



Memorial Sloan Kettering
Cancer Center

Liver directed treatment of HCC in Africa

T. Peter Kingham, MD FACS

Associate Professor, Hepatopancreatobiliary Surgery

Director, Global Cancer Disparity Initiatives

Memorial Sloan Kettering Cancer Center

New York, NY, USA

Member, African Research Group Oncology (ARGO)



Overview

- The problem?
- Our experience
- Treatment options



The Problem

- HCC currently not a surgical disease in most of Africa
 - For many reasons...
- Even in high resource environments – minority of patients with single HCC eligible for resection.
- But.... high risk population is obvious
- So how can liver directed treatment begin/expand?
 - Transplantation
 - Resection
 - Ablation
 - Embolization
 - Radiation
 - HIFU, etc
 - Chemotherapy



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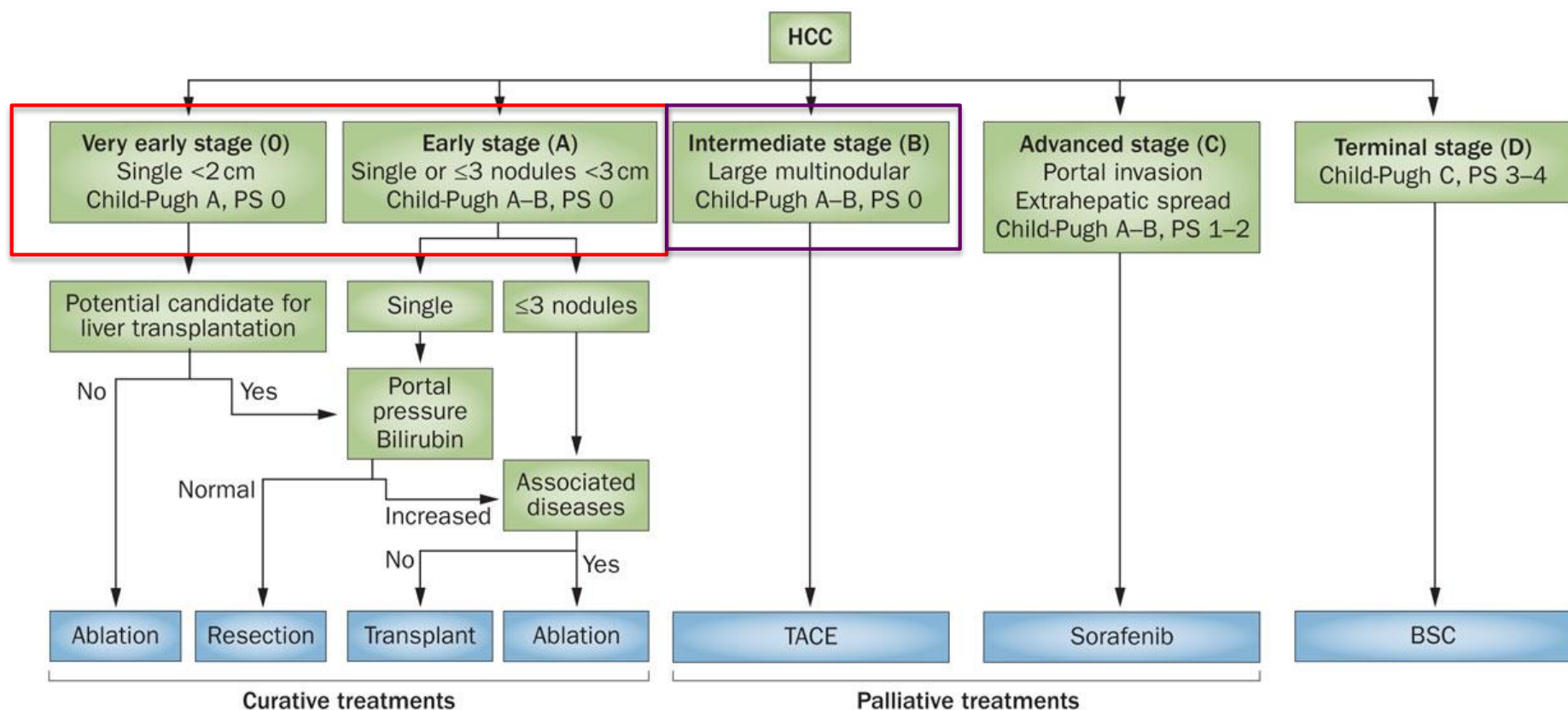
No Patients to Resect or Transplant: An Analysis of Patients with Hepatocellular Carcinoma Admitted to a Major African Referral Hospital

Adam Gyedu • William R. Shrauner •
T. Peter Kingham

- 2007-2013
- 204/465 charts available
 - 50% of patients died on hospitalization
- Zero resections/ablations
- <8% eligible for surgery/ablation
- 72% best supportive care only



Who are we talking about?



