

# LIVER AND HEALTH

## 肝脏和健康



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# Outline of the presentation

- Liver Anatomy  
肝脏的解剖
- Primary Liver Functions  
肝脏的主要功能
- **Common Liver Diseases**  
**常见肝脏疾病**
- How to protect your liver?  
怎样保护肝脏?

# Liver Anatomy

## 肝脏解剖

- Largest internal organ  
(人体最大的内脏器官)
- 2 lobes: 70% and 30%
- Location: right upper quadrant of the abdominal cavity, next to stomach and pancreas. It is protected by the ribcage, usually not palpable below the right costal margin unless hepatomegaly (只有在肝脏肿大时，才可在右肋下缘处触及)

# Primary Liver Function

## 肝脏的主要功能

- Metabolizes cholesterol, carbohydrates or drugs (代谢)
- Produces and excretes bile (分泌胆汁)
- Regulates and stores glycogen (储存糖原)
- Detoxifies substances or toxins (解毒)
- Makes proteins essential for blood clotting (凝血蛋白)

# Common Liver Diseases

## 常见肝脏疾病

- **Non-Alcoholic Fatty Liver Disease**  
(非酒精性脂肪肝病)
- **Chronic Hepatitis B** (乙型肝炎)
- **Alcohol use in patients with chronic liver diseases**  
(慢性肝病患者的饮酒)
- **Liver cirrhosis** (肝硬化)

# Non-Alcoholic Fatty Liver Disease (NAFLD) 非酒精性脂肪肝病

- Excessive fat accumulation in the liver  
(肝内脂肪过多)
- Fat mimic alcohol induced liver injury in the absence of heavy alcohol use:  
(虽没有大量饮酒, 但肝损伤与由酒精引起的相似)
  - Difficult to distinguish by imaging or histology.
  - Differential Dx: history taking is essential.
  - Co-existing are common, but liver enzyme pattern may also provide some clues as to which cause is dominant.

# Definition of NAFLD 定义

Lack of secondary causes:

(没有下列原因)

Hepatitis C

Rapid weight loss

Severe starvation

Total Parenteral

nutrition (TPN),

and etc

Lack of long term use:

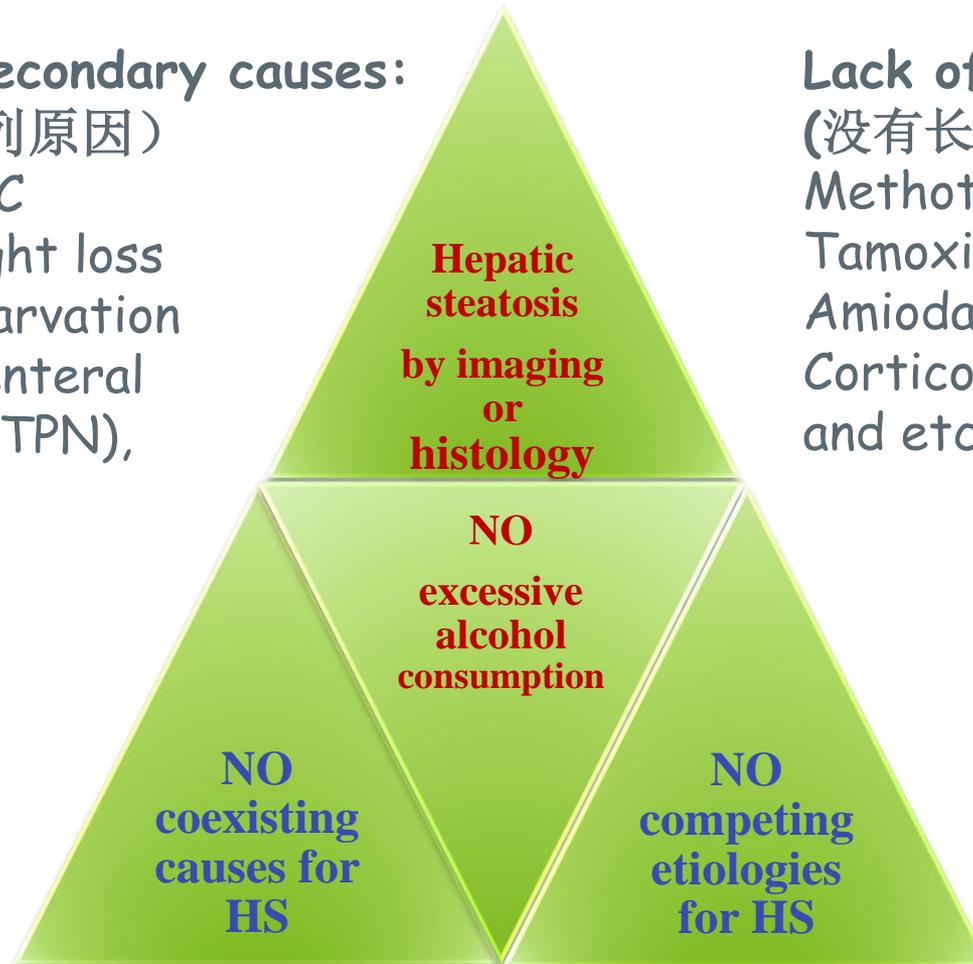
(没有长期使用下列药物)

