

ACUTE VIRAL HEPATITIS

- CLINICAL PRESENTATION.
- DIAGNOSIS.
- EPIDEMIOLOGY OF VIRAL HEPATITIS INFECTION A,B,C IN KSA.
- MANAGEMENT.

Viral Hepatitis - Overview

Type of Hepatitis

	A	B	C	D	E
Source of virus	feces	blood/ blood-derived body fluids	blood/ blood-derived body fluids	blood/ blood-derived body fluids	feces
Route of transmission	fecal-oral	percutaneous permucoasal	percutaneous permucoasal	percutaneous permucoasal	fecal-oral
Chronic infection	no	yes	yes	yes	no
Prevention	pre/post- exposure immunization	pre/post- exposure immunization	blood donor screening; risk behavior modification	pre/post- exposure immunization; risk behavior modification	ensure safe drinking water

Diagnosis of hepatitis

- Patient history
- Physical examination
- Liver function tests
- Serologic tests

Symptoms and Signs

■ Pre-icteric phase

1. Anorexia
2. Fatigue
3. Nausea
4. Vomiting
5. Arthralgia
6. Myalgia
7. Headache
8. Photophobia
9. Pharyngitis

■ Icteric phase::

1. Enlarged liver
2. Tender upper quadrant
3. Discomfort
4. Splenomegaly (10-20%)
5. General adenopathy

■ Post-icteric phase

Lab Findings

1. LFT increase >5-10 times of normal
2. Markers of hepatitis B or C or A might be positive

DDX:

1. Infectious Mononucleosis
2. Drug Induced Hepatitis
3. Chronic Hepatitis.
4. Alcohol Hepatitis
5. Cholecystitis, Cholelithiasis
6. Auto-immune hepatitis

MARKERS OF VIRAL HEPATITIS

- HBV MARKERS
- HCV MARKERS
- HAV MARKERS

Hepatitis B Markers

- anti-HBc → exposure (IgM = acute)
- HBsAg → infection (carrier)
- anti-HBs → immunity
- HBeAg → viral replication
- anti-HBe → seroconversion
- HBV-DNA → viral replication:

Hepatitis C Markers

- ANTI -HCV
- PCR-RNA HCV

Hepatitis A Markers

- HAV igM
- HAV igG

Hepatitis E Markers

- HEV igM
- HEV igG
- HEV RNA PCR

AUTOIMMUNE HEPATITIS MARKERS

- ANF
- ANTI MITOCHONDRIAL AB
- ANTI SMOOTH MUSCLES ABS.

AUTOIMMUN HEPATITIS MARKERS

- ANA
- ANTI MITOCHONDRIAL
- ANTI SMOOTH MUSCLES ABS

INCIDENCE OF ACUTE HEPATITIS IN 5 HEPATOLOGY CLINICS IN KSA 2013

Causes of Hepatitis	HAV	HBV	HCV	AIH	DILI
KKUH	7	3	1	11	?
NGH	10	5	2	8	8
AMC	1	0	0	3	3
KFH	1	2	0	3	?
DAMMAM UN.	2	1	0	1	5
TOTAL	21	11	4	26	16

Complications

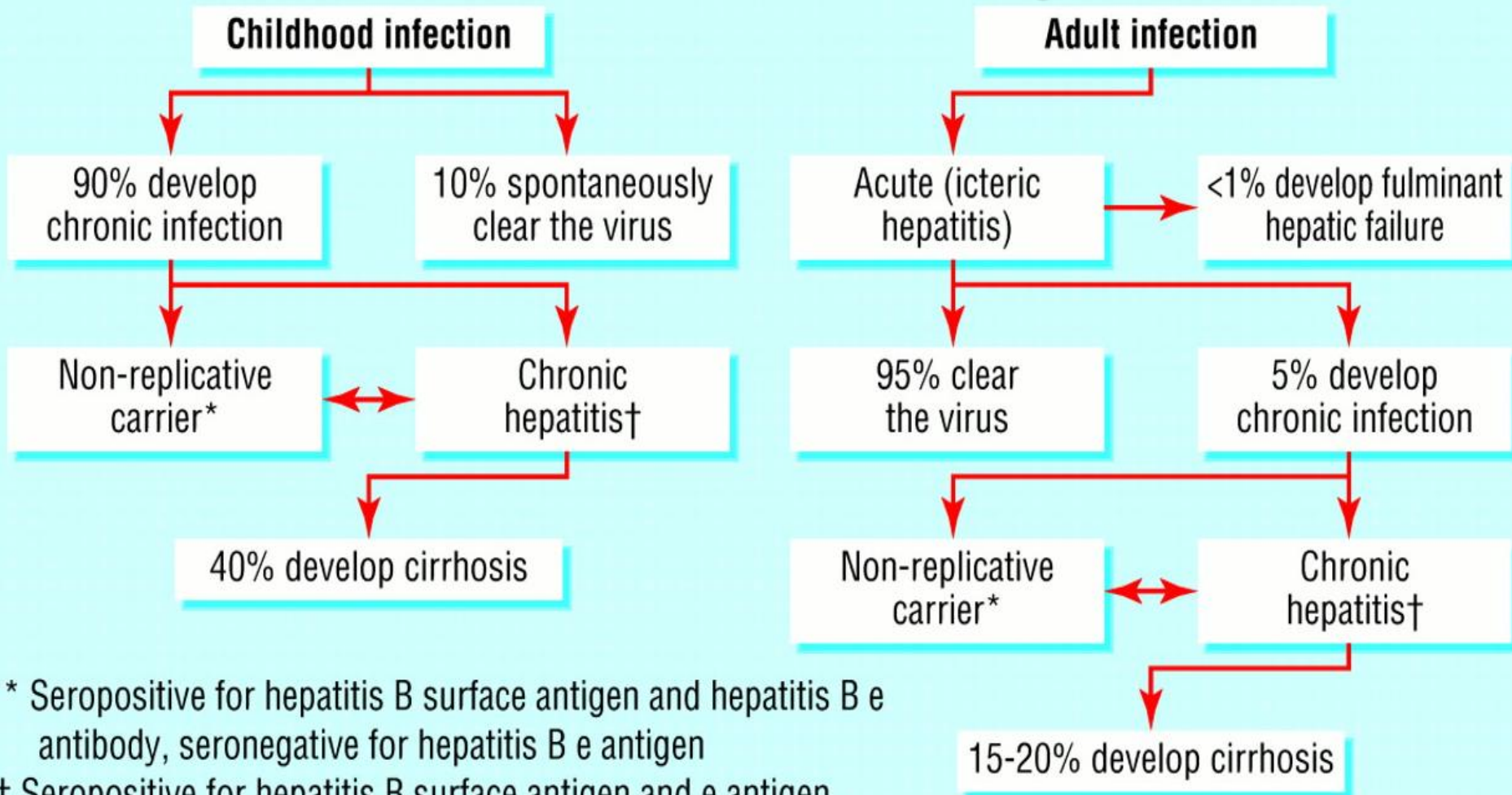
1. Chronic hepatitis → cirrhosis- HCC

2. Fulminant hepatitis

FULMINANT HEPATITIS

- Definition: Hepatic Failure Within 8 Weeks Of Onset Of Illness.
- Manifestation: Encephalopathy and Prolonged PT
- Histopathology: Massive Hepatic Necrosis.

Natural History



* Seropositive for hepatitis B surface antigen and hepatitis B e antibody, seronegative for hepatitis B e antigen

† Seropositive for hepatitis B surface antigen and e antigen, seronegative for hepatitis B e antibody

