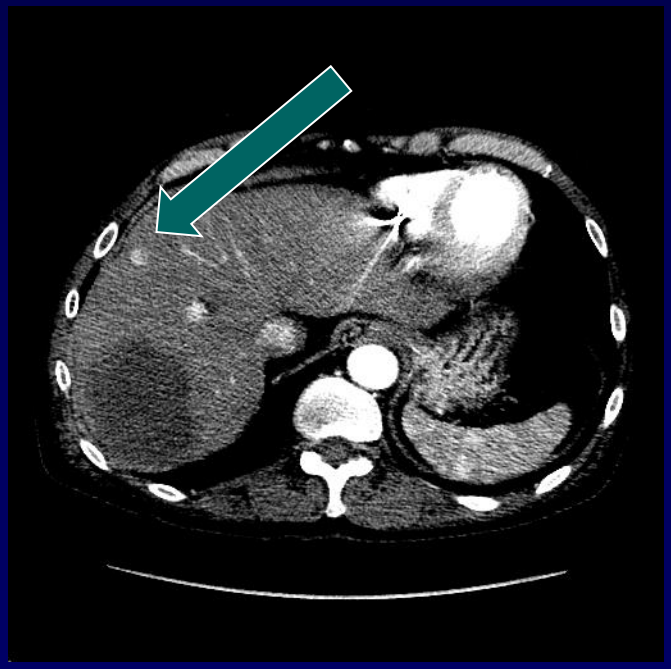
Hepatobiliary Surgeon
The Oregon Clinic

philippa.newell@providence.org
Cell: 646-320-8488
Liver Cancer Clinic: 503-215-8650

Patient R.S.: Large multifocal HCC

- Homeless; from Warm Springs
- Chronic hepatitis C, never treated
- Shortness of breath





Patient R.S.: Large multifocal HCC

- Pacemaker 5/2012
- Chemoembolization 8/2012
- Portal vein embolization 9/2012
  - To make the left lobe bigger
- Radiofrequency Ablation 1/2013
- Resection 2/2013

June 2016: Disease free

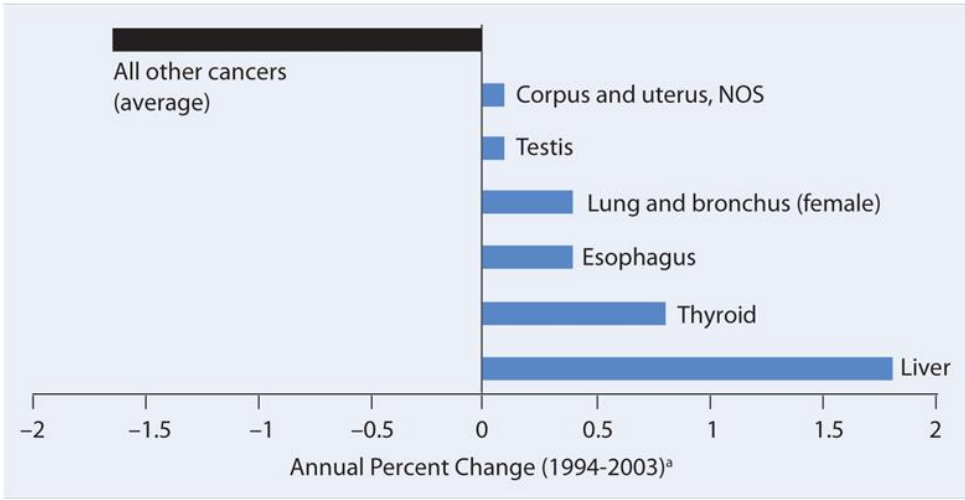
Discussion Points

- Screening
  - Who to screen
  - Why to screen
- Diagnosis

Incidence of Hepatocellular Carcinoma Increasing in U.S.

- Fastest rising cause of cancer-related death in the U.S.

Figure 1. Trends in US cancer mortality rates.