Methotrexate 氨甲喋呤

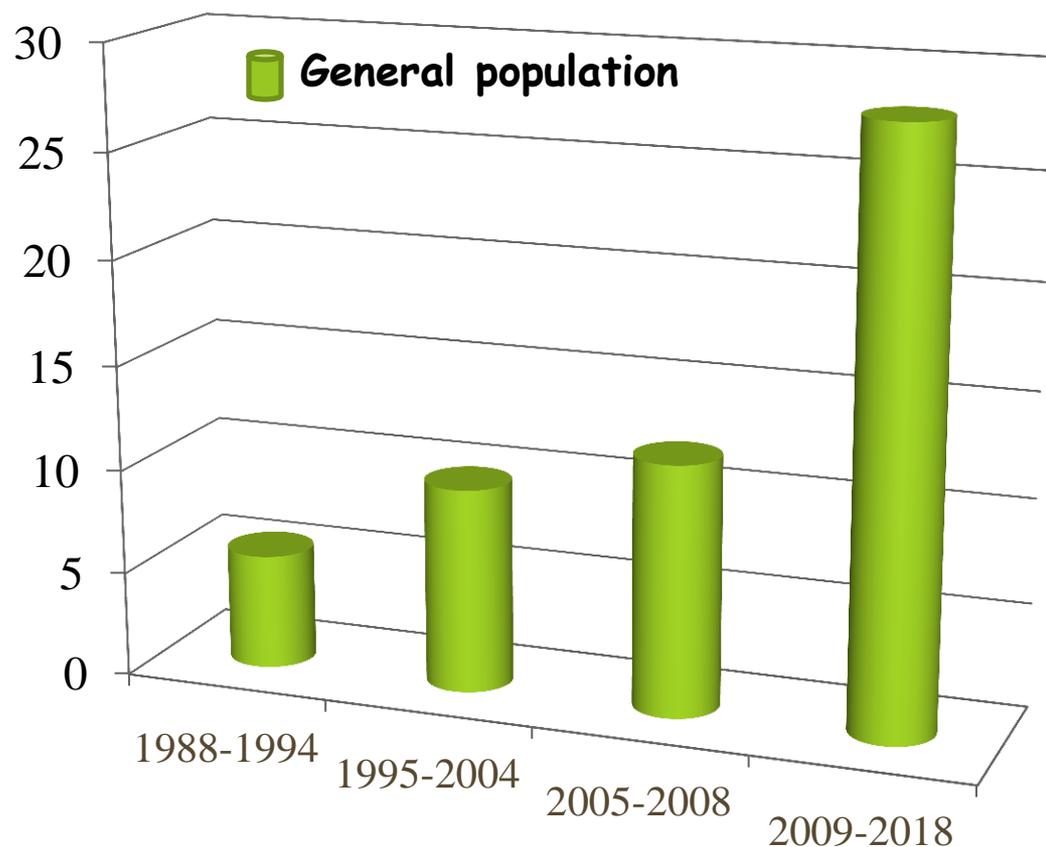
Tamoxifen 他莫昔芬

Amiodarone 胺碘酮

Corticosteroids 糖皮质激素  
and etc 等



# NAFLD Prevalence 发病率

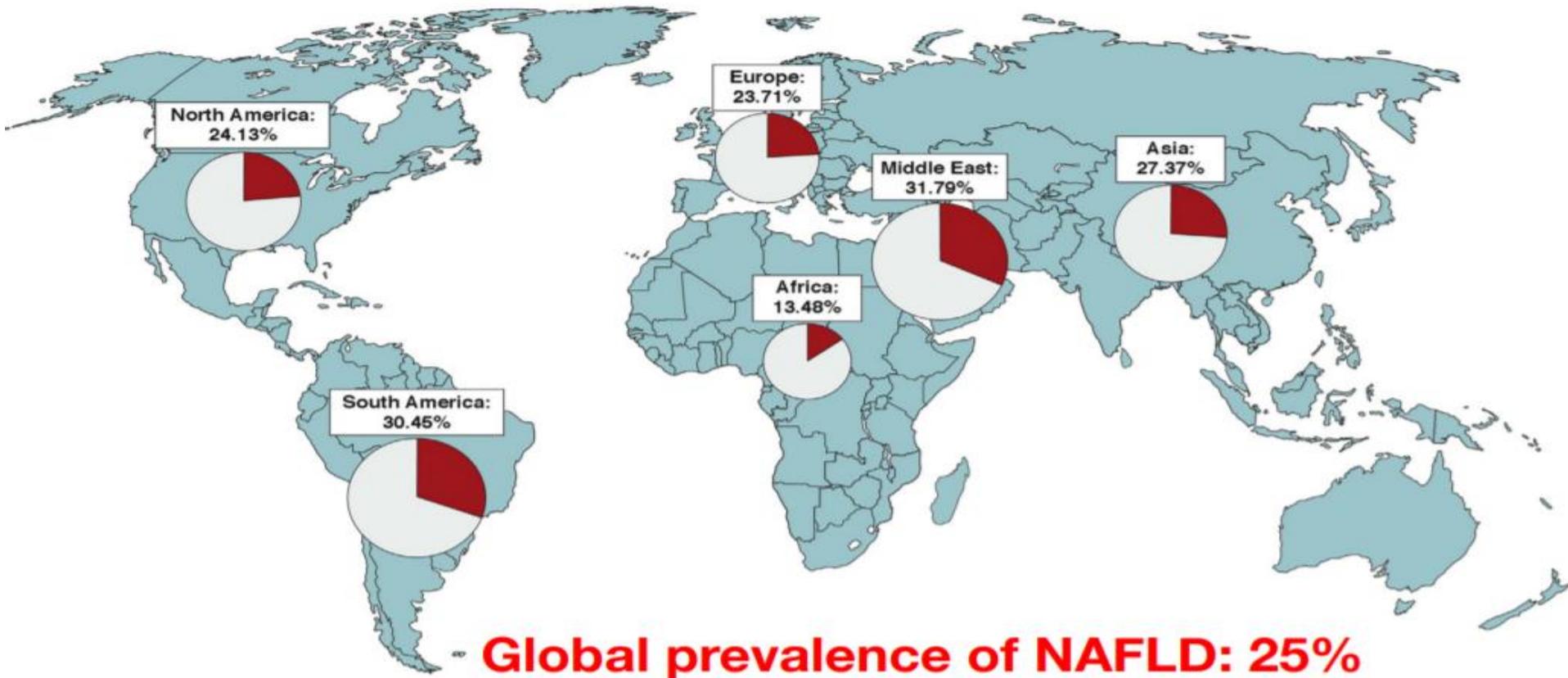


- 1988-1994: 5.5%
  - 1995-2004: 9.8%
  - 2005-2008: 12%
  - 2009-2018: 25%
- 
- **Becoming one of the most common liver diseases**  
(最常见肝病之一)
  - **Leading cause for liver transplant in 2030**  
(预测将是2030年肝移植的主要病因)

# 流行病学 NAFLD Epidemiology

**Meta-analysis: 86 studies, 8 million people, 22 countries**

**Global prevalence of overweight and obesity: 39%**



# NAFLD Pathogenesis 发病机理

- The pathogenesis is not fully elucidated (不完全清楚)
- Multifactorial (多原因)
- Insulin resistance (胰岛素抵抗)
- Environmental contribution and genetic deposition (环境和遗传因素) :

Variation in *PNPLA3* gene is associated with the development of NAFLD and liver cancer (*PNPLA3* 基因: Patatin Like Phospholipase Domain Containing 3)

# NAFLD Classification

## 非酒精性脂肪肝病的分类

Non-Alcoholic Fatty Liver (**NAFL**)  
非酒精性**脂肪肝**

Benign steatosis with good outcome (良性, 预后好)

Non-Alcoholic Steatohepatitis (**NASH**)  
非酒精性**脂肪性肝炎**

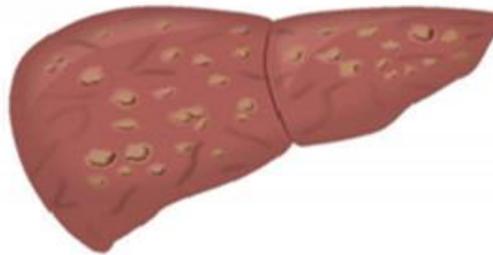
High risk of progression to cirrhosis and HCC  
(转化成肝硬化和原发性肝癌的风险很高)

# The Spectrum of NAFLD

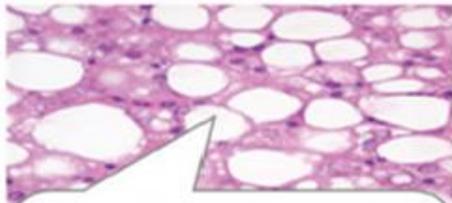
NAFL



NASH

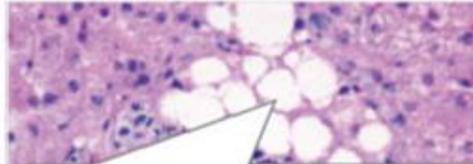


Cirrhosis



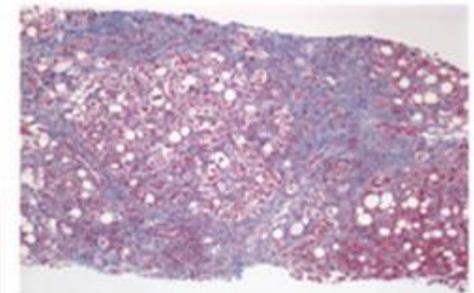
Fat infiltration >5%  
with or without mild  
inflammation

**脂肪肝 80%**



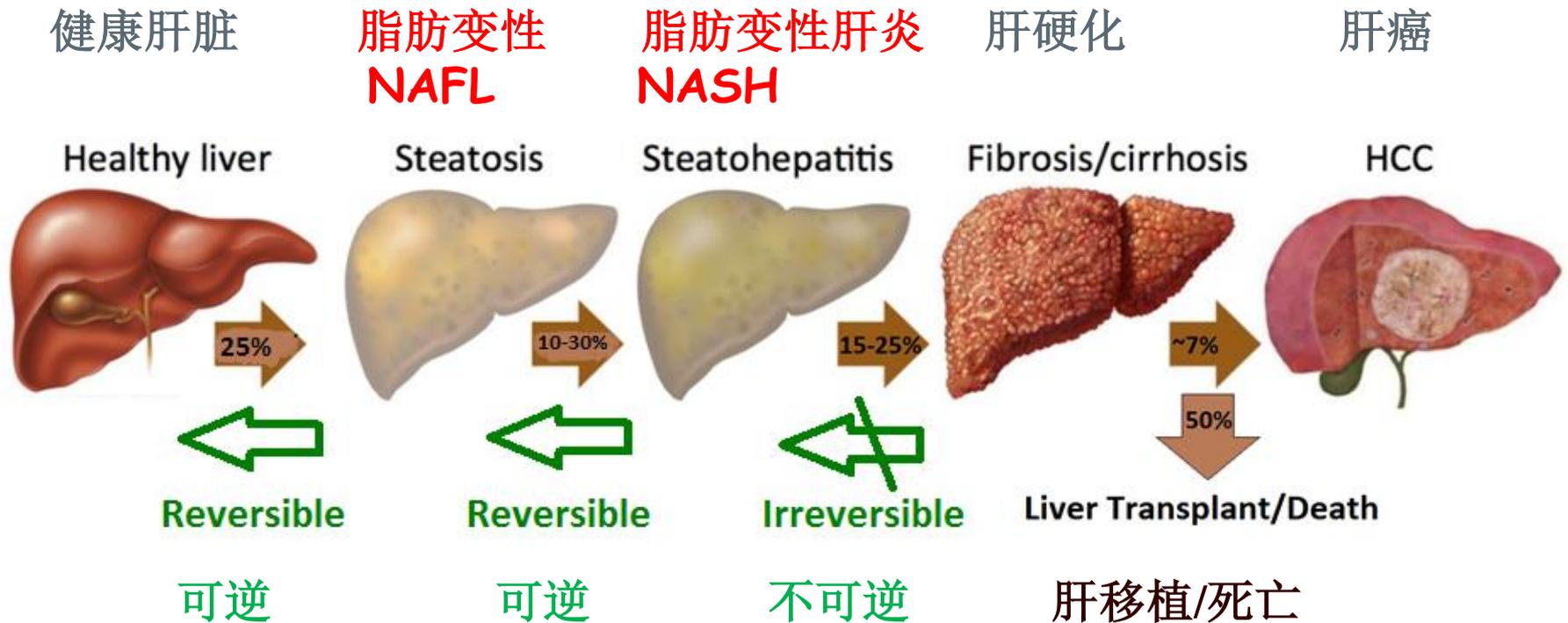
Steatosis + necro-inflammatory  
changes (ballooning  
degeneration, Mallory bodies,  
megamitochondria)  
and/or fibrosis