Hepatitis B Virus Modes of Transmission

- Sexual
- Parenteral
- Perinatal

Concentration of Hepatitis B Virus in Various Body Fluids

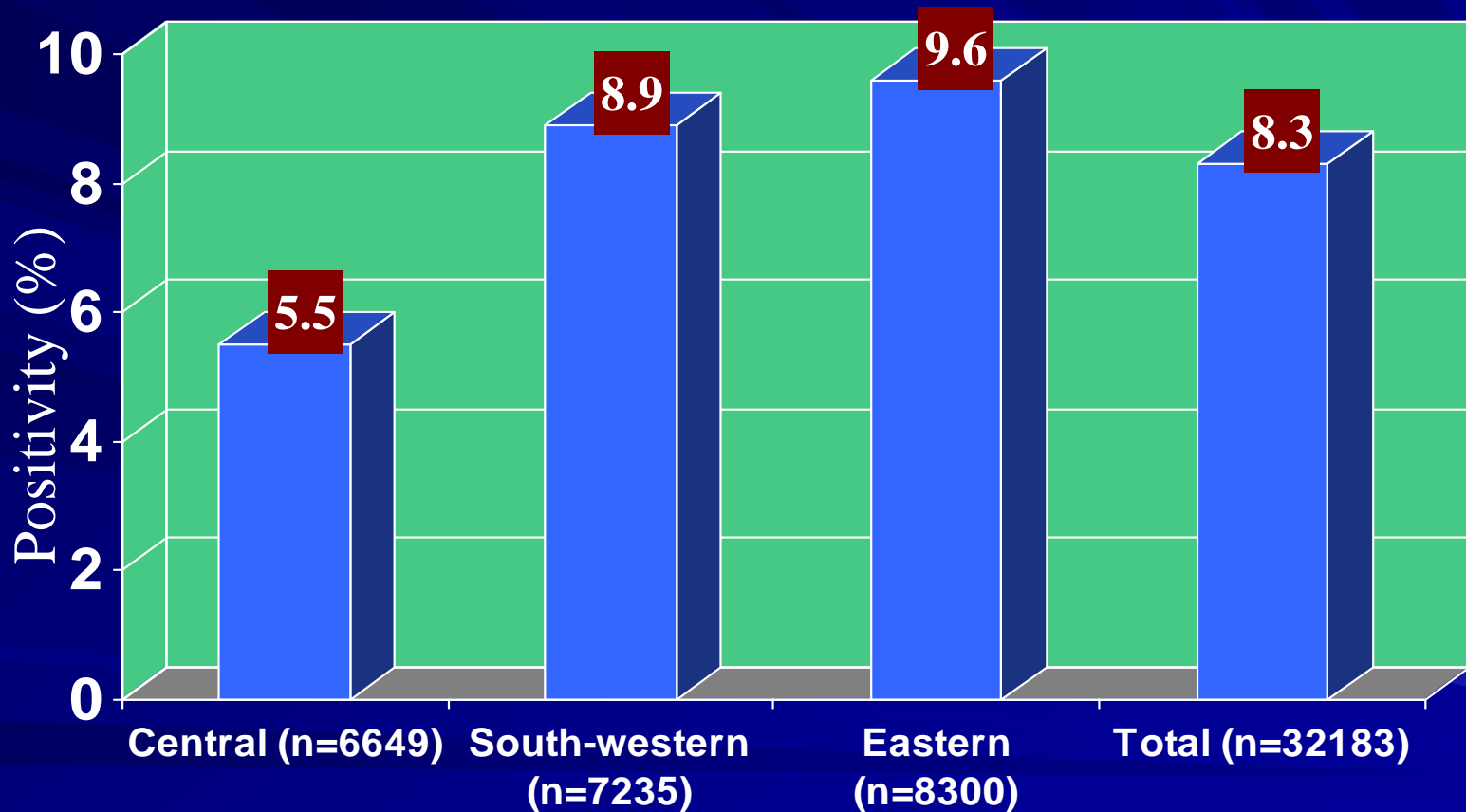
High	Moderate	Low/Not Detectable
blood serum wound exudates	semen vaginal fluid saliva	urine feces sweat tears breastmilk

Possible transmission route of HBV in KSA

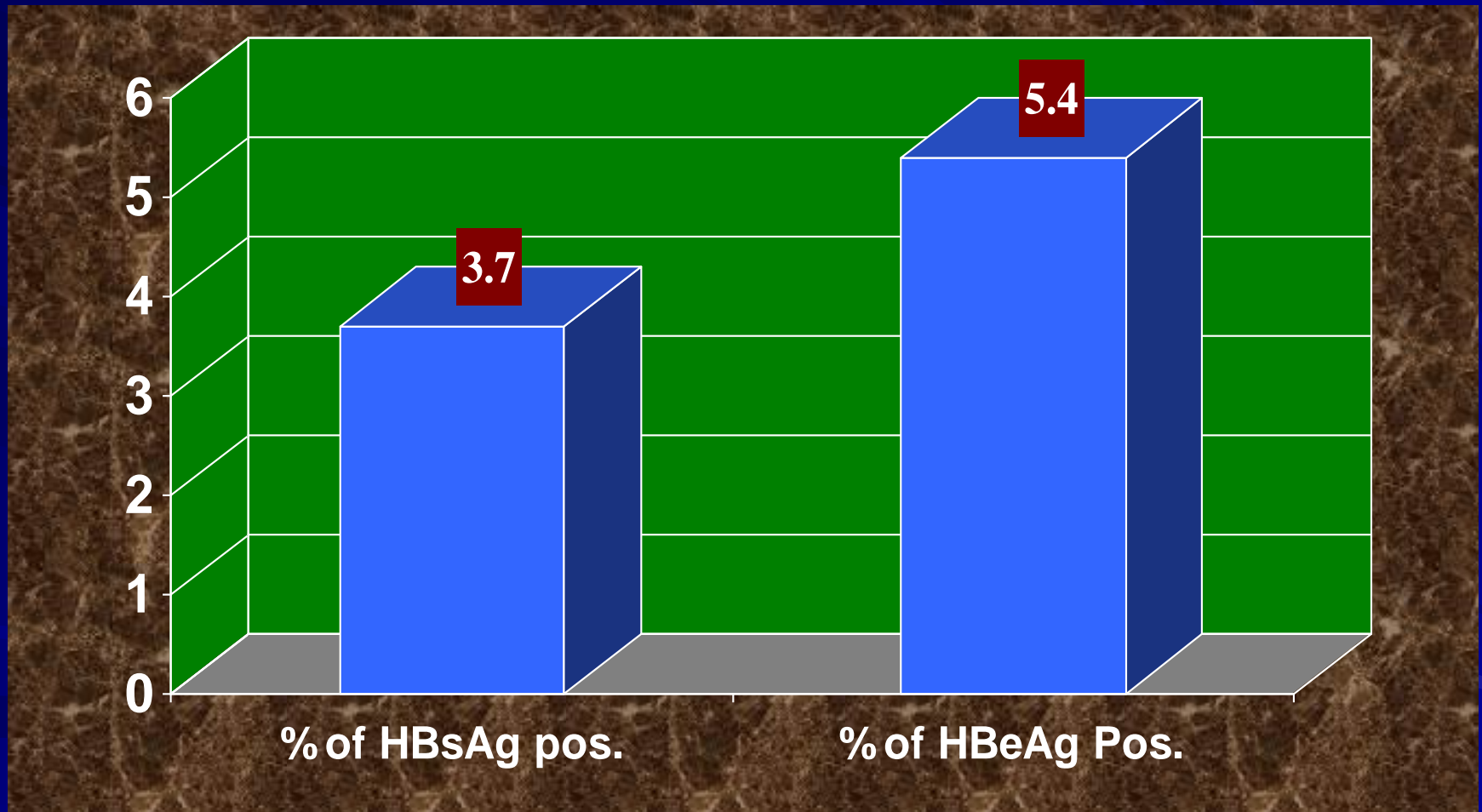
- 1-Horizontal transmission (person to person) is the main transmission route
- 2-Perinatal transmission (positive HBSAG mothers) especially if they are HBEAG positive
- 3- Heterosexual transmission
- 4-Illegal injection drug use
- 5- Contaminated equipment used for therapeutic injections and other health care related procedures
- 6- Folk medicine practice
- 7-Blood and blood products transfusion without prior screening

**HBV INFECTION
before and after
vaccination program**

OVERALL PREVALENCE OF HBsAg AMONG SAUDIS IN THE 80'S ACCORDING TO REGIONS



PREVALENCE OF HBeAg AMONG HBsAg POSITIVE SAUDIS PREGNANT WOMEN (n = 20920)



FREQUENCY OF HBeAg AMONG HBsAg POSITIVE SAUDI CHILDREN (n=307)

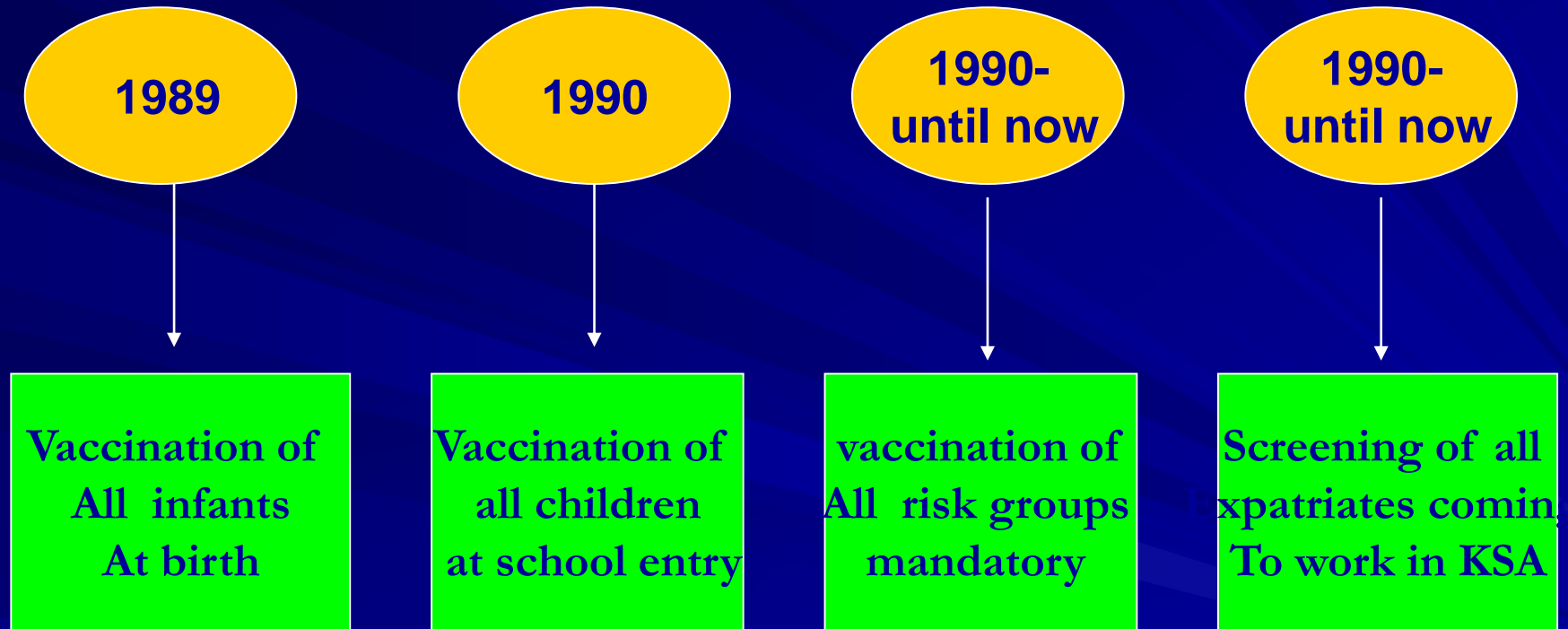


PREVENTION STRATEGIES OF MINISTRY OF HEALTH IN KSA

Introducing HBV vaccine in EPI program; and

- Mandatory screening of blood donors and expatriates.
- Vaccination of risk groups.
- Health education especially among medical personnel.