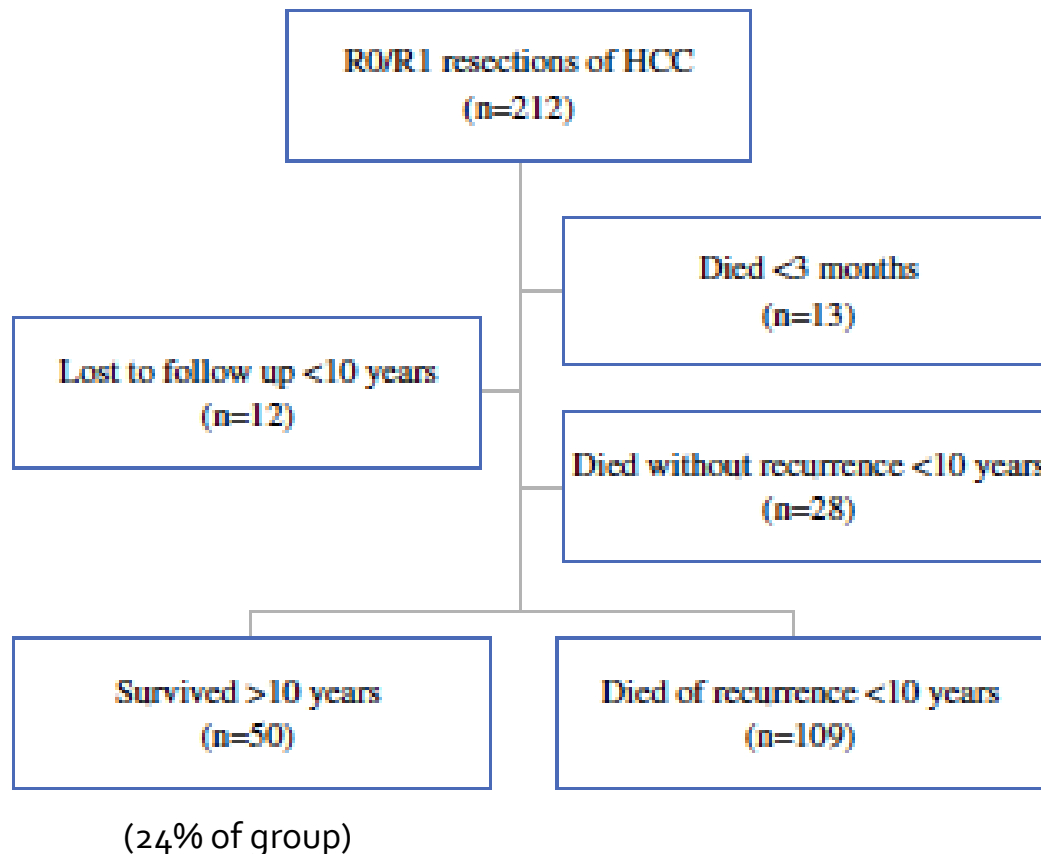
My experience

- 7 year collaboration with Dr. Alatise, Nigeria
- Theaters in Malawi, Sierra Leone, Ghana
- HPB surgery in New York