**脂肪性肝炎 20%**



**肝硬化**

# NAFLD Natural History Disease Progression and Regression



# Risk factors for NAFLD

## 危险因素

### Common established conditions:

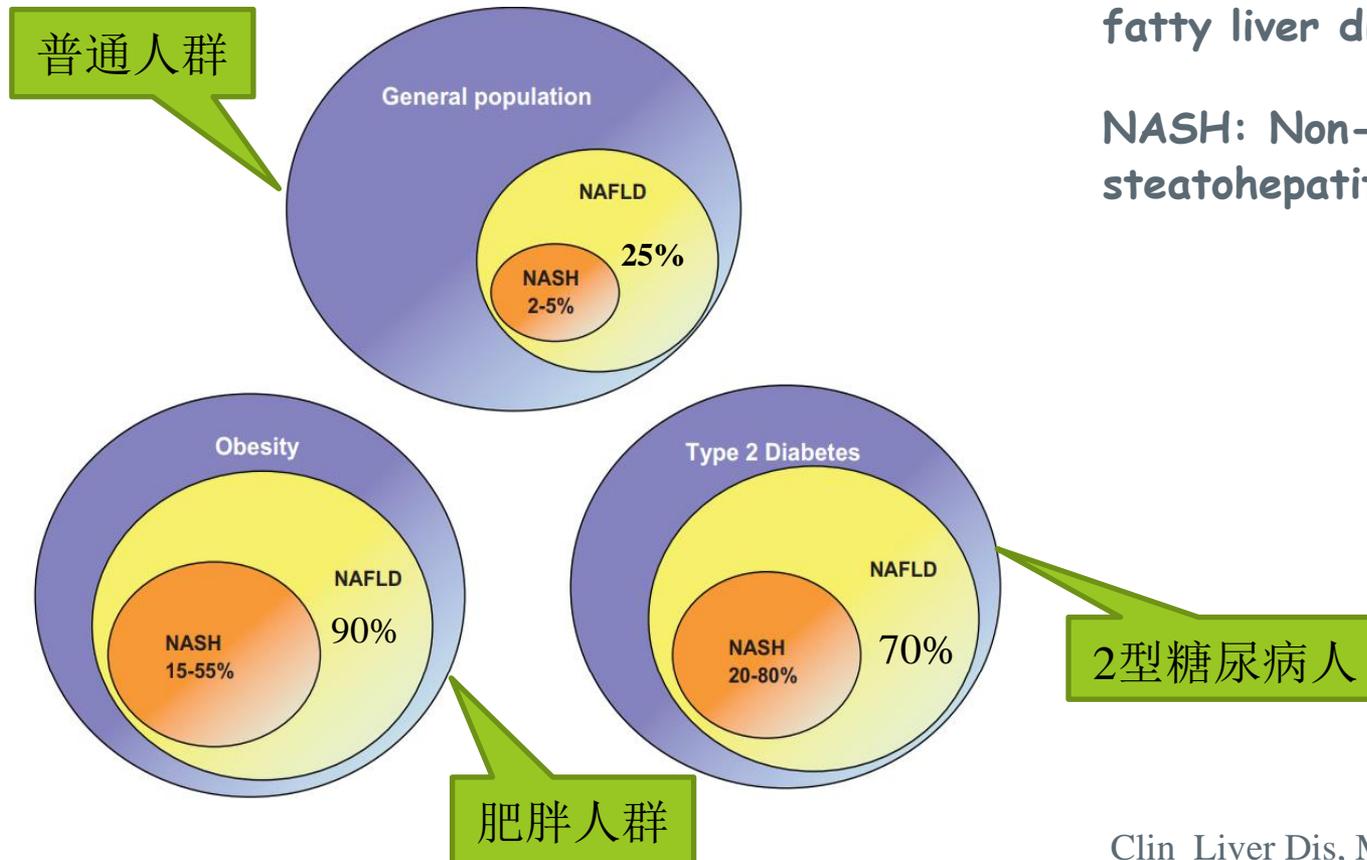
- Obesity and overweight (肥胖和超重)
- Diabetes (糖尿病)
- Metabolic syndrome (代谢综合征)
- Dyslipidemia (血脂失调): "**SLIM**" NAFLD is often seen in Asian with elevated triglycerides despite of low BMI (不胖却伴有甘油三酯升高的亚洲人)

### Other associated conditions:

- Obstructive sleep apnea (阻塞性睡眠呼吸综合征)
- Psoriasis (牛皮癣)
- Endocrine disorders (内分泌紊乱): hypothyroidism(甲低), etc

# Prevalence in high-risk groups

## 高危人群发生率



NAFLD: Non-alcoholic fatty liver disease

NASH: Non-alcoholic steatohepatitis

# 脂肪肝的临床表现

## NAFLD Clinical Manifestations

- Asymptomatic (通常无症状)
- Hepatomegaly (肝肿大时) : right upper quadrant discomfort or aching is common, but may not pain per se (右上腹可有不适但无明显疼痛)

# NAFLD Diagnostic Modalities 诊断

## Blood test (血化验):

- Liver enzymes may be normal or elevated. No biological markers (肝酶也许升高，无生物标记物)
- Diagnosis of exclusion. (排除法)

## Ultrasound/MRI (B超/核磁共振):

- Fatty infiltration, cirrhosis or space occupying lesion (占位性病变)

## Liver Biopsy (肝活检) (有创伤的检查。副作用：出血，感染等)

- The most accurate diagnostic modality
- Invasive procedure with potential complications: bleeding, infection, etc.

## FibroScan (Transient elastography) 肝纤维化扫描

- Uses ultrasound and elastic wave to assess the severity of steatosis and liver stiffness called fibrosis (超声与弹力波的结合)
- Non-invasive, cost effective modality (无创伤的检查)

# Pharmacological treatment 药物治疗

<b>Metformin</b>	EASL	NICE	ASIA-PACIFIC	AISF	AASLD
Metformin	Insufficient evidence	Not beneficial	Not beneficial	Not mentioned	Not beneficial
Vitamin E <b>Vit E</b>	Insufficient evidence	Consider use regardless of diabetes	Not beneficial	Insufficient evidence	Consider use in non-diabetic, biopsy-proven NASH
PPAR-gamma agonists	Consider use in selected diabetic patients	Consider pioglitazone in adults regardless of diabetes	Insufficient evidence in Asian patients	Insufficient evidence, potentially useful	<b>Pioglitazone</b> indicated in biopsy-proven NASH (regardless of diabetes) Not beneficial
PUFA	Not beneficial	Insufficient evidence	Not beneficial	Not mentioned	Not mentioned
Pentoxifylline	Insufficient evidence	Not mentioned	Not beneficial	Not mentioned	Not mentioned
GLP-1 analogues	Insufficient evidence, potentially useful	Insufficient evidence	Insufficient evidence in Asian patients	Insufficient evidence, potentially useful	Insufficient evidence
UDCA	Not beneficial	Not beneficial	Not mentioned	Not mentioned	Not beneficial
Obetypolic acid	Scarce evidence	Not mentioned	waiting for ongoing RCT results	Waiting for ongoing RCT results	Insufficient evidence
Silymarin	Not mentioned	Not mentioned	insufficient evidence, potentially useful	Not mentioned	Not mentioned
Statins	Safe but not beneficial	Safe but not beneficial	Safe but not beneficial	Safe but not beneficial	Safe but not beneficial

EASL: European Association for the Study of the Liver; NICE: National Institute for Health and Care Excellence; AISF: Italian Association for the Study of the Liver; AASLD: American Association for the Study of Liver Diseases; PPAR: Peroxisome proliferator-activated receptors; PUFA: Poly-unsaturated fatty acids; GLP-1: Glucagon-like peptide-1.

# Our take on the consensus

- **Metformin** (二甲双胍) : Recent meta-analysis studies showed no clear benefits in histology. **NOT recommended** (不再使用)
- **Vitamin E** (维生素E) : Improves steatosis. **Recommended** in non-diabetic. The concern is the risk of prostate cancer. Long term use side effects are unknown (可用于非糖尿病患者，但有患前列腺癌的风险。且长期副作用不详)
- **Pioglitazone** (吡格列酮) : Improves steatosis and fibrosis. **Recommended** regardless of diabetes. The concern is potential cardiovascular side effects (可能有心血管副作用)