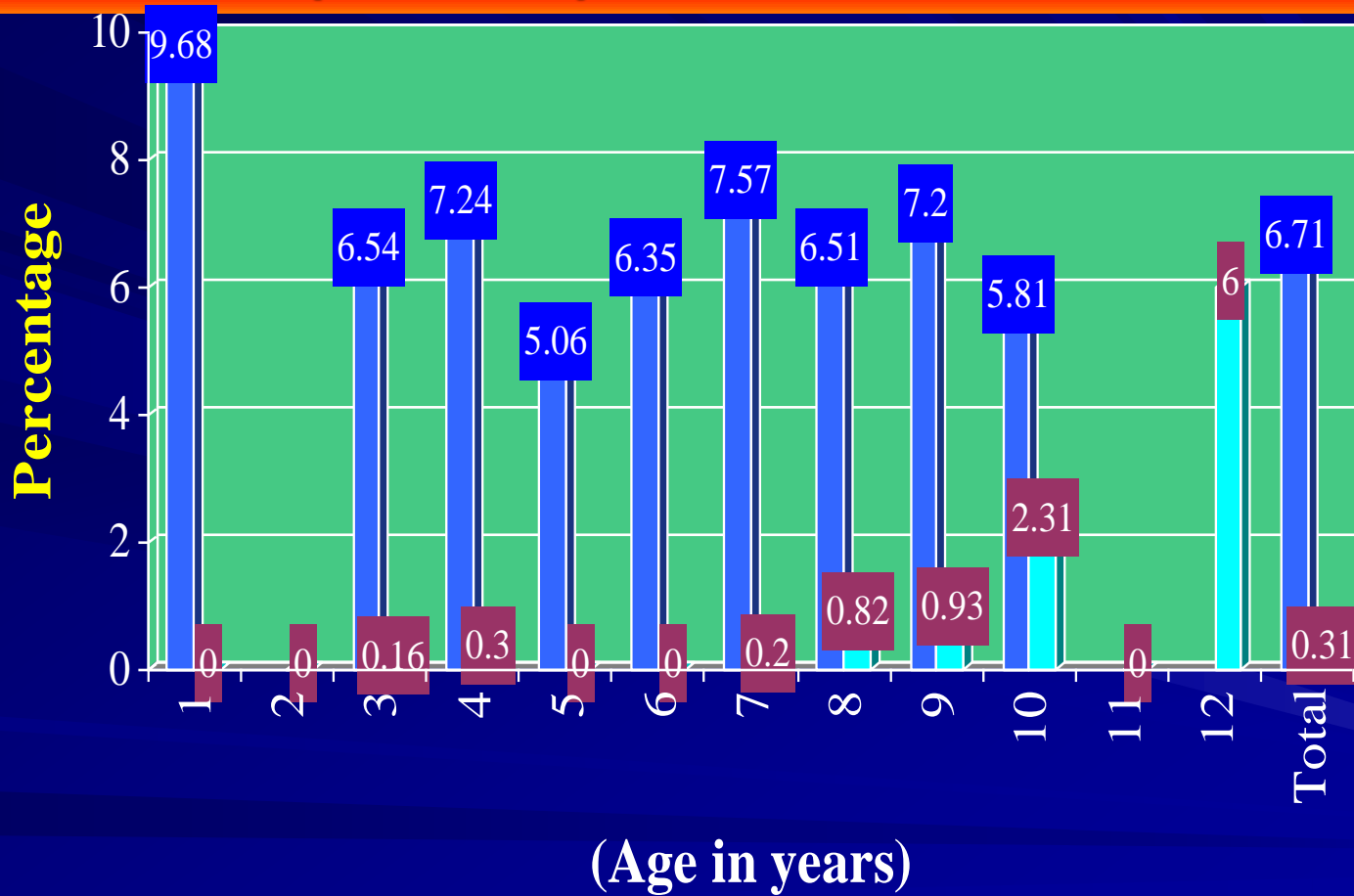
History of HBV infection control in KSA



THE CURRENT EPI IN THE KINGDOM OF SAUDI ARABIA

- | | | | |
|----|--------------|-------------|-----------|
| 1. | At birth | BCG + | HB1 |
| 2. | At 6 weeks | DPT1 + OPV1 | Hb2 |
| 3. | At 3 months | DPT2 + OPV2 | |
| 4. | At 5 months | DPT3 + OPV3 | |
| 5. | At 5 months | Measles | HB3 |
| 6. | At 12 months | MMR | |
| 7. | At 18 months | (DPT + OPV) | Booster 1 |
| 8. | At 4-6 years | (DPT + OPV) | Booster 2 |

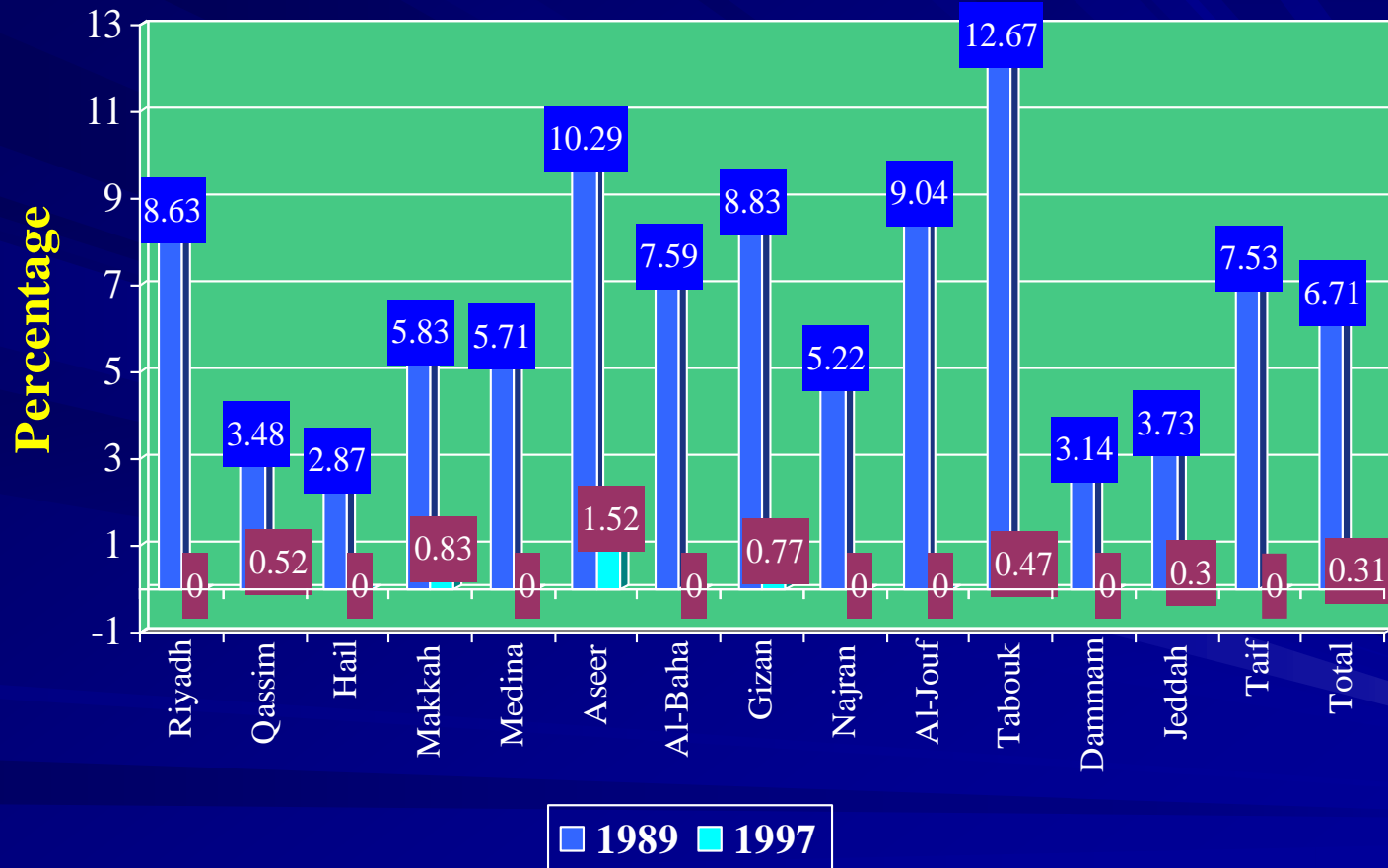
COMPARISON OF PREVALENCE OF HBsAg AMONG SAUDI CHILDREN IN 1989 (n=4575) AND 1997 (n=5355) – ACCORDING TO AGE