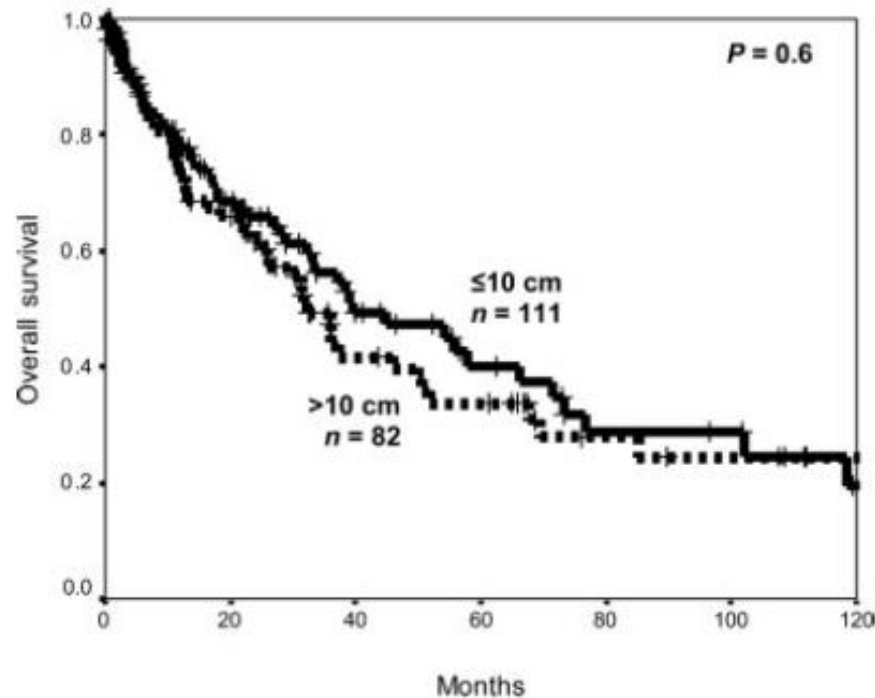
HCC resection can be curative

- 212 patients underwent resection
 - 1996-2006: median follow-up **13 years**, median OS 4.2 years



Surgery: resection for large (>10cm HCC) can lead to long term survival

- 1985-2002
 - 82 pts with tumors > 10 cm vs. 111 pts <10 cm
- 5-year survival rates – large tumors 33% vs. small tumors 39% (p=0.56)
- Operative mortality 2% (large tumors) vs. 6% (smaller tumors, p= NS)
- Vascular invasion, EBL > 2L predicted worse OS



Morbidity and mortality have decreased over time

	'93-'99 n=1275	'00-'06 n=1465	'07-'12 n=1412	P-value
Complications	53.2% (679)	34.3% (502)	19.9% (281)	<0.001
Estimated blood loss (ml,median, IQR)	650 (310- 1110)	400 (200-750)	300 (200-565)	0.003
Major complications	13.2% (169)	11.2% (164)	9.8% (138)	0.017
ASA score (range)	-	2 (2-3)	3 (2-3)	<0.001
90-day mortality	5.2% (66)	2.3% (34)	1.6% (22)	<0.001



Parenchymal preservation is key

	1973-1980	1991-1997	P value
Hospital mortality rate	29%	2%	<0.01
Lobe or greater	61%	16%	<0.01



Training for liver surgery

- Theoretical
 - Videos/books/equipment
 - Online ultrasound courses
- Practical
 - Partnerships with global HPB community
 - North Africa, South Africa, India, South America
 - One or two centers in a country
 - Palliative procedures/biopsies
 - Learning from past: parenchymal preservation



Technical requirements

- Preoperative
 - Good CT scan/ultrasound for staging
 - Liver function/size assessment
 - Radiologists/Surgeons
- OR infrastructure
 - Ultrasound
 - Suction
 - Clamp and ties
 - Retractor/exposure
 - Blood bank
 - ANESTHETIST
 - Surgeon
- Post operative care