**NO approved treatment for NASH**  
**Any drugs use are off-label**

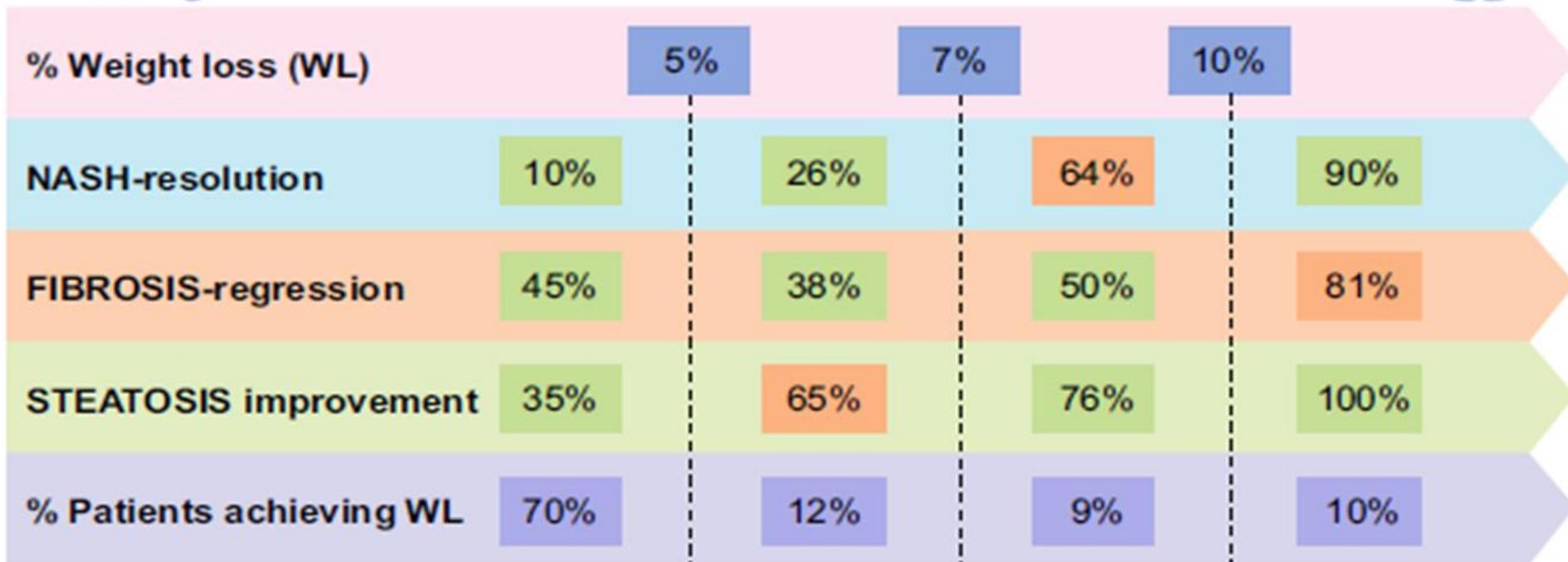
# Non-pharmacological Treatment 非药物治疗



52 weeks of lifestyle intervention



52周生活方式的改变



# Non-pharmacological Treatment

## 非药物治疗 (con't)

**Lifestyle Intervention: 10% weight loss** (改变生活习惯, 少糖多动)

- Diet modification: reduce calorie intake eg; carb, pops, sweat, etc.
- Aerobic exercise: moderate intensity, at least 50min 3 times a week

**Bariatric surgery** (Roux-en-Y gastric bypass) (胃肠绕道减肥手术):

- Only considered for severe obese candidates (适用于严重肥胖) to reduce stomach to loss weight and correct other life-threatening weight related health problems.
- Meta-analysis involving 15 studies: effective treatment to improve NASH (效果显著)

**Control metabolic conditions:**

(控制代谢综合症)

- Diabetes, cholesterol and triglycerides

# Treatment in Clinical Trials

## 临床观察药物

- Potential candidates:  
NASH continues to progress
- Investigational drug:  
evaluate efficacy and safety
- New drugs pipeline promising

# The Silent Liver Diseases You Need to Know About: **NAFLD and NASH**

We are on the onset of an epidemic of NAFLD and NASH. Never heard of NAFLD or NASH? You aren't alone and that's part of the problem. Potentially affecting the livers of

**MORE THAN 100 MILLION AMERICANS,**

NAFLD and its more severe form, NASH can lead to cirrhosis of the liver and liver cancer is not caught early. The good news is that NAFLD is reversible if caught in the early stages.

**Get the facts so you can prevent these diseases.**



## WHAT IS IT?

**NON-ALCOHOLIC FATTY LIVER DISEASE**

is the accumulation of significant amounts of excess fat in the liver, which is not caused by alcohol

### FATTY LIVER:

Liver becomes inflamed and **5% - 10%** of liver's weight is fat



It is more common among **PEOPLE WHO ARE:**

- overweight
- diabetic
- high cholesterol or triglycerides

## SYMPTOMS

Typically there are **no symptoms of NAFLD**. If they appear, symptoms include fatigue, weakness, weight loss, limited appetite, nausea, abdominal pain, jaundice, swelling in the legs and abdomen, and mental confusion?

## DIAGNOSIS

The blood test for NAFLD...

**MANAGEMENT**

- Regular aerobic exercise 30-60 minutes three times a week
- If diabetic, tight control of the glucose level
- Lose 7-10% of body weight

## FACTS?

Progresses to a condition (NASH), cause by the...

## RISK FACTORS

- Diabetes
- High cholesterol
- High triglycerides
- People between the ages of 40 and 60 years of age<sup>2</sup>
- More common in women than men



**NO Treatment 10% Weight Loss**

## NAFLD AT A GLANCE

**BETWEEN 30 AND 40 PERCENT** of adults in the U.S. have NAFLD<sup>3</sup>

NAFLD is one of the **MOST COMMON CAUSES** of liver disease in the U.S.<sup>3</sup>

## NASH AT A GLANCE

**#1** By 2030, NASH will be the **most frequent reason for liver transplants** in the United States.<sup>1</sup>

NASH affects between **2 - 5%** of Americans<sup>4</sup> which equals between **6.5 - 16.3 million** people.

Experts estimate that **ABOUT 20%** of people with NAFLD have NASH<sup>3</sup> → **UP TO 25%** of adults with NASH may have cirrhosis<sup>2</sup>

References:  
 1 World Journal of Gastroenterology, "Liver transplantation for nonalcoholic fatty liver disease: New challenges and new opportunities," May 14, 2014. Accessed on August 8, 2017. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4017047/>  
 2 American Liver Foundation, "NAFLD" Dec. 2016. Retrieved from: <http://www.liverfoundation.org/abouttheliver/info/naflfd/>

3 National Institutes of Diabetes and Digestive and Kidney Diseases, "Definition & Facts of NAFLD & NASH," Nov. 2017. Retrieved from: <https://www.niddk.nih.gov/health-information/liver-disease/nafl-d-nash/definition-facts>. Accessed on June 8, 2017.  
 4 National Institutes of Diabetes and Digestive and Kidney Diseases, "Nonalcoholic Steatohepatitis," Nov. 2006. Retrieved from: <https://www.niddk.nih.gov/-media/00f927108f710434183f03a8f4132c5a82.cdx>.

# Chronic Hepatitis B (CHB) 乙肝

HEPATOLOGY



PRACTICE GUIDANCE | HEPATOLOGY, VOL. 67, NO. 4, 2018

## Update on Prevention, Diagnosis, and Treatment of Chronic Hepatitis B: AASLD 2018 Hepatitis B Guidance

Norah A. Terrault,<sup>1</sup> Anna S.F. Lok,<sup>2</sup> Brian J. McMahon,<sup>3</sup> Kyong-Mi Chang,<sup>4</sup> Jessica P. Hwang,<sup>5</sup> Maureen M. Jonas,<sup>6</sup> Robert S. Brown Jr.,<sup>7</sup> Natalie H. Bzowej,<sup>8</sup> and John B. Wong<sup>9</sup>

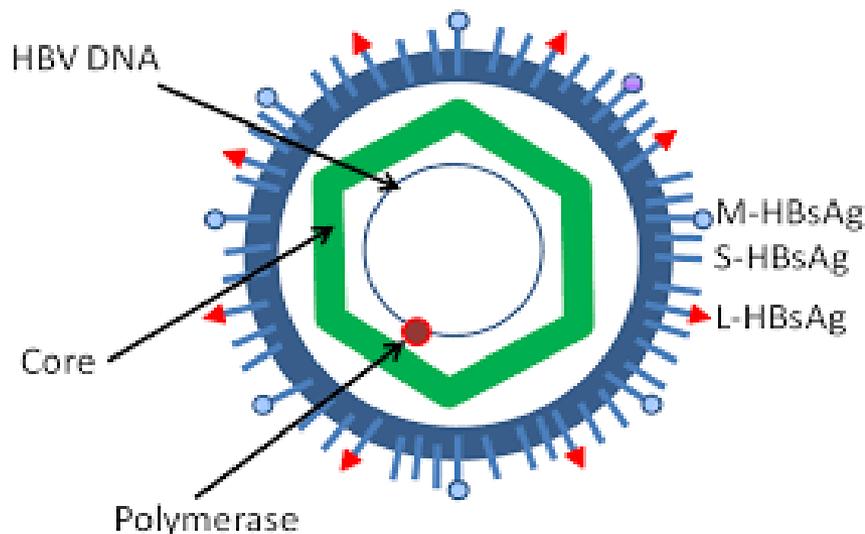
### Purpose and Scope of the Guidance

This AASLD 2018 Hepatitis B Guidance is intended to complement the AASLD 2016 Practice Guidelines for Treatment of Chronic Hepatitis B<sup>(1)</sup>

hepatitis B. It differs from the published 2016 AASLD *guidelines*, which conducted systematic reviews and used a multidisciplinary panel of experts to rate the quality (level) of the evidence and the strength of each recommendation using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology. This guidance is intended to complement the published 2016 AASLD *guidelines*, which conducted systematic reviews and used a multidisciplinary panel of experts to rate the quality (level) of the evidence and the strength of each recommendation using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology.