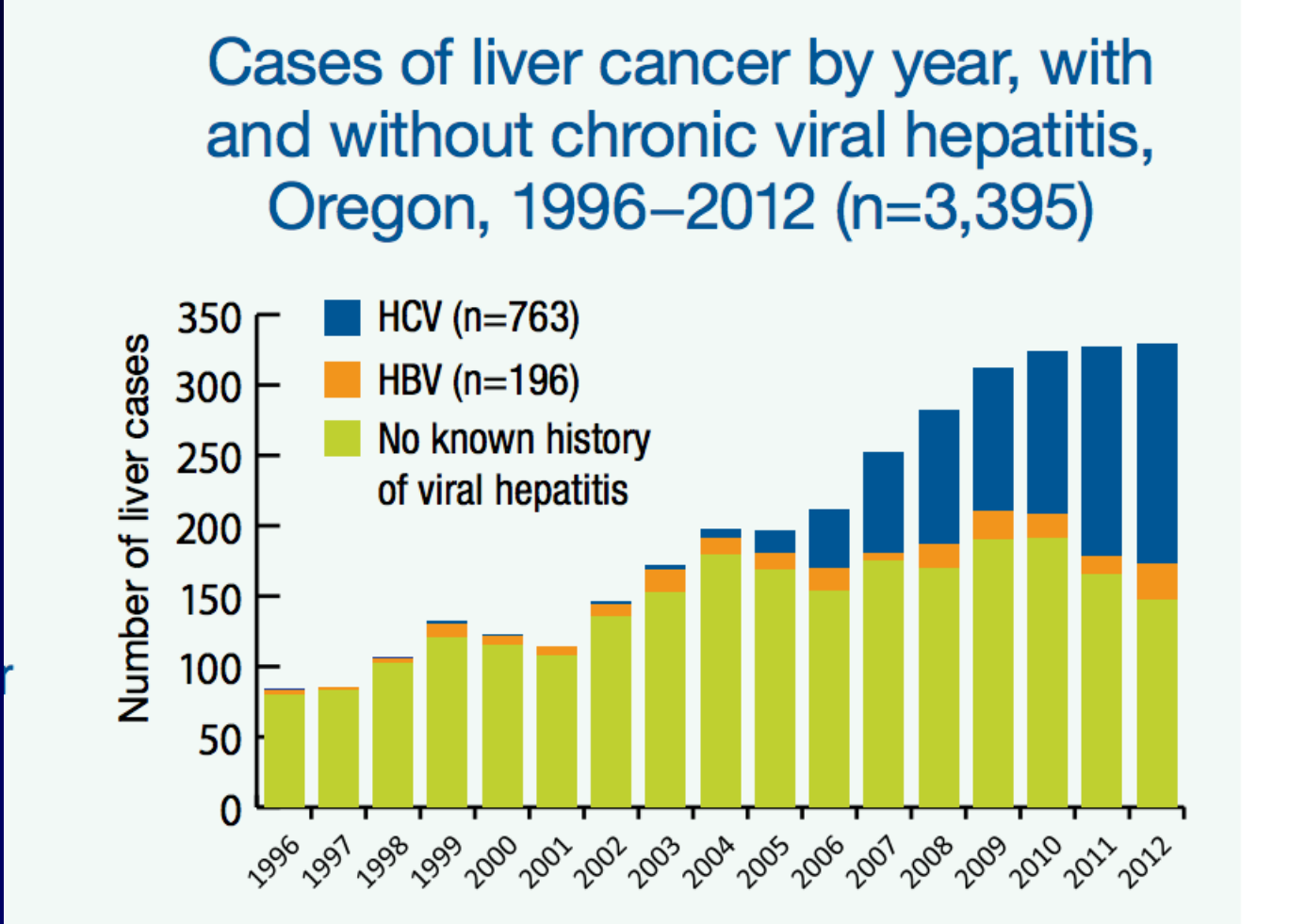
NOS, not otherwise specified.

[a] Represents the annual percent change over the time interval.

Source: El-Serag HB, Rudolph KL. Hepatocellular carcinoma: epidemiology and molecular carcinogenesis. *Gastroenterology.* 2007;132:2557-2576. Reprinted with permission from Elsevier.

Morb Mortal Wkly Rep CDC May 2010
El Serag, NEJM, 2011

HCC Cases in Oregon



Thomas et al. Oregon Health Authority May 2015

HCC Cases among AI/AN in ID, OR, WA

Table 6.1: Leading cancer incidence sites for AI/AN by sex, Oregon, 2006-2010.

Rank	Males	N (%)	Females	N (%)
1	Lung & Bronchus	90 (17.3%)	Breast*	159 (26.0%)
2	Prostate	87 (16.7%)	Lung & Bronchus	99 (16.2%)
3	Blood Cancers†	57 (11.0%)	Blood Cancers†	41 (6.7%)
4	Colorectal*	55 (10.6%)	Colorectal*	55 (9.0%)
5	Liver & Intrahepatic Bile Duct	30 (5.8%)	Uterine	36 (5.9%)
6	Kidney & Renal Pelvis	27 (5.2%)	Kidney & Renal Pelvis	29 (4.7%)
7	Bladder	22 (4.2%)	Liver & Intrahepatic Bile Duct Pancreas	18 (2.9%)
8	Pancreas	20 (3.8%)	Cervix* Melanoma Thyroid	17 (2.8%)
Total	All Invasive Cancers	520 (100.0%)	All Invasive Cancers	612 (100.0%)