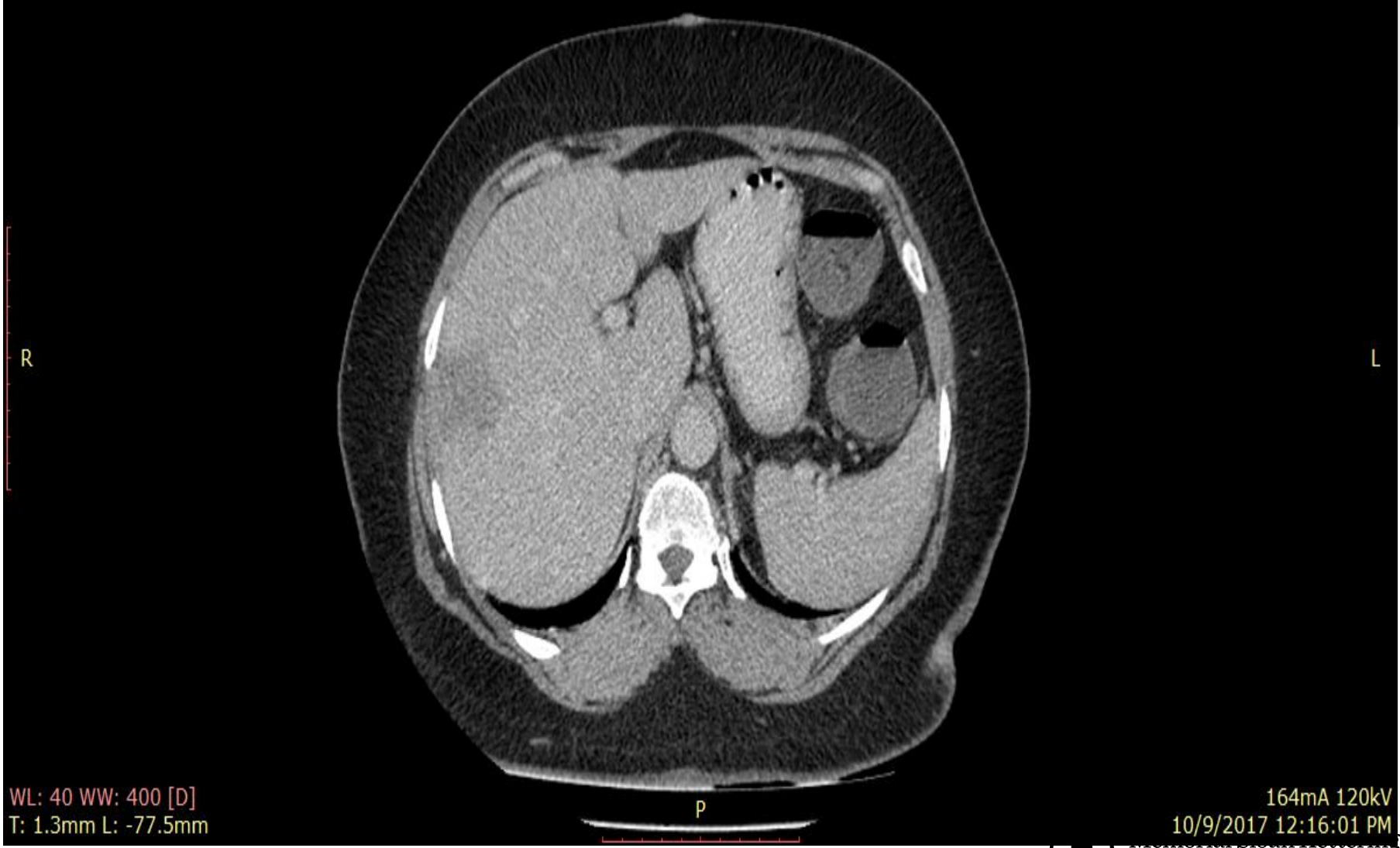
Liver surgery for all pathologies

- Alatise et al, Audit of management of gallbladder cancer in a Nigerian tertiary health facility
 - 1990-2010
 - 31 pts
 - 67% diagnosed intraoperatively
 - 4/31 patients underwent radical cholecystectomy
- Metastatic colorectal cancer
- Benign pathology: adenomas; cyst fenestration; hydatid cysts



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Cancer Center

Ablation

- Phantom training
- US training
- Newest microwave devices easy to use and easy to over ablate
- Percutaneous or intraoperative
- Can be used for resections



Results of ablation in Egypt

90 pts randomized to 3 groups, ≤ 3 tumors, all ≤ 5 cm

	ETOH	RFA	RFA/ETOH
1 st treatment complete	0%	56%	87%
1.5 yr survival	63%	76%	86%



Arterial embolization

- Requires fluoro and imaging
- Can be performed in OR
 - Ligation of hepatic artery with insertion of catheter treatment in OR
- Bland embolization is effective
- Not curative



Treatment of Primary and Secondary Liver Cancer by Hepatic Artery Ligation and Infusion Chemotherapy

JOSEPH G. FORTNER, M.D., ROBERT J. MULCARE, M.D., ARIEL SOLIS, M.D.,
ROBIN C. WATSON, M.D., ROBERT B. GOLBEY, M.D.

McDermott	5 pts	Intraop angiogram	Safe if normal liver function
Balasegaram	24 pts	Intraop angiogram	-5 pts prolonged survival -3/4 deaths with PV thrombosis
Fortner	23 pts	Preop angiogram Patent PV Infusion catheters	-2/6 HCC pts early mortality

McDermott, *Annals of Surgery*; 187:1; 1978

Fortner, *Annals of Surgery*; 178:2; 1972

Balasegaram, *Am J Surgery*; 124, 1972



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Hepatic collateral arterial supply