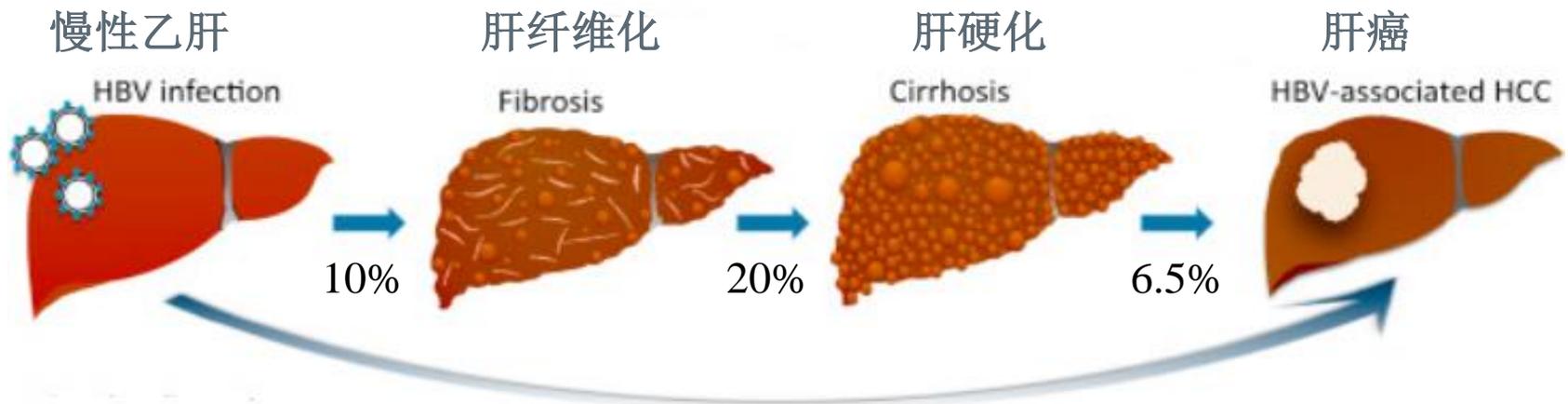
# Hepatitis B 乙型肝炎

- Hepatitis B is caused by HBVDNA virus (病毒) coded with many proteins. The DNA polymerase (DNA多聚酶) are essential for viral replication (病毒复制).
- Contagious virus 传染性强
- The natural history and disease progression is complex, non-linear (患病和病程很复杂)



# Natural history and progression

Chronic Hepatitis B progression in 5 year period:



5 year survival rate: 55% cirrhosis

14% decompensated cirrhosis, liver failure  
and hepatocellular carcinoma (HCC)

# Hepatitis B Epidemiology 乙肝流行病学

## 世界卫生组织2018年数据 WHO key data 2018

- 257 million individuals worldwide are infected. 1/3 reside in China (全世界有**2.57亿**乙肝，其中**1/3**在中国)
- Chronic infection occurs after acute exposure: 80-90% in infants, 30-50% in young children, 5% in adults
- 887,000 death related to cirrhosis and liver cancer

### Chronic hepatitis B in China: (中国的乙肝状况)

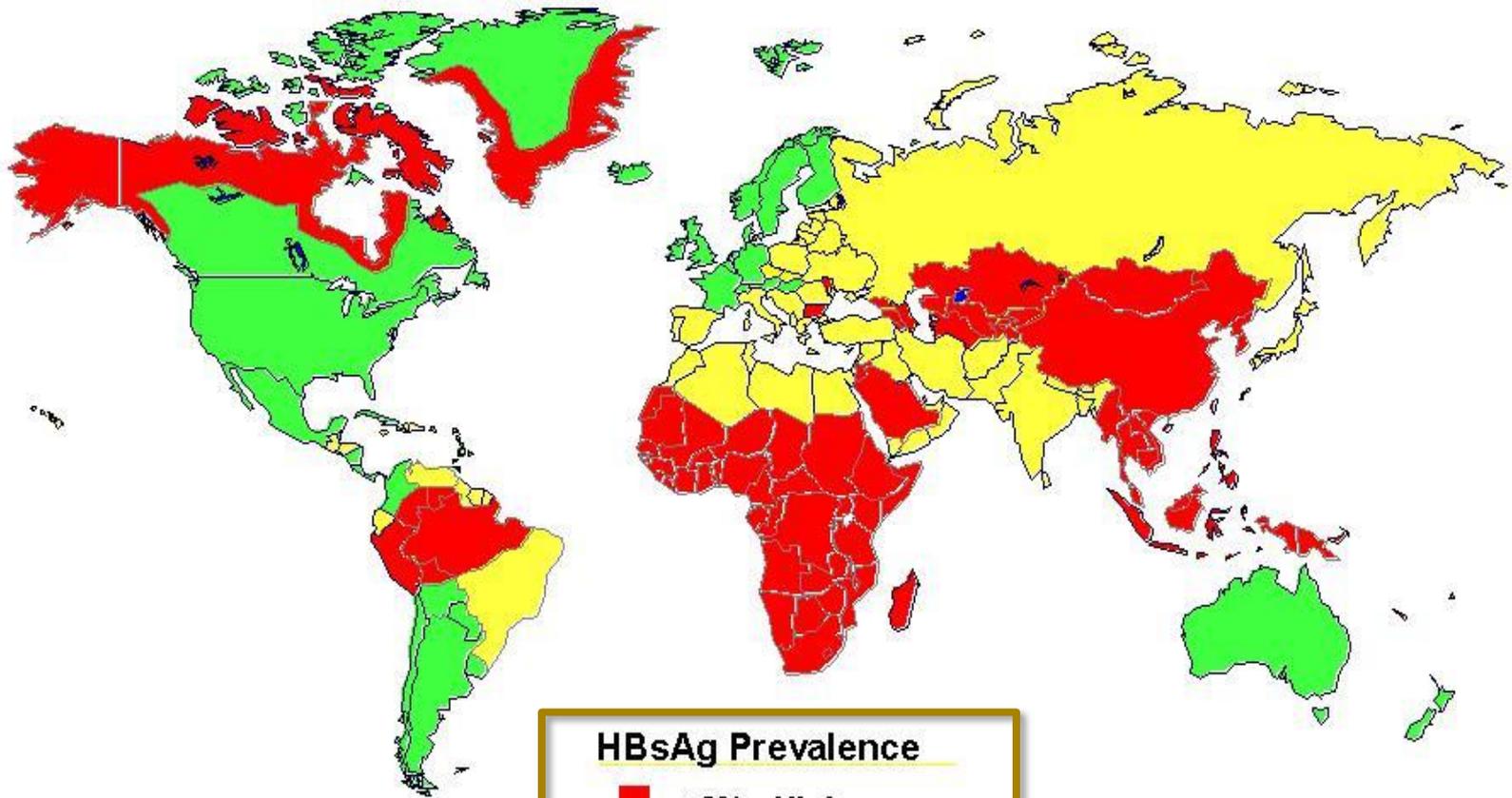
-**90 million** are infected (**9千万**有慢性乙肝)

-**30 million** require treatment (**3千万**需要治疗)

In Canada: <1% infected.

# 乙型肝炎的区域分布

## Geographic Distribution of Chronic HBV Infection



# Hepatitis B Transmission 乙肝传播途径

HBV (肝炎病毒) is blood borne virus,  
transmitted via blood or body fluids (通过血液或体液传播)

## Risk factors (风险因素)

- Vertical transmission (母婴传播): infant born to a positive mother
- Exposure to a positive person: unprotected sex (性传播) or household contact (同住)
- Drug users share contaminated injection needles or materials: snorting crack cocaine or crystal meth, etc (使用毒品)
- Percutaneous exposure (经皮): tattoo or body piecing, etc
- Occupational exposure (医务工作者)

# Hepatitis B Transmission

## 乙肝传播途径 (con't)

**Hepatitis B is NOT transmitted by:**  
**(乙肝不经过下列途径在人群中传染)**

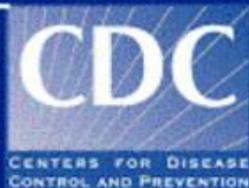
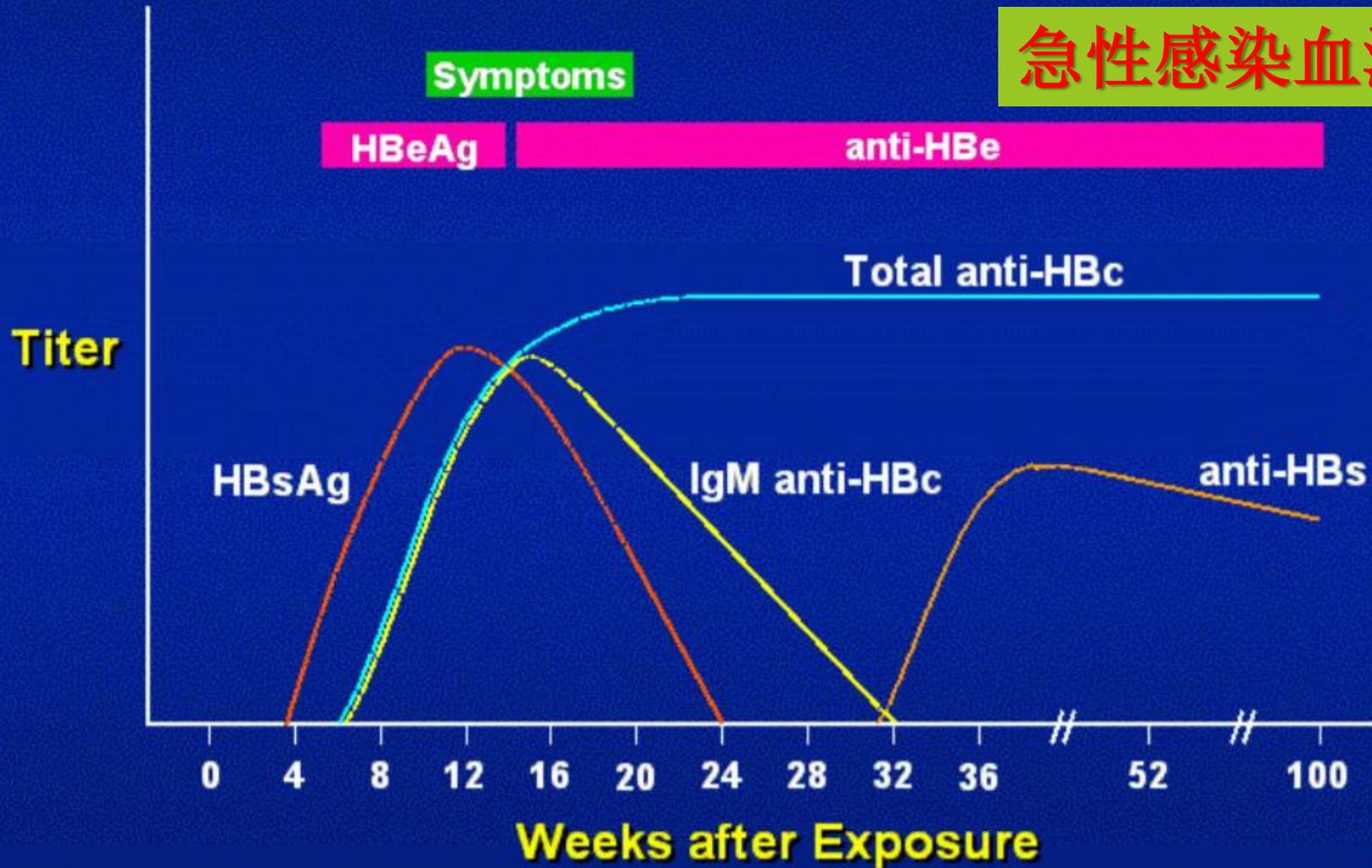
- Coughing or sneezing (咳嗽, 打喷嚏)
- Shaking hands or hugging (握手, 拥抱)
- Using toilet seats (洗手间)
- Sharing food (共餐)