* Screenable cancers

www.npaihb.org/home/idea-nw/#1450680778115-32a4bc94-cd3d

HCC Cases among AI/AN in ID, OR, WA

- Age adjusted mortality rates for liver and intrahepatic bile duct cancer:
  - 14.7 per 100,000 (compared to 4.9 in NHW)
- 5th leading cause of cancer mortality for AI/AN in this area

Eric Vinson, Northwest Tribal Comprehensive Cancer Program; 2008-2014 data **http://www.npaihb.org/home/idea-nw/#1450680778115-32a4bc94-cd3d**

HCC Screening recommended for:

Screening Recommended	
Population Group	**Incidence of HCC**
Hepatitis C Cirrhosis	3-8% / year
Stage 4 Primary Biliary Cirrhosis	3-8% / year
Genetic Hemochromatosis and Cirrhosis	3-8% / year
Alpha-1-antitrypsin deficiency and Cirrhosis	3-8% / year
Other Cirrhosis	Unknown, but likely > 1.5%/year

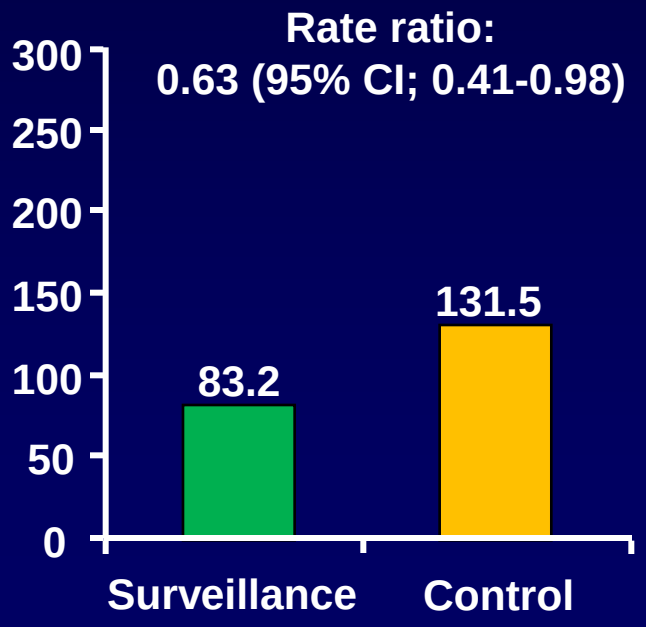
AASLD Practice Guidelines Hepatology 2010

HCC Screening: Does it improve survival?

N= 18,816 people with HBV infection or history of chronic hepatitis in China

Surveillance: US and AFP q 6 months (n = 9373)
Control group: no surveillance (n = 9443)

Results: 37% reduction in mortality



Zhang BH, et al. J Cancer Res Clin Oncol. 2004;130:417-422.

HCC Screening: Does it improve survival?

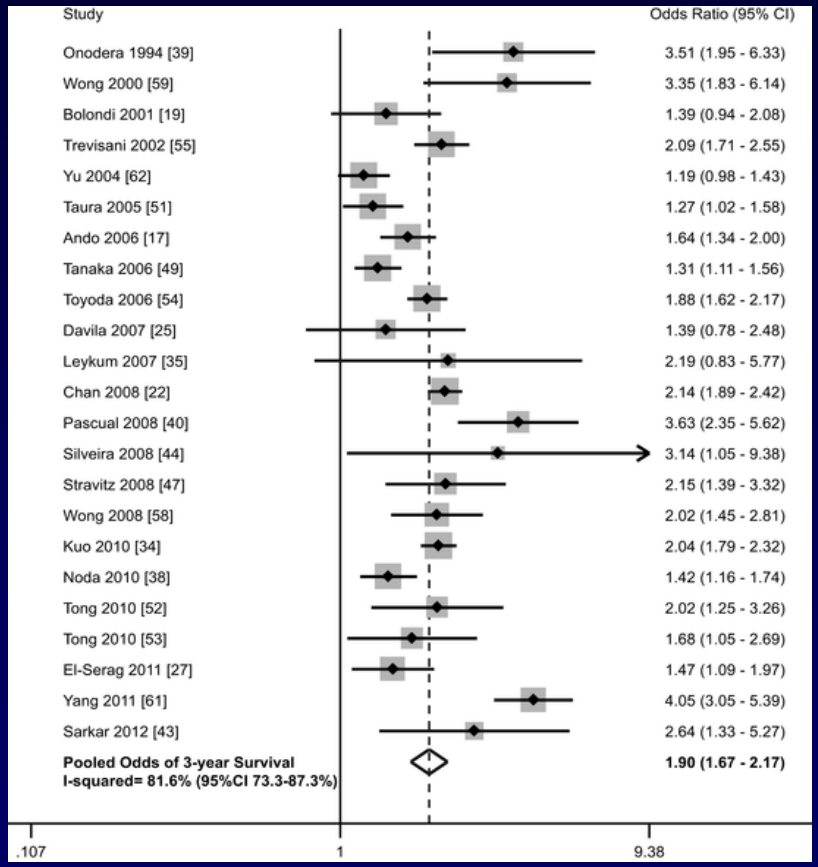
- Modeling Study by Mourad A et al
  - 11 month survival benefit