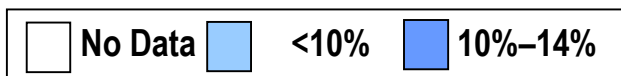
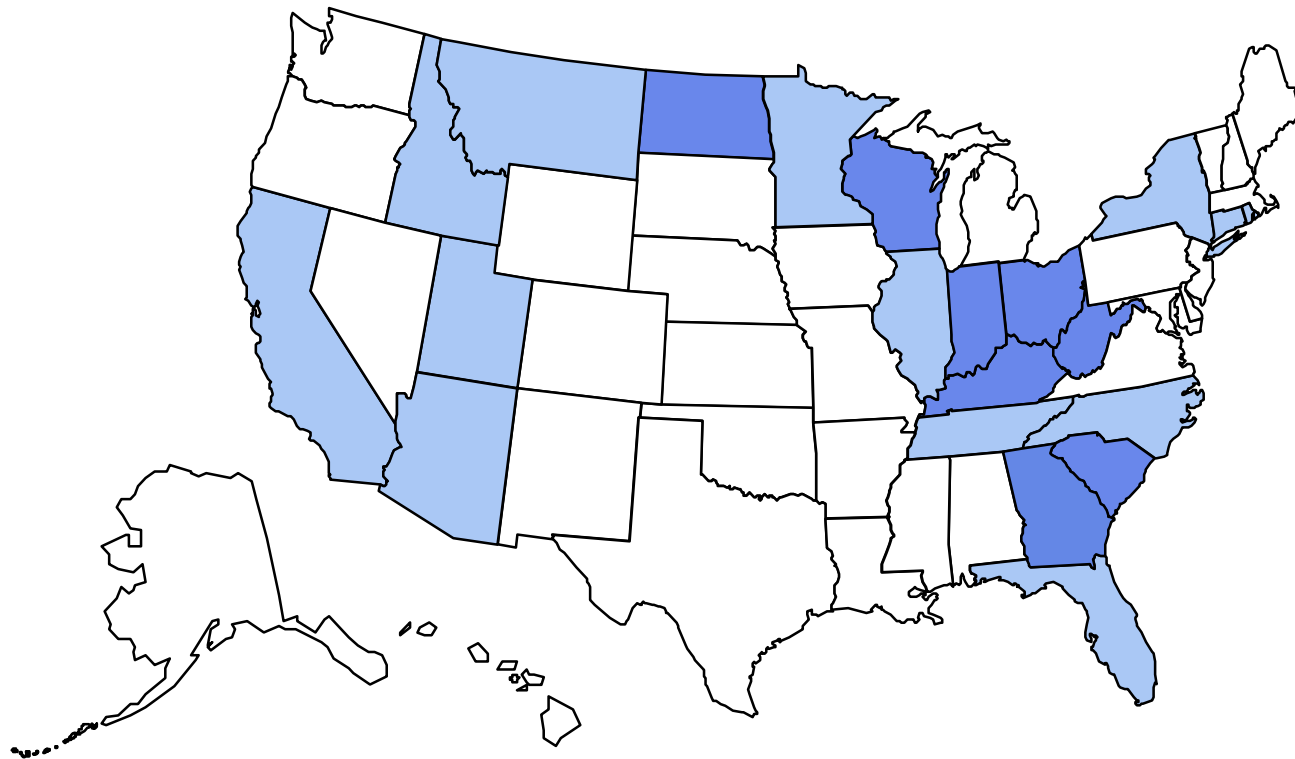
- 26 routes of collateral flow to liver
- 20 patients studied after hepatic artery ligation
 - Within 6 weeks
 - 9 with phrenic revascularization
 - 8 from porta hepatis
 - 7 splenic hilum