# 乙肝的临床特征

## Hepatitis B Clinical Features

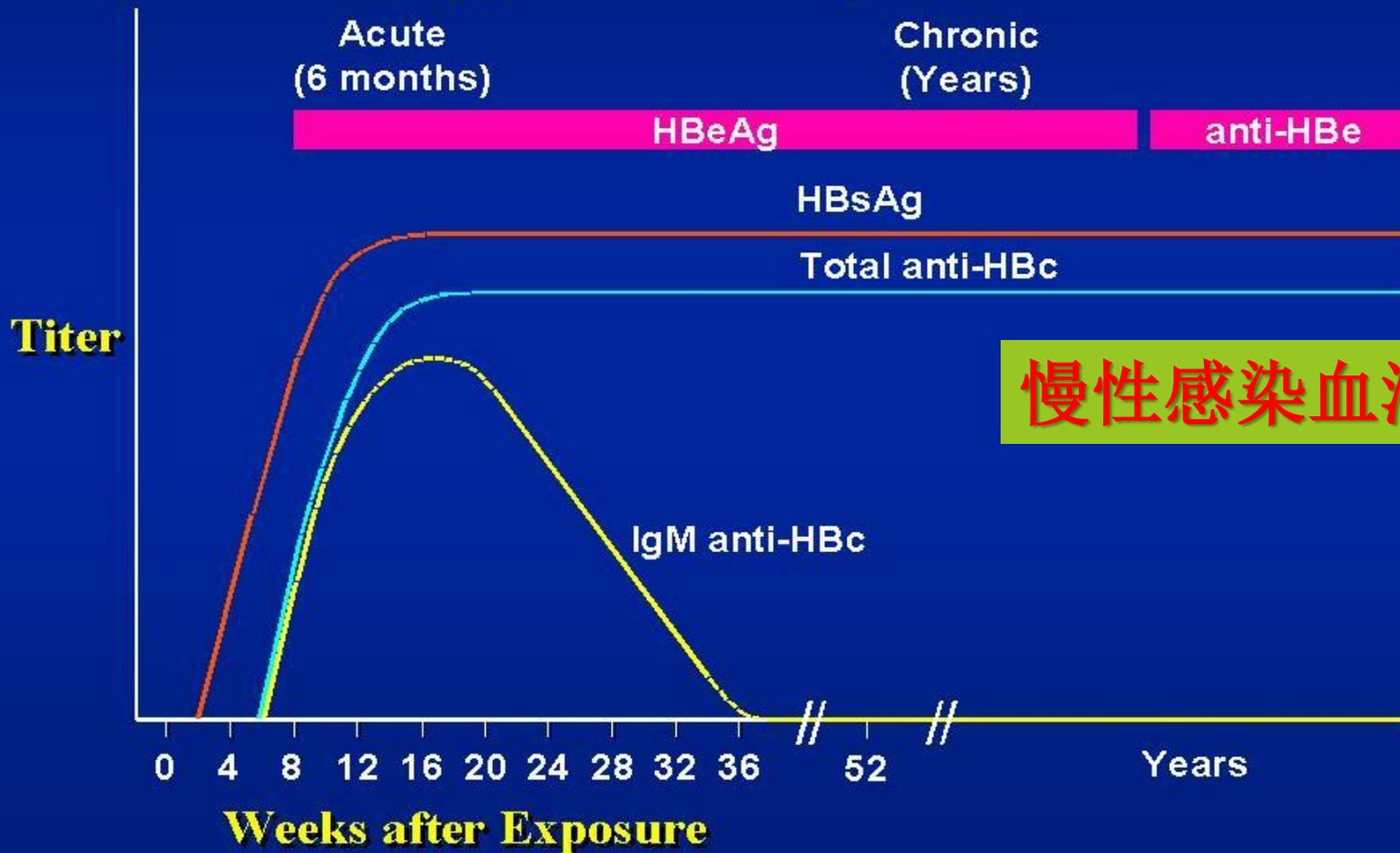
- **Chronic infection (慢性乙肝):** Asymptomatic (无症状)
- **Acute infection (急性期):**
  - No symptoms within the first 8-12 weeks (2-3mo) prior to the onset of illness, e.g. jaundice, abdominal pain, fatigue, nausea, fever or other non-specific symptoms. (前8-12周没有症状)
  - Only 50% have symptoms. (只有50%出现症状)

# Acute Hepatitis B Virus Infection with Recovery Typical Serologic Course



- Majority adults: spontaneous clearance of HBsAg and produce immunity with anti-HBs
- Majority children: develop chronic infection

# Progression to Chronic Hepatitis B Virus Infection Typical Serologic Course



-Chronic infection develop after exposure: 5 % for adults, up to 90% for infants, up to 50% for young children

-90 million infection in China

# 解读乙肝化验结果

## Interpretation of serological markers

表面抗原 HBsAg Ongoing	核心抗体 Anti-HBc Infected	表面抗体 Anti-HBs Immune	Interpretation	Management
<b>+ 阳性</b>	<b>+</b>	<b>-</b>	<b>Chronic hepatitis B 慢性感染</b>	<b>Additional tests 需要进一步检查</b>
<b>-</b>	<b>+</b>	<b>+</b>	<b>Post HBV infection, Resolved</b>	<b>No, unless chemo or immunocompromised</b>
<b>-</b>	<b>+</b>	<b>-</b>	<b>Post HBV infection, Resolved or false positive</b>	<b>HBV-DNA if chemo or immunocompromised</b>
<b>-</b>	<b>-</b>	<b>+</b>	<b>Immune</b>	<b>No further test</b>
<b>-</b>	<b>-</b>	<b>-</b>	<b>Uninfected, not immune</b>	<b>No further test</b>

# 解读乙肝化验结果 (con't)

## Interpretation of serological markers

**Additional tests:** (需要做的进一步化验)

- **HBeAg** (e抗原): viral replication, more contagious (高传染性)
- **Anti-HBe** (e抗体): seroconversion of HBeAg (e抗原转阴时出现)
- **HBV-DNA viral load** (病毒梯度测定):

Crucial component to evaluate the activity, efficacy of treatment, and disease flare or relapse

(是判断乙肝活动性, 治疗效果, 病情复发和反弹的重要指标)

# 乙肝诊断标准和分类定义

## Diagnostic Criteria and Classification

### Chronic Hepatitis B (CHB): 慢性肝炎

- HBsAg present > 6 months
- HBV-DNA: from undetectable to billion
- Liver enzymes normal or elevated
- Biopsy: inflammation

### Inactive CHB (carrier): “乙肝携带者”

- HBsAg present > 6 months
- HBV-DNA: < 2000 IU/mL
- HBeAg negative, anti-HBe positive
- Persistent normal liver enzymes
- Biopsy: no significant inflammation

# 乙肝诊断标准和分类定义

## Diagnostic Criteria and Classification (con't)

### Immune-Tolerant CHB

- HBsAg present > 6 months
- HBeAg pos
- HBV-DNA: high (typically >1 million IU/mL)
- Liver enzymes normal or minimally elevated
- Biopsy: minimal inflammation and no fibrosis

### Immue-Active CHB

- HBsAg present > 6 months
- HBV-DNA > 20000 in HBeAg-pos; > 2000 in HBeAg-neg
- Intermittent or persistent elevation of liver enzymes
- Biopsy: fibrosis, no significant inflammation

# Who should be treated?

## 需要治疗的人群

### **Treat active disease:** (活动性乙肝)

- Elevated liver enzymes (ALT >2 x ULN), or
- Significant histological disease, or elevated DNA viral load
- Additional factors: age > 40yo, cirrhotic, FHx of HCC, etc.