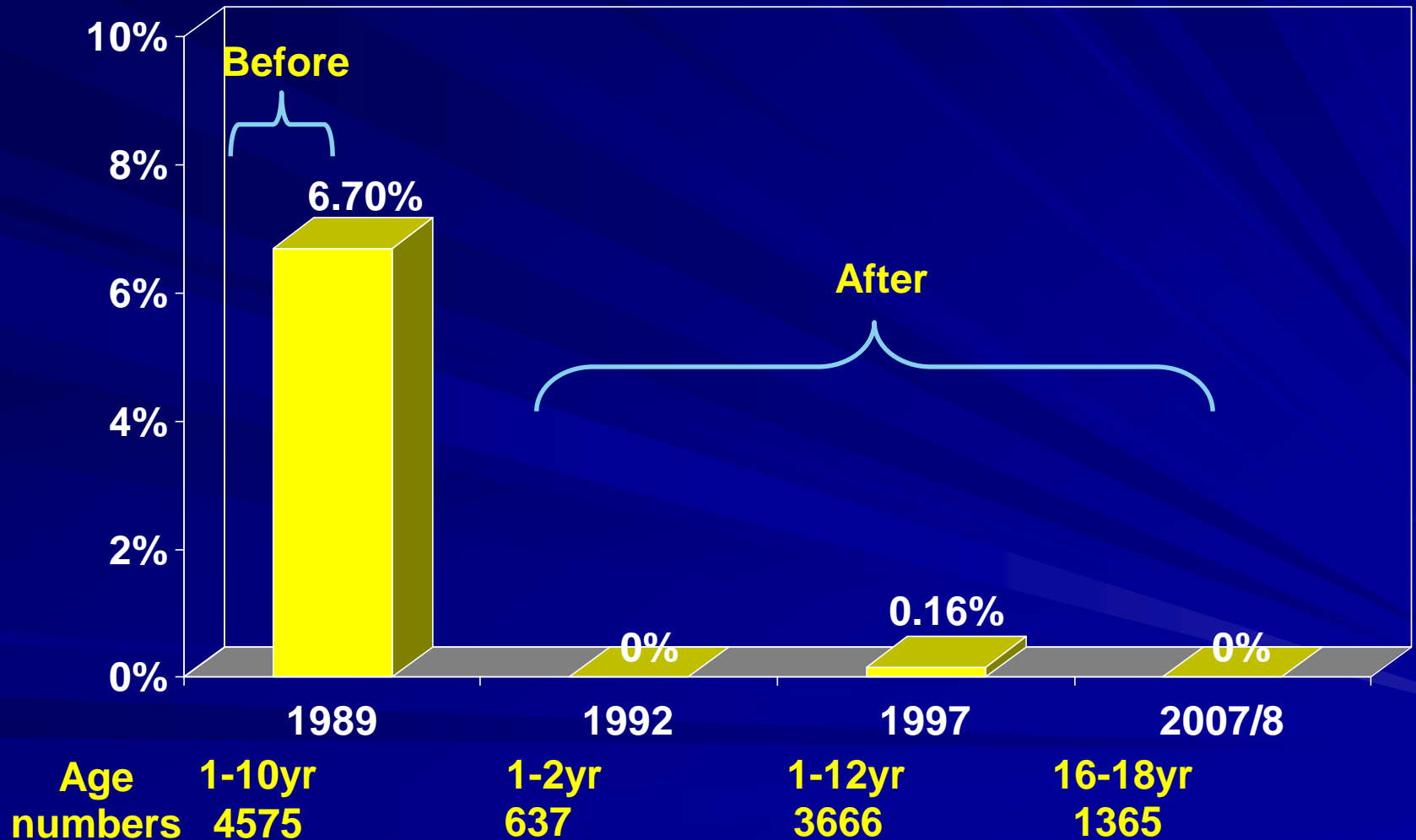
Al Faleh, J Infect 1999

■ 1989 ■ 1997

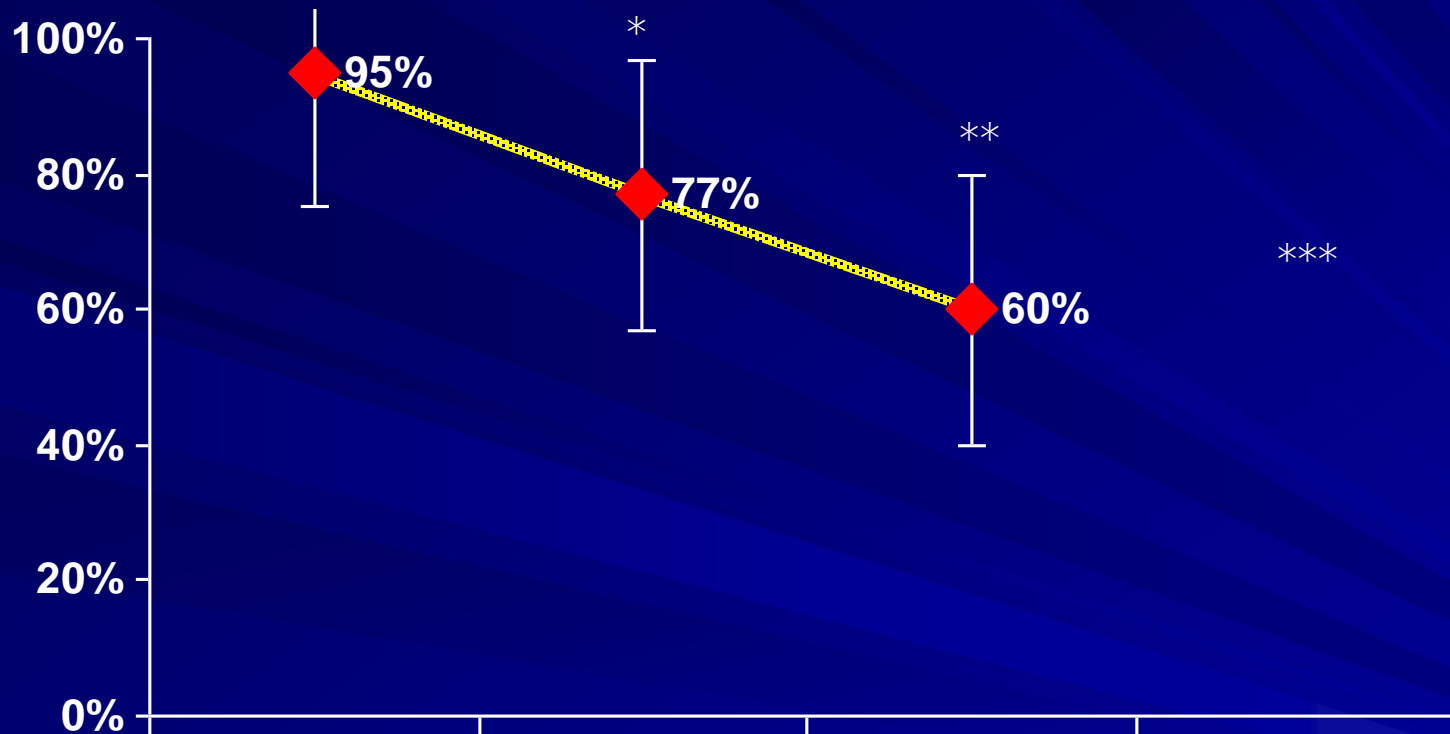
COMPARISON OF PREVALENCE OF HBsAg AMONG SAUDI CHILDREN IN 1989 (n=4575) AND 1997 (n=5355) – ACCORDING TO REGION