Obesity Trends* Among U.S. Adults

BRFSS, 1985

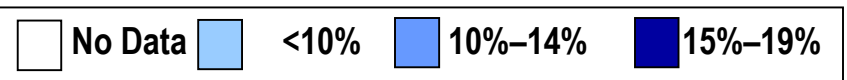
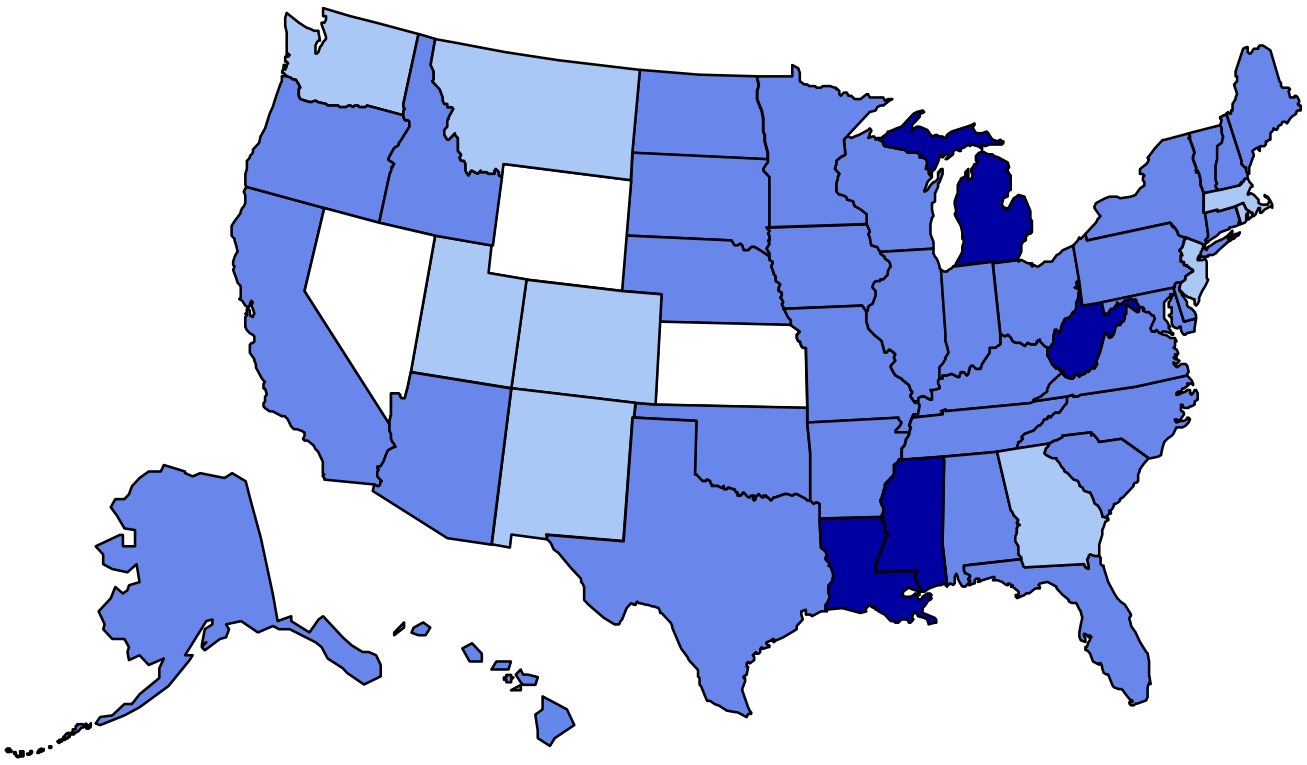
(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 1991

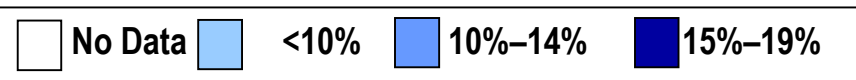
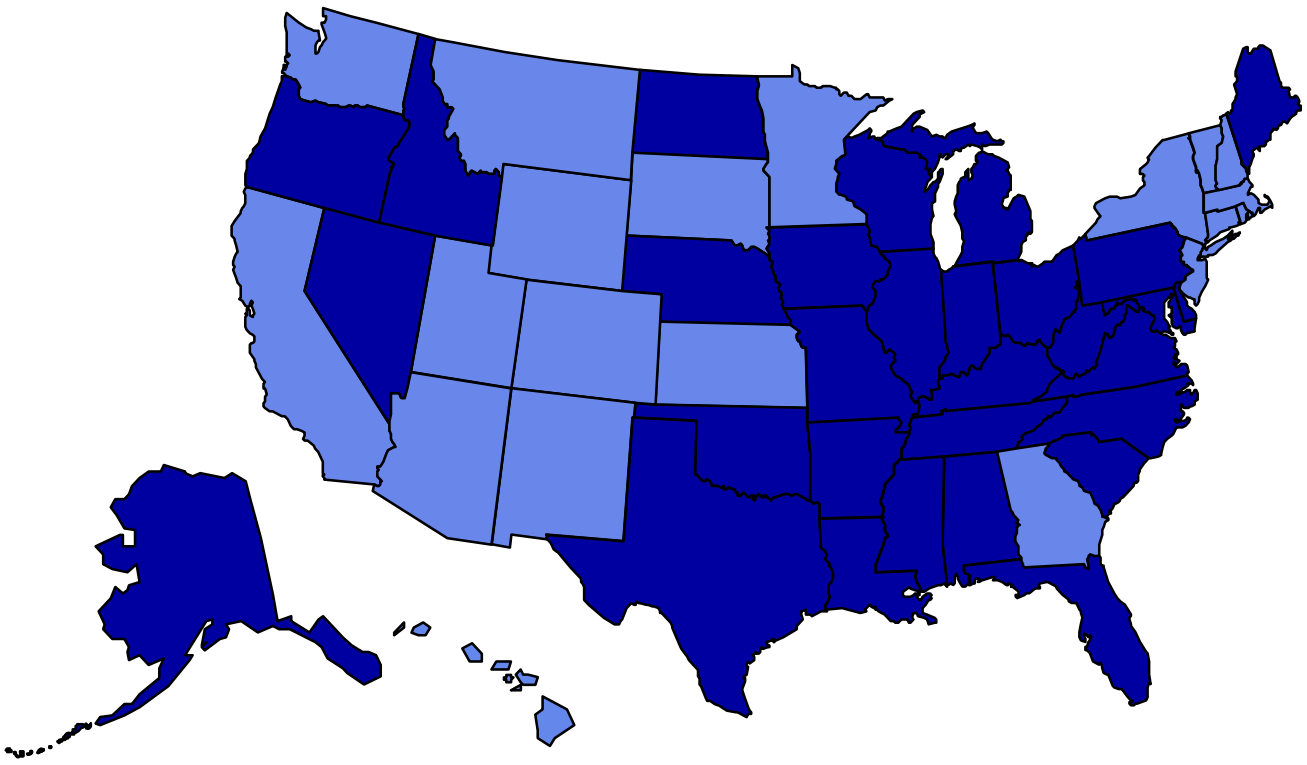
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Obesity Trends* Among U.S. Adults