Hepatology 2014; 59: 1471-1479

- Meta-analysis by Singal A et al
  - 15,158 pts, 41% of whom had HCC detected by screening
  - Improved early stage detection (OR 2.08)
  - Higher curative treatment rate (OR 2.24)

Singal A et al. PLoS 2014

Meta-analysis: HCC Screening does improve overall survival



Singal AG, Pillai A, Tiro J (2014) Early Detection, Curative Treatment, and Survival Rates for Hepatocellular Carcinoma Surveillance in Patients with Cirrhosis: A Meta-analysis. PLoS Med 11(4): e1001624.

Screening Tests: Ultrasound +/- AFP q 6 months

- Performance characteristics of ultrasound superior to all serologic tests
  - Sensitivity 60-70%
  - Specificity >90%

AASLD Practice Guidelines Hepatology 2016

HCC Screening Failures

- Study conducted by researchers at the Baylor College in Texas
- Cohort >65 years old on Medicare
- 1,873 patients with HCC with a prior diagnosis of cirrhosis
- Study finds poor compliance with cirrhosis surveillance recommendations

Less than 20 percent of qualified patients were regularly monitored

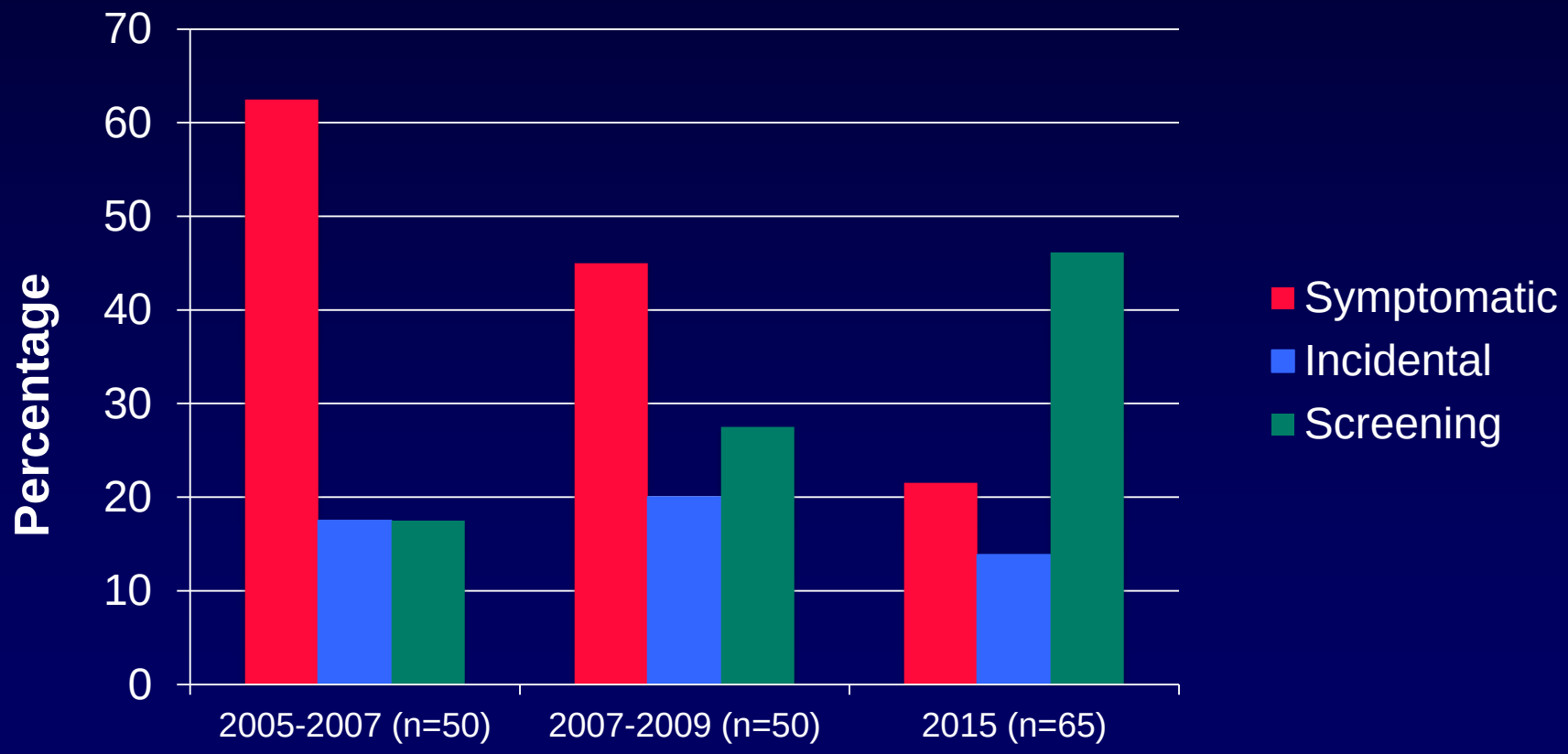
Use of Surveillance for HCC among patients with cirrhosis in the US. Davila et al *Hepatology* July 2010