**No treatment:** while the virus is inactive or sleeping  
(非活动和休眠状态)

# Who should be treated? (con't)

## 需要治疗的人群

### Medications: (药物)

- Lamivudine and Adefovir (不再使用)
- **Tenofovir** 替诺福韦 (正在使用)

### Treatment duration: (治疗期限)

- > 3 years since seroconversion (至少3年)
- Cirrhosis, long life definitely (肝硬化需终生用药)
- Suppress viral replication, no eradication

**Treatable but not curable**  
**可以控制但不能根除病毒**

# Who should be screened?

## 高危人群普查

### All the high risk groups for transmission

- **Born in endemic regions (出生在高发地区)**
- Pregnancy (怀孕)
- Coexisting (同时存在其它疾病): HIV, other liver disease, end stage of organ failure
- Immunosuppressive therapy (免疫抑制治疗): autoimmune, organ transplant or chemo

# Prevention and Vaccination

## 预防和接种

Who should be vaccinated (需要接种的人群):

- **All the high risk populations for transmission**
- Acute exposure to **known or suspected** HBsAg positive source:  
Vaccinated within 24hrs, with or without HBIG immune globulin

Hepatitis B immunization program started in 1990s  
疫苗是90年代初开始使用

# Living with chronic hepatitis B

## 乙肝患者的随访

Routine follow up is required **定期检查**

Hepatitis B is a slow progressive disease and often no symptoms appear until your liver is damaged.

### AASLD practice guidance and consensus:

- **Blood test q6m** (每6个月血化验): to assess disease activity
- **Ultrasound q6m** (每6个月B超检查): to rule out cirrhosis and HCC

# Hepatocellular Carcinoma (HCC) surveillance in CHB 乙肝原发性肝癌的筛查

**Ultrasound q6m** With or without Alfa-fetoprotein (AFP) 甲胎蛋白

- Cirrhotic;
- Non-cirrhotic: (given the risk of HCC without cirrhosis)

- First degree family member has HCC
- Asian male >40 years old; female >50 years old

**需要每6个月B超筛查的人群:**

肝硬化

非肝硬化的乙肝但有以下指征:

- ⇒直系亲属有原发性肝癌
- ⇒亚洲男性>40岁; 女性>50岁

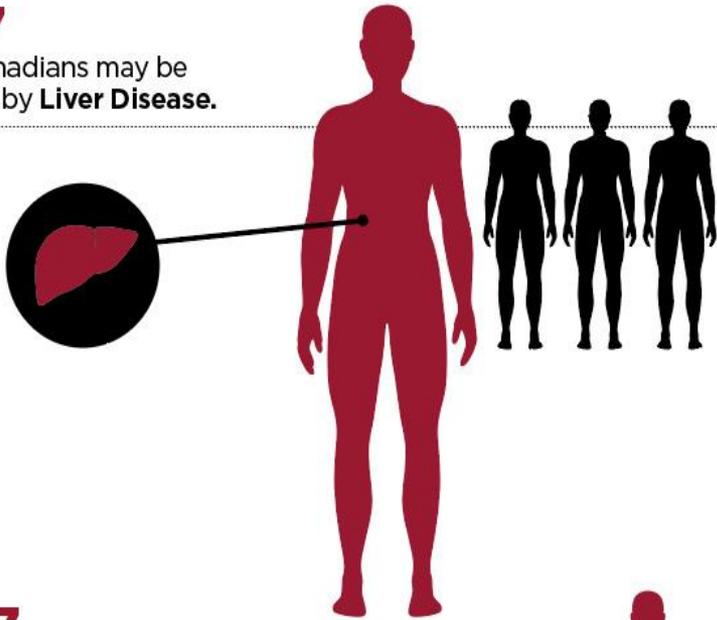
# FACING THE FACTS

## Understanding **Liver Disease and Liver Cancer** in Canada

Since 1970, liver cancer cases have *tripled* for men and *doubled* for women.

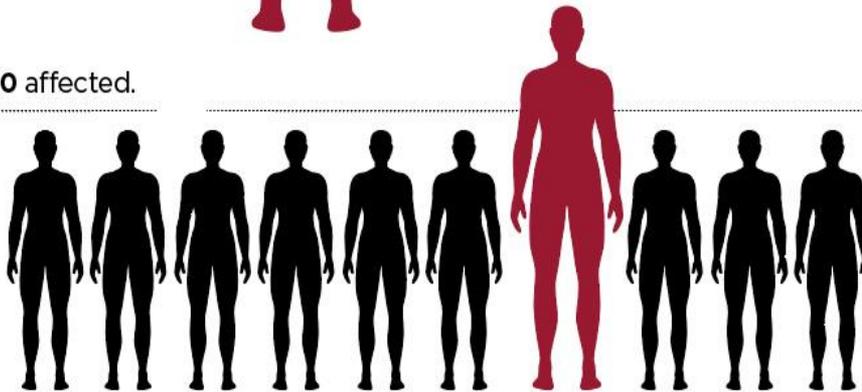
**2017**

1 in 4 Canadians may be affected by **Liver Disease**.



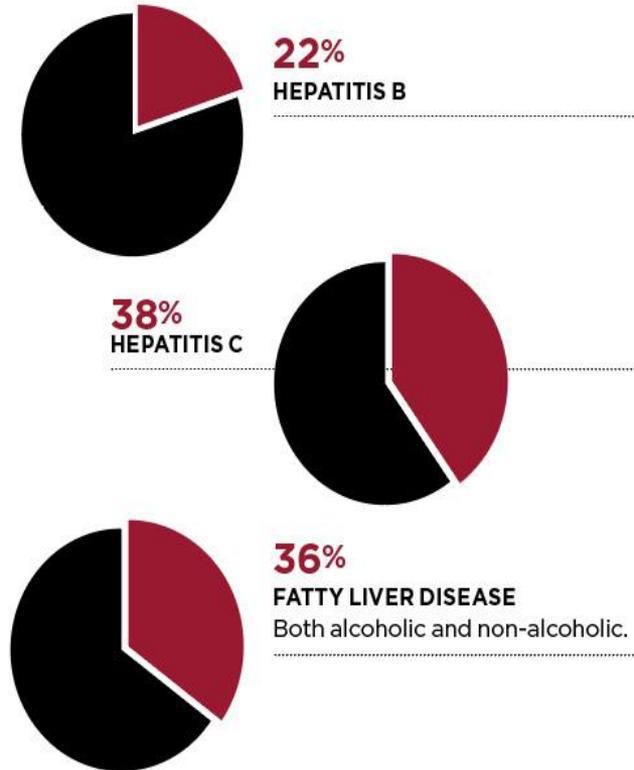
**2007**

Estimated 1 in 10 affected.



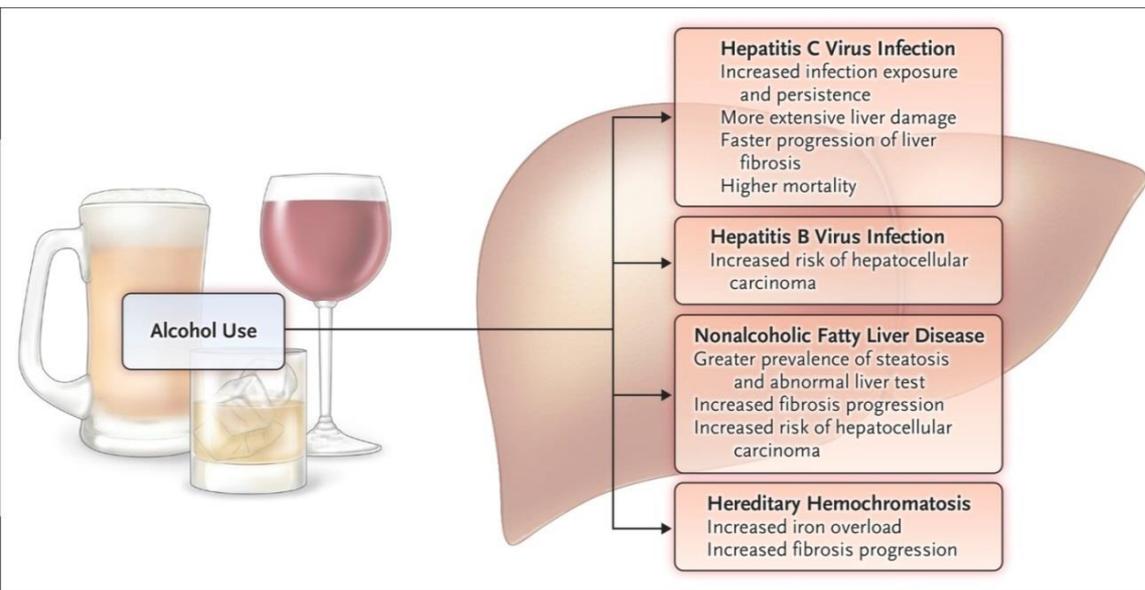
### MAJOR CAUSES OF LIVER CANCER

Affecting Canadians



# Alcohol use in patients with chronic liver disease 慢性肝病患者的饮酒

New England Journal of Medicine, Sep 2018; Vol 13, 379



Alcohol use is common among patients with chronic liver diseases. 慢性肝病患者饮酒很常见

Heavy alcohol use is associated with increased morbidity and mortality. 大量饮酒与肝病的患病率和死亡率有密切关系

# Alcohol consumption in NAFLD

## 脂肪肝患者的饮酒

New England Journal of Medicine, Sep 2018; Vol 13, 379

**Heavy alcohol use:** The likelihood of disease progression is increased than the patients who have the same liver condition without heavy use.