BRFSS, 1996

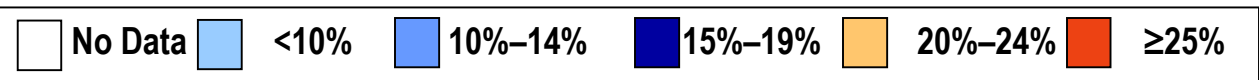
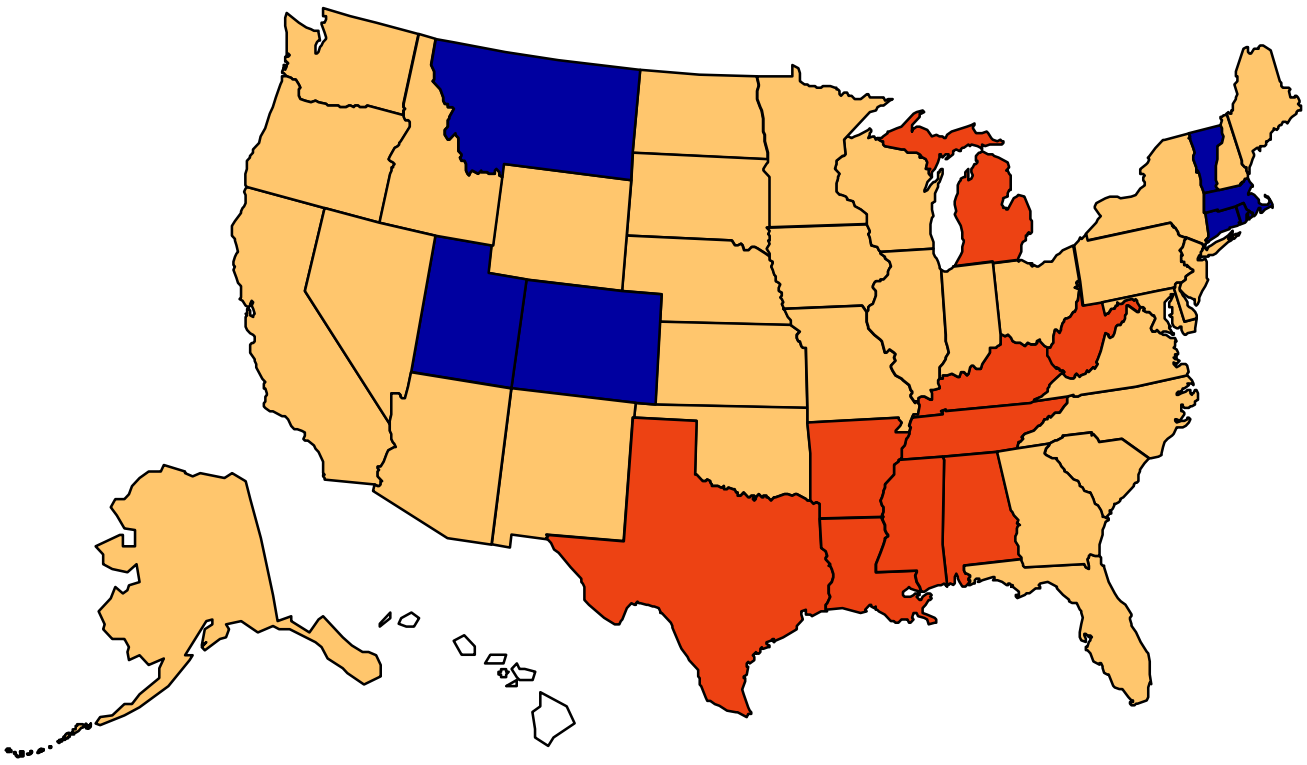
(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 2004