Prevalence Of HBsAg Among Saudi Population Before & After Vaccination over 18 y



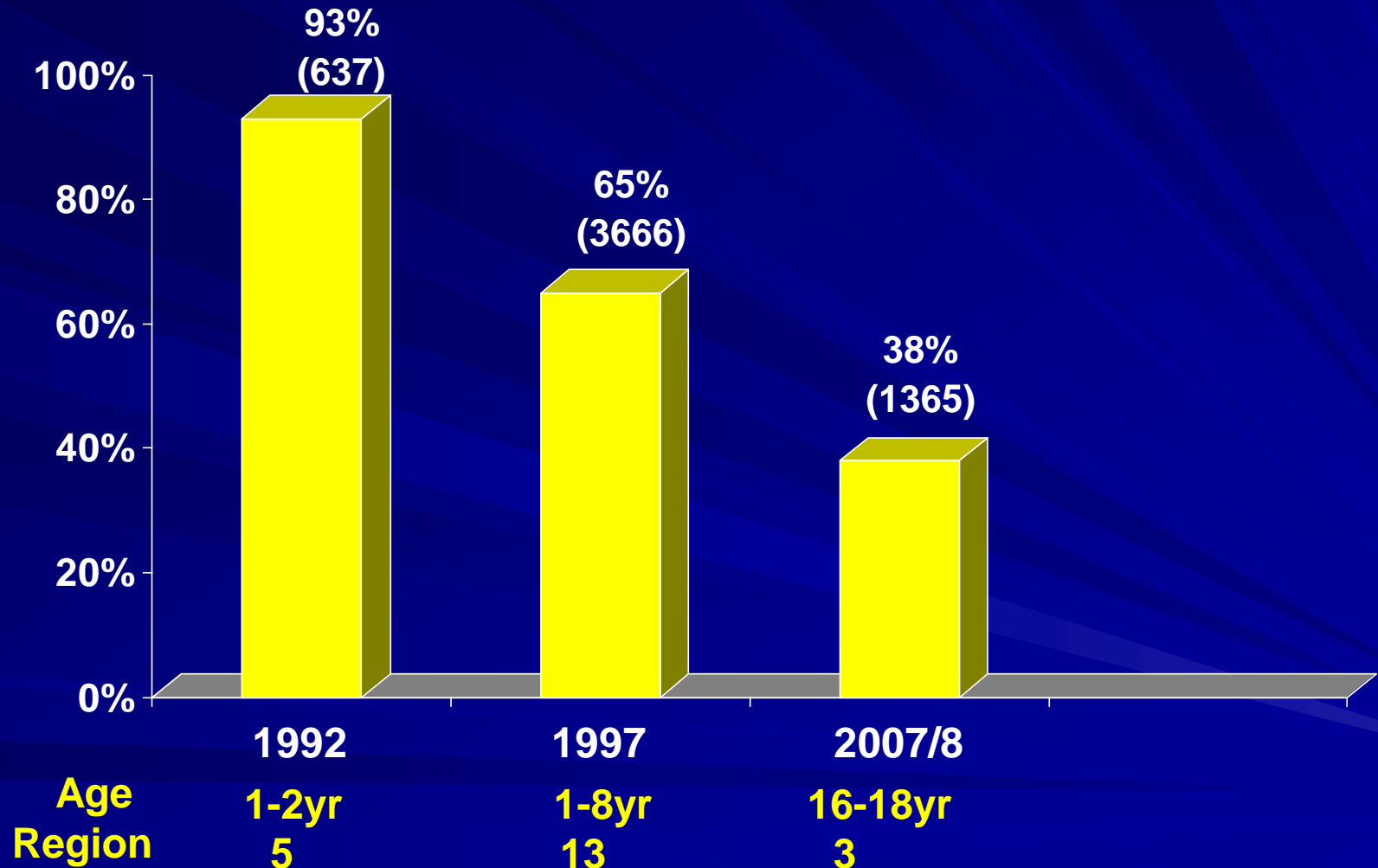
Long Term Seroconversion Rate Over 18 Years (Anti-HBS)



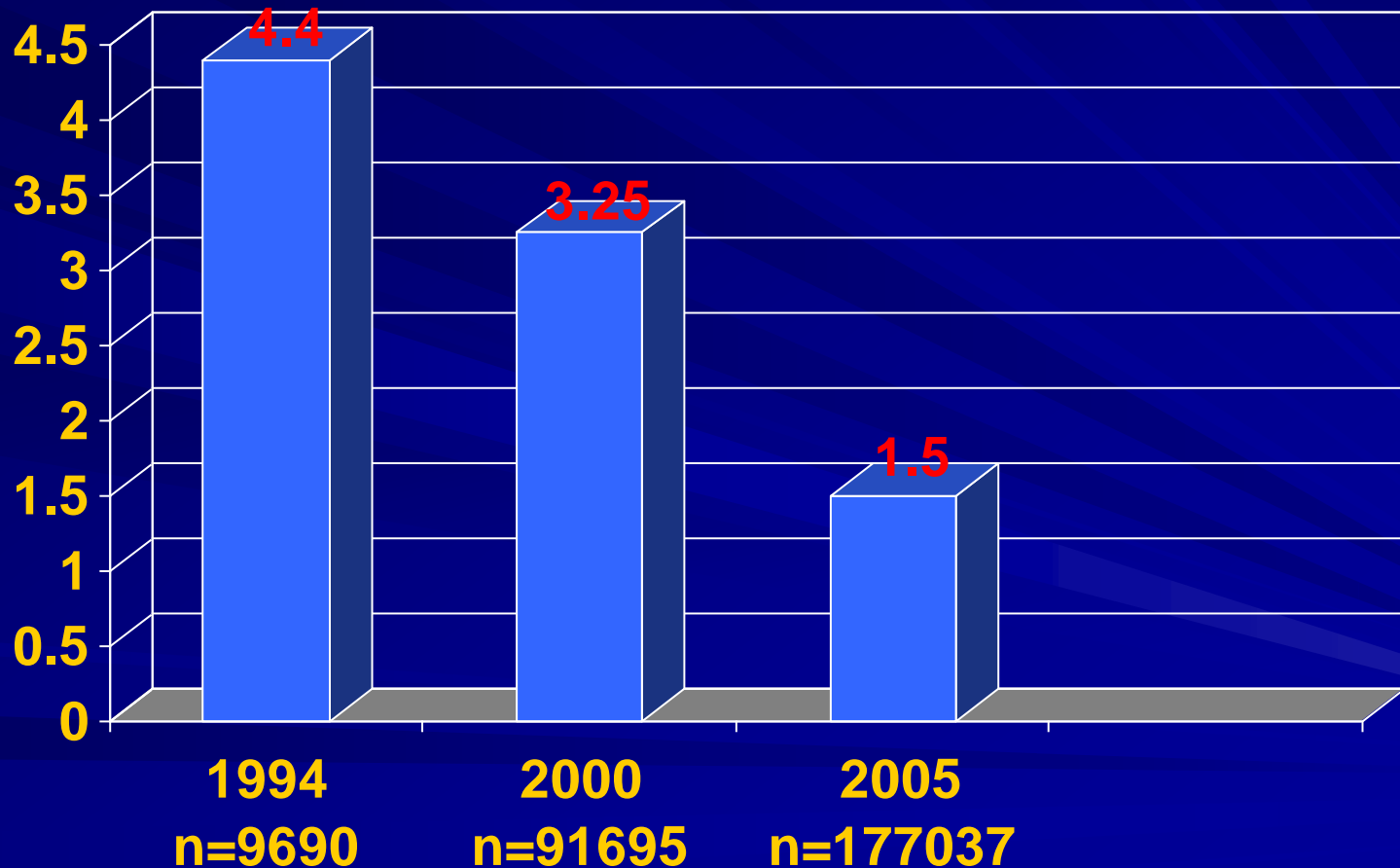
Age	1-2yr	1-12yr	16-18yr
N	637	3666	1365

* Al Faleh et al Annals of Saudi meds 1993
** Al Faleh et al Journal of infection 1999
*** AlFaleh et al journal of infection2008

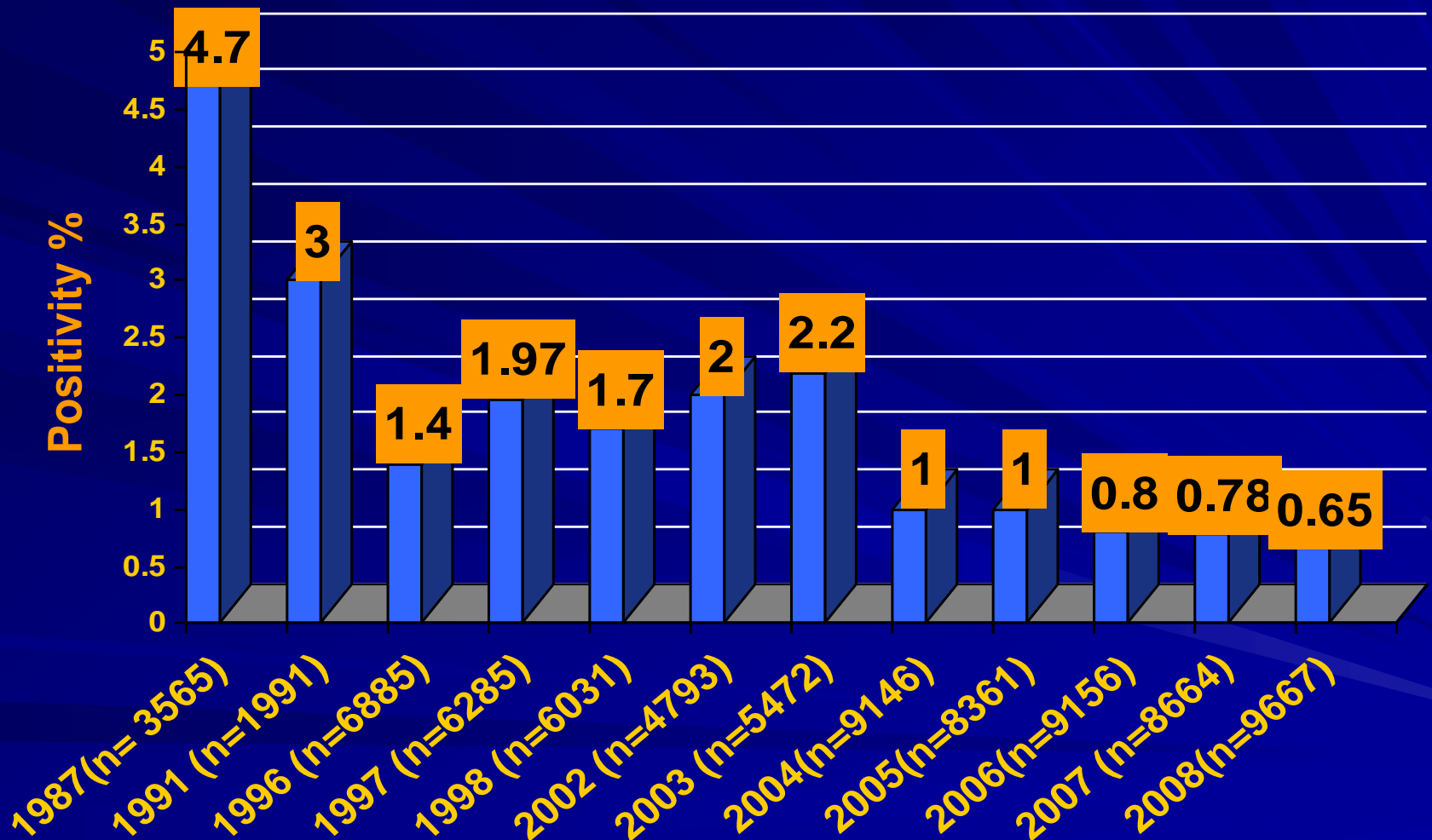
Long-Term protection of HB- vaccine over 18 years (anti-HBS>10IU/L)(n=1355)