HCC Screening Failures

- N=155 pts diagnosed 2005-2012
- 51% diagnosed in intermediate/late stage
- No surveillance year prior to dx: 75%
- Failure of detection: 11%

Singal et al. Journal of NCCN, 2014

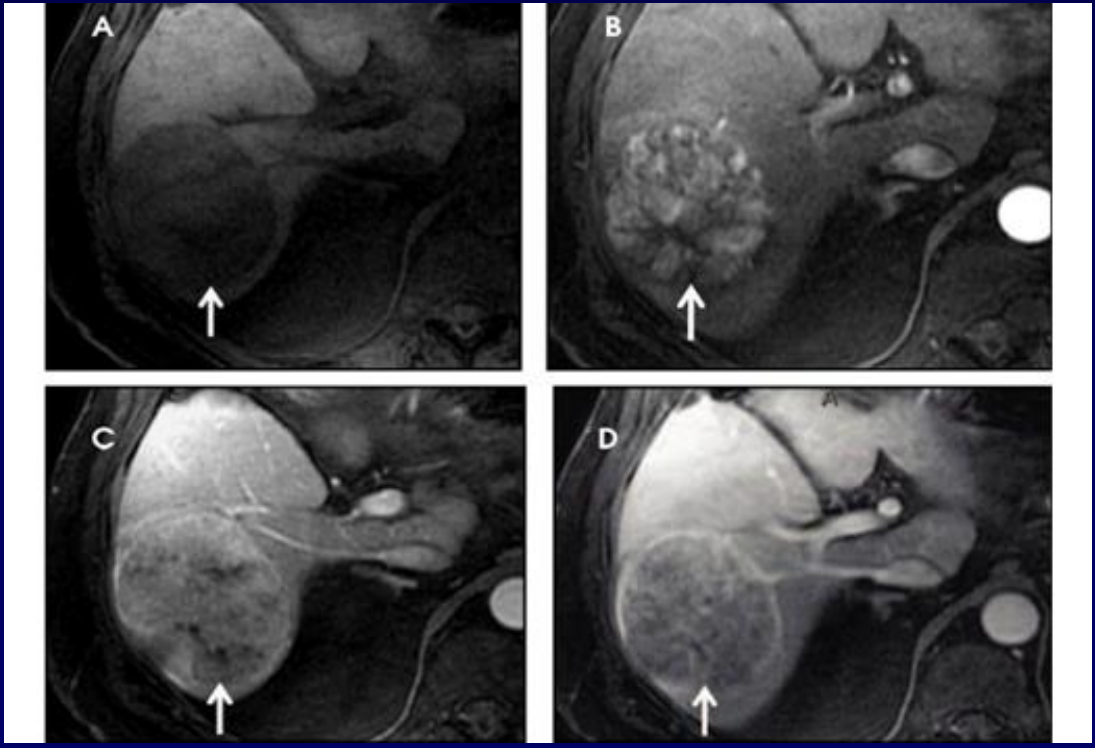
HCC Screening: How are we doing in Oregon?



Based on patients discussed at Providence HPB Tumor Board

If a lesion is found: MRI or CT

- If the patient has a history of hepatitis B or cirrhosis, usually HCC can be diagnosed by MRI or dual phase CT



Thank you!

Maybelle Clark Macdonald Foundation
Providence Cancer Center