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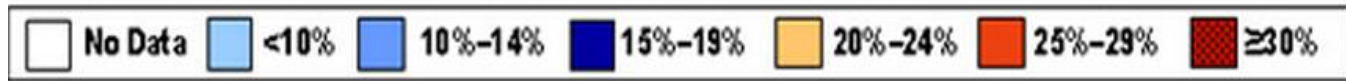
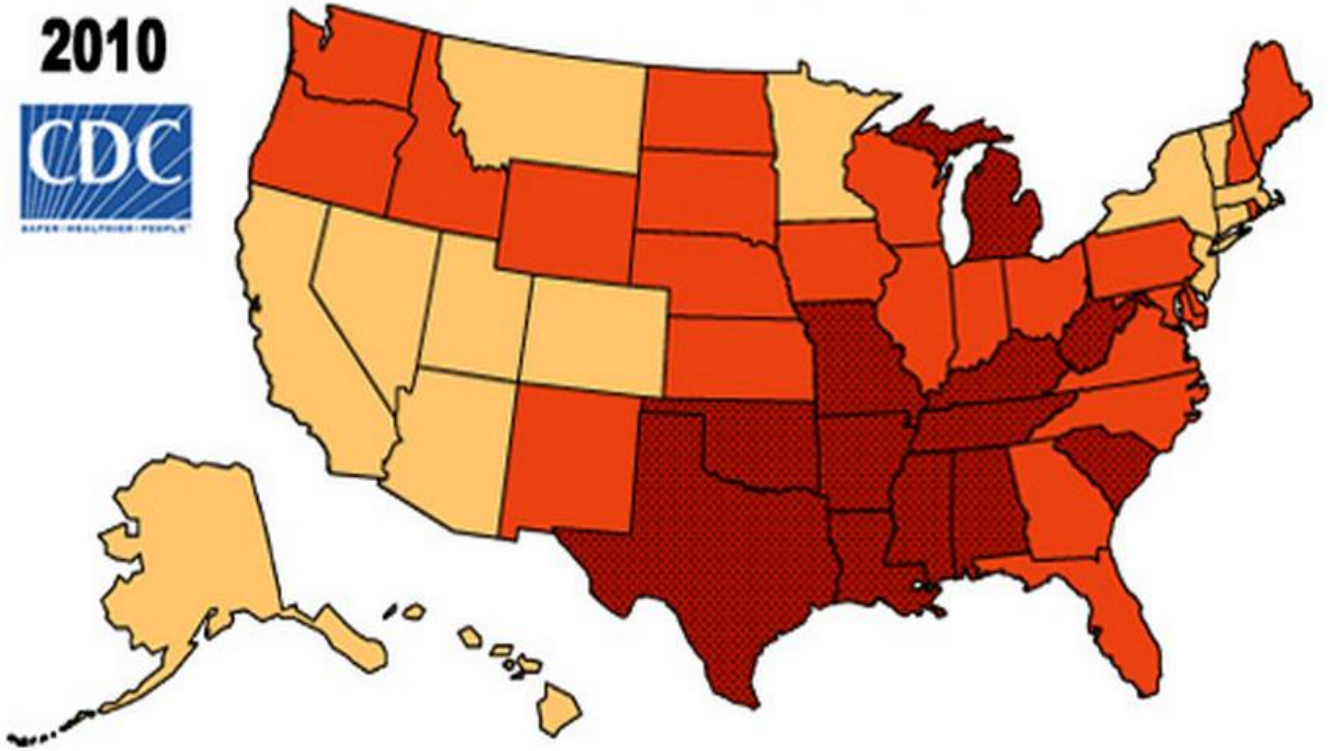


Obesity Trends* Among U.S. Adults

BRFSS, 2010

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2010
CDC
SAFER. HEALTHIER. PEOPLE.



Conclusions

- HIV piggyback
- Prevention/screening: vaccination, high and average risk screening
 - many patients will ignore – so always a role for therapy and surgery
- HPB community is active and camaraderie is high
 - Take advantage of this with a structured long term approach (Nicaragua)
 - Realistic goals
 - Small number of centers
 - Learn from history
 - Who not to operate on – gross vein invasion, high AFP...
 - Minor hepatectomies
 - Secondary outcomes of building liver directed approach
 - » Tx other diseases
 - » Job satisfaction
 - Effective treatment exists: surgery, ablation – huge deficit