CHANGING PATTERNS OF HBsAg POSITIVITY AMONG BLOOD DONORS IN MOH,CENTRAL BLOOD BANK 1994-2005



PREVALENCE OF HBsAg POSITIVITY AMONG BLOOD DONORS IN KCUH FROM 1987 TO 2008



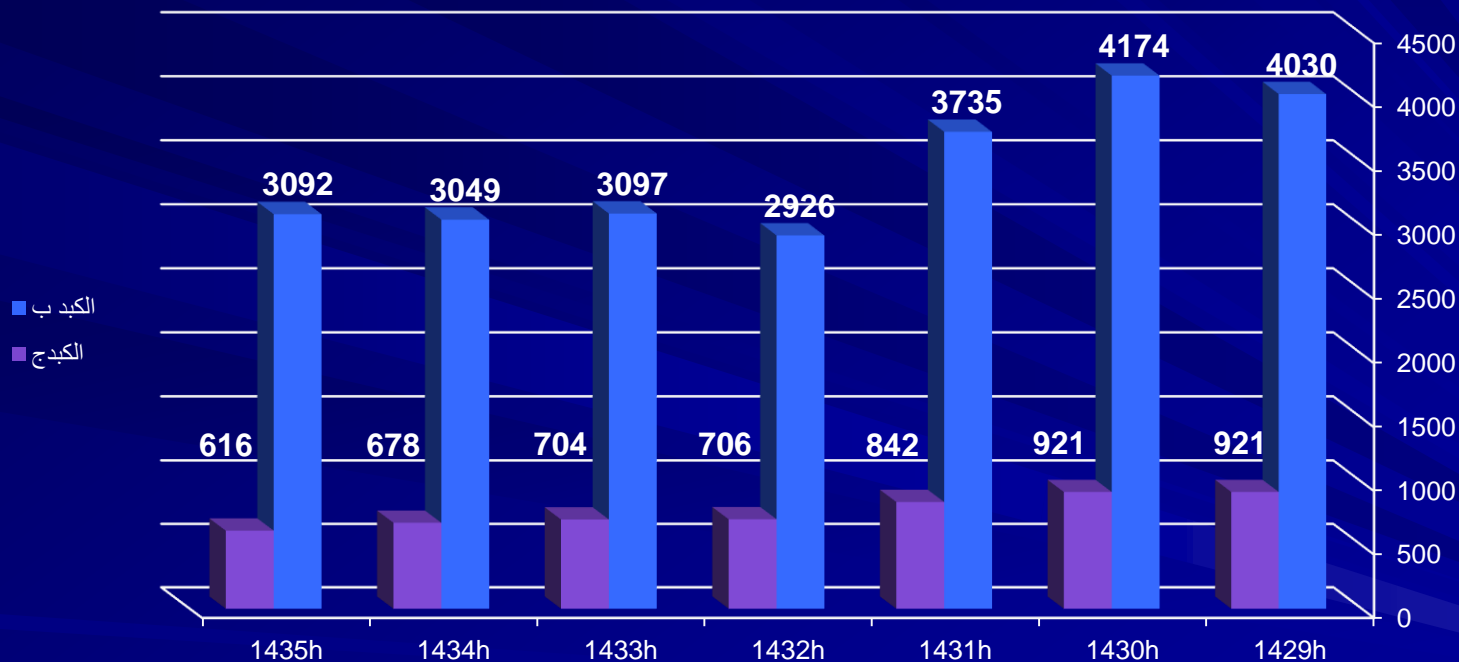
PRI-MARITAL SCREENING برنامج الزواج الصحي

التهاب الكبد ب وج 1429-1435هـ

HBV, HCV INFECTION FROM 2009-2014

الكبد ب HBV	الكبد ج HCV	HIV	عدد المتقدمين NR.OF SCREENDS
24103	5388	512	2.131.018
1%	0.3%	%0.02	

عدد حالات التهاب الكبد ب وج 1429-1435هـ (2009-2014)NR.OF POSITIVE HBV&HCV CASES HCV=RED



.Case report

- **5/11/16** Ahmed is 35 Y/O, living in Riyadh.

Lab. results

- 13/5/2017:
- ALT 1460/L(21-72)
- AST 1000 U/L (17-59)
- ALKALINE PHOSPHATASE 187.0 U/L.
- YGT 156,0U/L
- BIL.8.4/DL (0.0-1.4)
- ALB.4.6 g/l(3.5-5.0)
- INR (NORMAL)
- PLT:88000(150000-400000)

Lab. results

- 9/6/2017:
- ALT 25/L(21-72)
- 24 1000 U/L (17-59)
- ALKALINE PHOSPHATASE 77.0 U/L.
- YGT 93,0U/L
- BIL.1.2/DL (0.0-1.4)
- ALB.4.6 g/l(3.5-5.0)
- INR (NORMAL)
- PLT:88000(150000-400000)

Lab. Results

- Anti Smooth Muscles Abs:Negative
- ANA:Neg.
- Anti Mitochondrial AB :Neg

Lab. results

■ HBsAG : neg.

■ Hep. C: Pos.

■ HepA:Neg.

■ HCV-RNA- PCR Quantitative:Neg

Diagnosis?



HCV INFECTION

Transmission of HCV

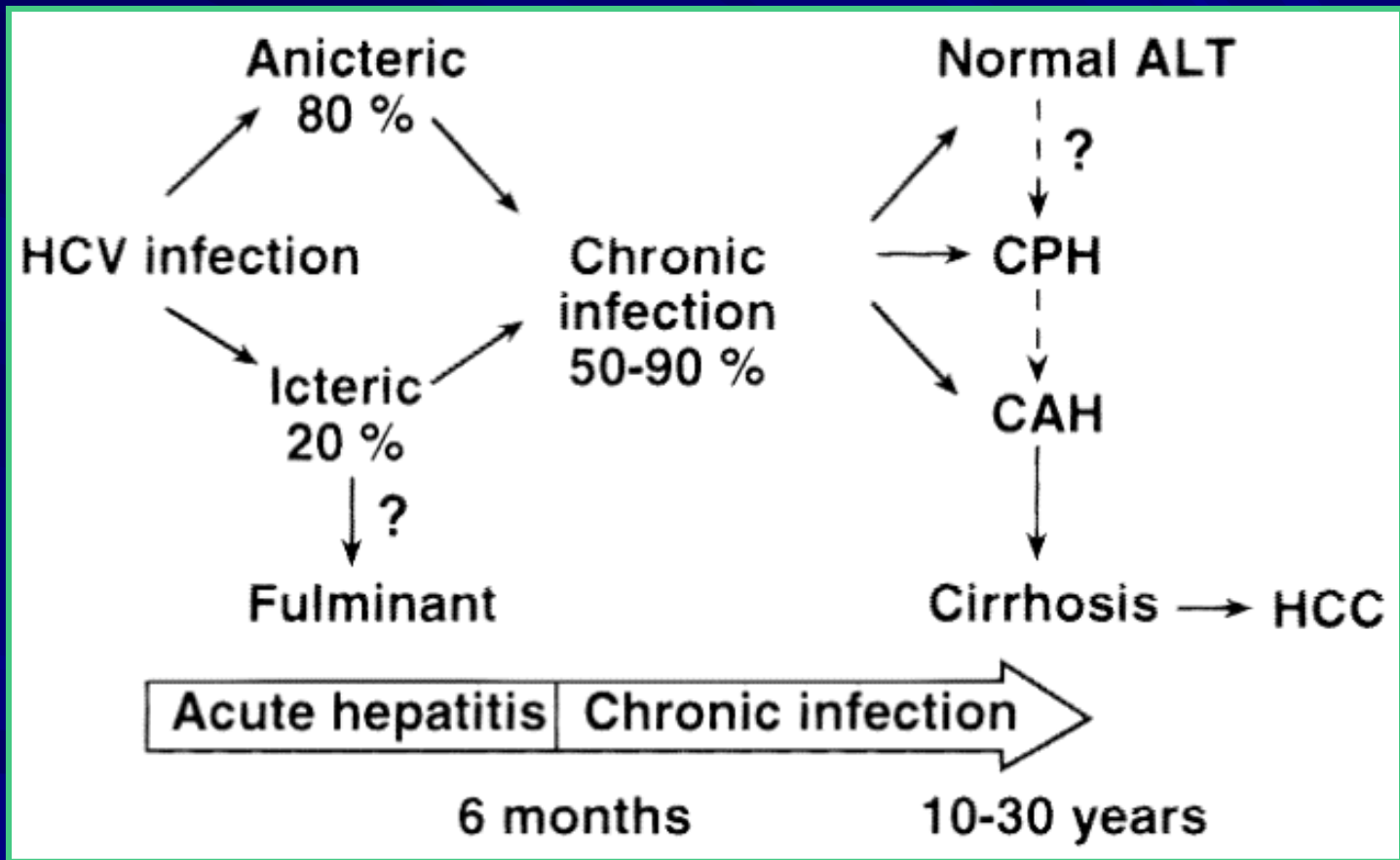
- **Percutaneous**
 - Injecting drug use
 - Clotting factors before viral inactivation
 - Transfusion, transplant from infected donor
 - Therapeutic (contaminated equipment, unsafe injection practices)
 - Occupational (needlestick)
- **Per mucosal**
 - Perinatal
 - Sexual