**Low or moderate alcohol use:** Associated with fibrosis progression with metabolic syndromes. But the **controversial benefits on cardiovascular outcomes** have been reported.

**Recommendations:** No definitive guideline (没有明确指南)

**The rule of thumb: Avoid heavy alcohol use**  
(不要大量饮酒)

# Alcohol consumption in Hepatitis B 乙型肝炎患者的饮酒

**New England Journal of Medicine, Sep 2018; Vol 13, 379**

- Alcohol increases HBV DNA replication in mice and HBsAg level in humans.  
Delays the clearance of virus.  
(饮酒增加小鼠体内肝炎病毒的复制, 增加人体表面抗原水平, 延迟病毒的清除)

**Associated with significant increased risk of progression to cirrhosis and hepatocellular carcinoma (显著增加肝硬化和肝癌的风险)**

**Recommendations: Abstinence or limited use  
戒酒或少量饮酒**

# Definition for heavy use is uncertain

## 重度饮酒的阈值和标准饮酒单位 CONSENSUS:

### What Is a Standard Drink?

12 fl oz of  
regular beer



8–9 fl oz of  
malt liquor  
(shown in a  
12 oz glass)



5 fl oz of  
table wine



1.5 fl oz shot of  
distilled spirits  
(gin, rum, tequila,  
vodka, whiskey, etc.)



about 5%  
alcohol



about 7%  
alcohol



about 12%  
alcohol



about 40%  
alcohol

- Male: >3 drinks/day or 21 drinks/week
- Female: >2 drinks/day or 14 drinks/week
- One drink: 14g of pure alcohol

# Cirrhosis 肝硬化

Cirrhosis is not a disease, it is a condition of end stage of fibrosis from many primary liver diseases. Characterized into 2 states:

**Compensated (代偿期):** Asymptomatic

**Decompensated (失代偿期):**

- Non-specific Sx: fatigue (疲劳), poor appetite (食欲差), infection (感染), sarcopenia (肌萎缩) etc 等
- Major complications (主要并发症): Jaundice, fluid retention, portal hypertensive variceal bleeding, hepatic encephalopathy

**Hepatocellular carcinoma:** Liver transplantation (肝移植)  
(原发性肝癌)

# Cirrhosis complications (con't)

## 肝硬化并发症

### Jaundice 黄疸

- Yellow of the skin and eyes (皮肤眼睛黄色)
- Bilirubin build up in blood 血红素滞留
- Also seen in cholestasis (胆汁淤积症), biliary abnormalities (胆道异常), complication post cholecystectomy (胆囊切除术后并发症)

### Scleral icterus 巩膜黄染



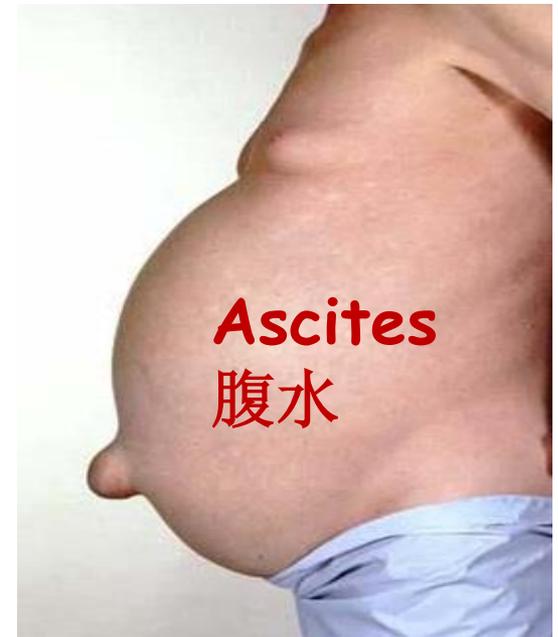
# Cirrhosis complications (con't)

## 肝硬化并发症

### Fluid retention 液体潴留

Occurs when excess fluids accumulated inside of the body

- Lower extremities: edema (浮肿)
- Ascites: when fluids build up inside of abdominal cavity. Umbilical hernia (脐疝) is common
- Need diuretics (利尿剂) or paracentesis (腹穿) to ease the discomfort



# Cirrhosis complications (con't)

## 肝硬化并发症

### **Portal hypertensive variceal bleed 门脉高压静脉曲张出血**

- Hematemesis (呕血) or melena (黑便) from ruptured veins in the digestive system due to high portal pressure (消化道出血)
- Urgent attention and gastroscopy: stop overt bleed (需紧急止血)

### **Hepatic encephalopathy (Liver coma) 肝性脑病/肝昏迷**

- Liver fails to break down toxins properly, e.g., elevated ammonia (肝脏无法解毒，血中胺水平升高)
- Spectrum of neuropsychiatric abnormalities (精神和神经症状): confusion, behavior changes, disorientation or coma.
- Urgent attention is required. (需紧急处理)

# Take Home Messages

Given the silent and slow progressive nature of NAFLD and Hepatitis B, you may not know of having the problem until cirrhosis or liver cancer occurs.

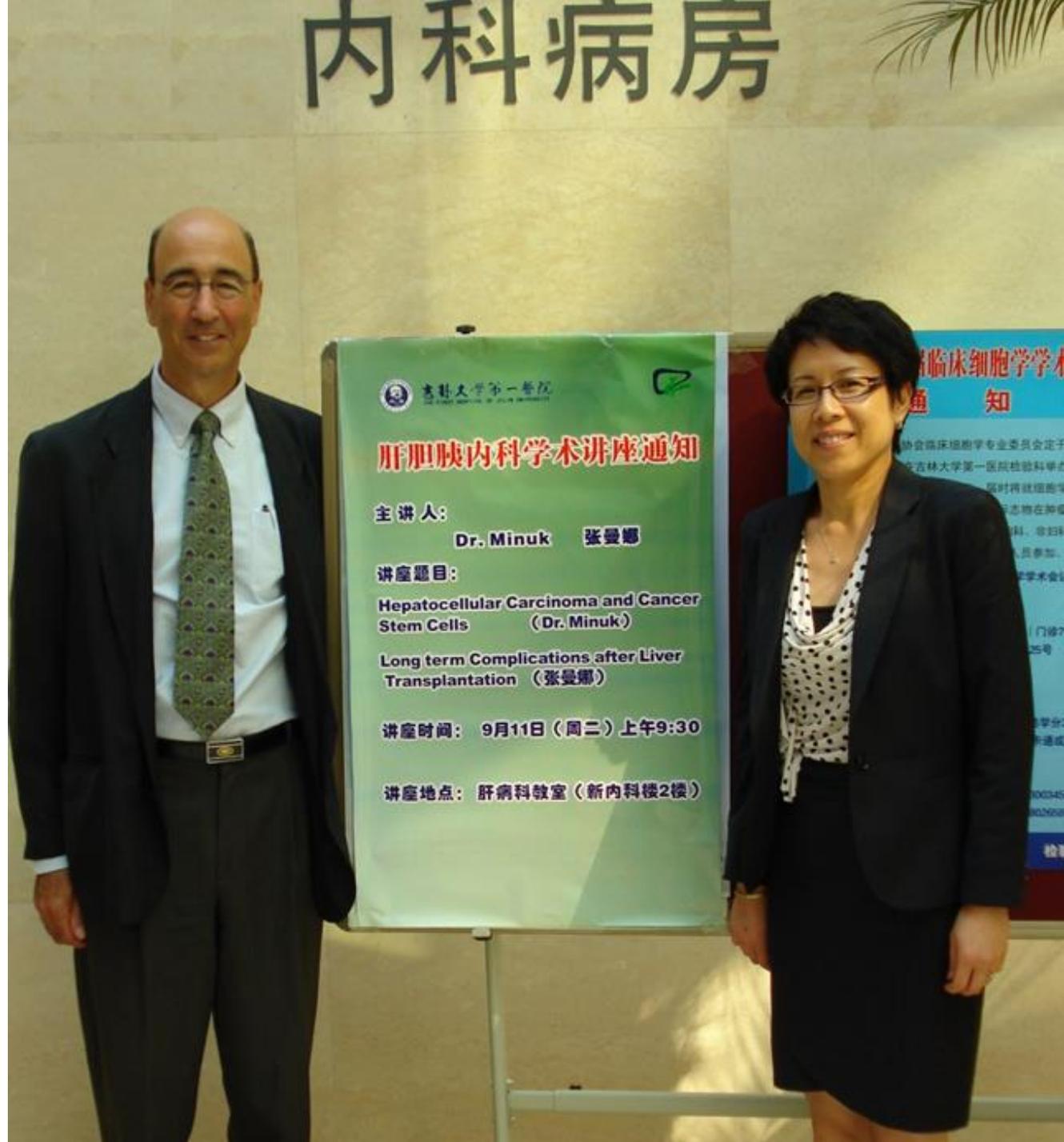
**Raising the public awareness is important to capture the diseases at early stage and to achieve complete resolution**

**提高对肝病的认知是早期发现和治愈的关键**



# 访问 吉林大学

## Visiting Jilin University



# 吉林大学第一医院肝病科 查房会诊



***THANK YOU !***

**ACKNOWLEDGEMENT**

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Interpreter  
翻译 章钊颖同学