Nosocomial Transmission of HCV

- **Recognized primarily in context of outbreaks**
- **Contaminated equipment**
 - hemodialysis*
 - endoscopy
- **Unsafe injection practices**
 - plasmapheresis,* phlebotomy
 - multiple dose medication vials
 - therapeutic injections

* Reported in U.S.

Natural history



Overall prevalence rate of HCV infection in KSA among children and adolescent during the last 18 yrs.

1989		1997		2008	
No. of children	Positive (%)	No. of children	Positive (%)	No. of students	Positive (%)
4496	39* (0.87%)	5350	2** (0.04%)	1357	(5)3 0.22%
Diagnostic test only by 1 st -generation EIA kit.		Diagnostic test by 3 rd -generation EIA kit and confirmatory test by RIBA kit.		Diagnostic test by PCR for anti- HCV Positive cases.	

* ALFaleh et al. Hepatology 1991

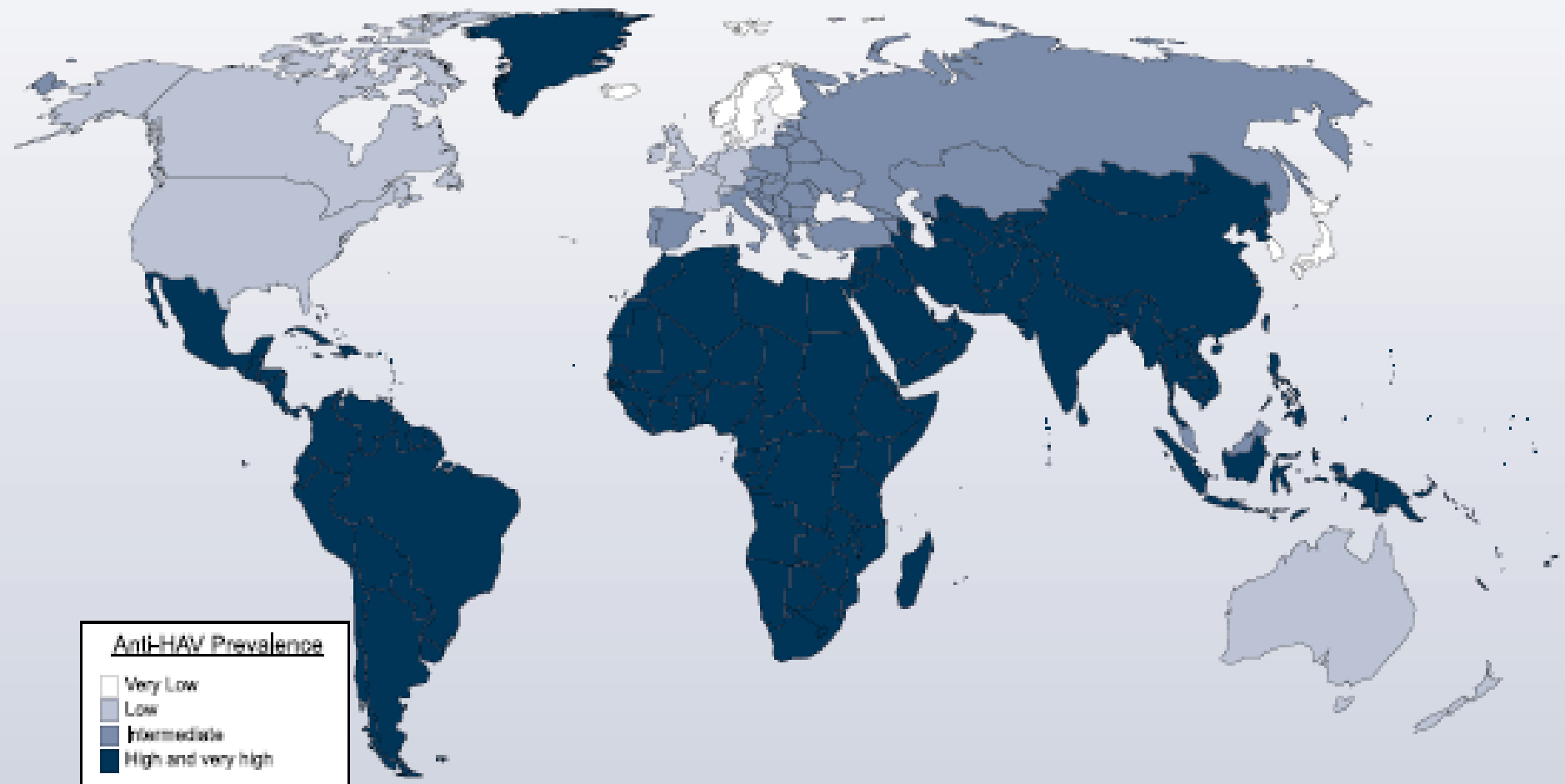
** ALFaleh Ann Saudi Med. 2003

Prevention Of HCV Transmission

- Avoiding shared use of Razors or brushes and any item that pierces the skin.
- Strict adherence of the universal precautions in health facilities.
- Educating and training of HCW's to the proper use of standard precautions
- Folk medicine?!

HAV INFECTION

Geographic Distribution of HAV Infection



HEPATITIS A VIRUS TRANSMISSION

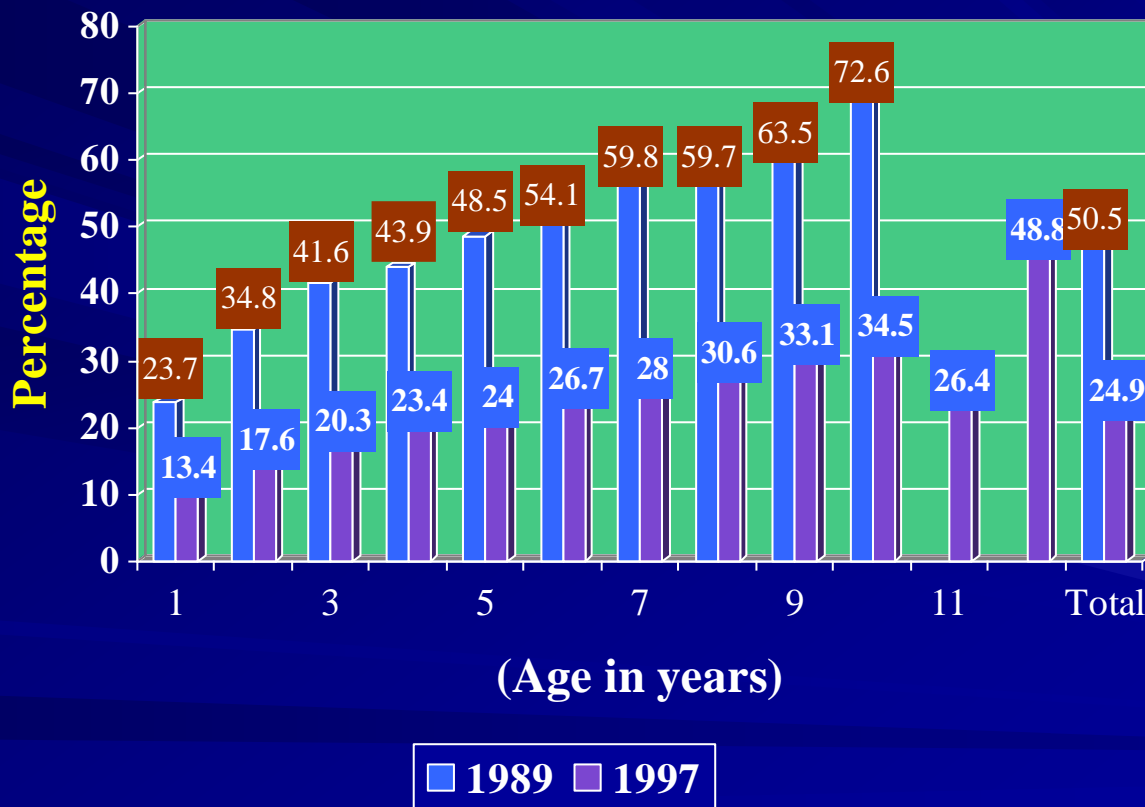
- **Close personal contact**
(e.g., household contact, sex contact, child day-care centers)
- **Contaminated food, water**
(e.g., infected food handlers)
- **Blood exposure (rare)**
(e.g., injection drug use, rarely by transfusion)



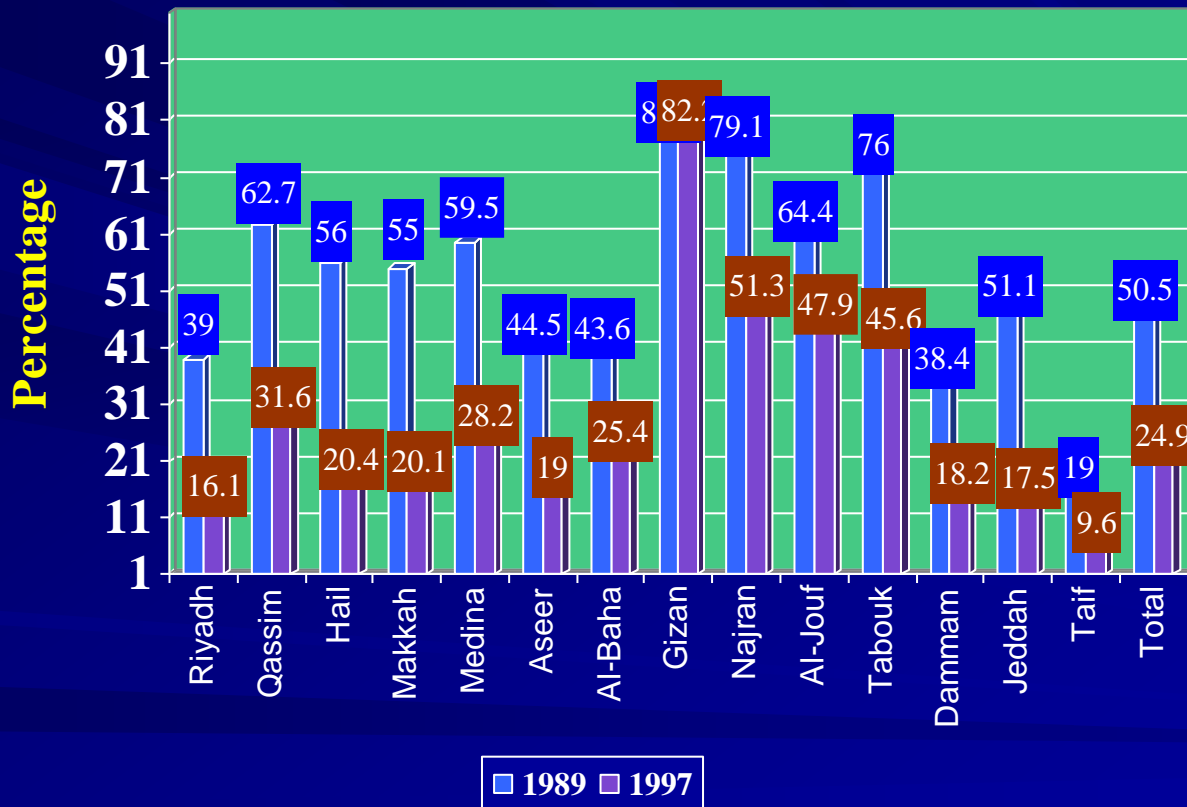
Modes of HAV transmission

- Faeco-oral route (95%)
 - ==> person-to-person contact
 - ==> contaminated food or water
 - ==> salads and fruits washed in contaminated water
 - ==> contaminated shellfish
- Infected plasma (<5%)
- Sexual route (<5%)

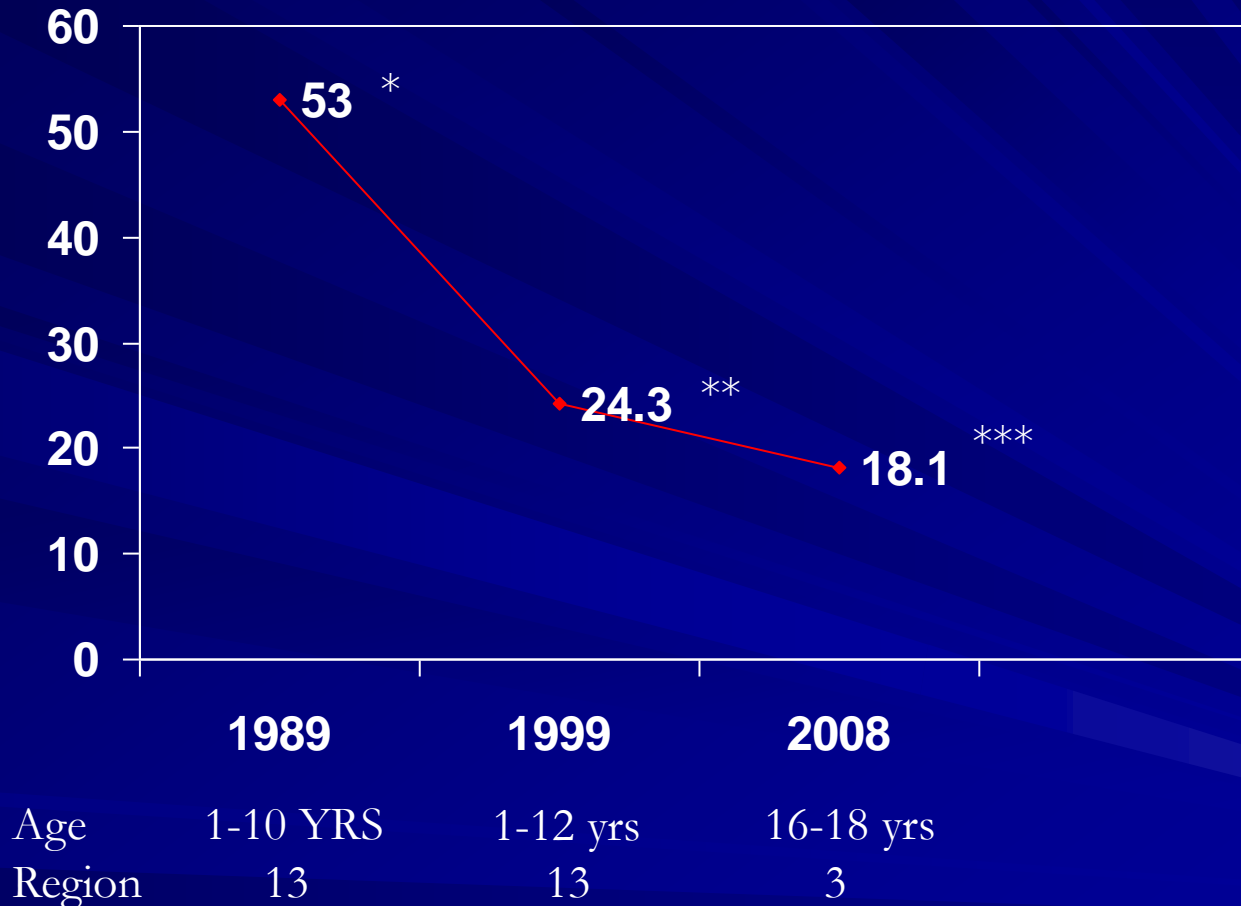
COMPARISON OF PREVALENCE OF ANTI-HAV AMONG SAUDI CHILDREN IN 1989 (n=4375) AND 1997 (n=5255) – ACCORDING TO AGE



COMPARISON OF PREVALENCE OF ANTI-HAV AMONG SAUDI CHILDREN IN 1989 (n=4375) AND 1997 (n=5255) – ACCORDING TO REGION



Changing pattern of Hepatitis A prevalence within the Saudi population over 18 yrs



*AlRashed R. Ann SM 1997

** AlFaleh et al SMJ 1999

*** AlFaleh et al WJG 2008

PREVENTING HEPATITIS A

- Hygiene (e.g., hand washing)
- Sanitation (e.g., clean water sources)
- Hepatitis A vaccine (pre-exposure)
- Immune globulin (pre- and post-exposure)

HEPATITIS A VACCINES

Recommended Dosages of Hepatitis A Vaccines

<u>Schedule Vaccine</u>	<u>Age (yrs)</u>	<u>Dose</u>	<u>Volume (mL)</u>	<u>2-Dose (mos)</u>
HAVRIX [®] #	1-18	720 (EL.U.*)	0.5	0, 6-12
	>18	1,440	1.0	0, 6-12
VAQTA [®] ##	1-18	25 (U**)	0.5	0, 6-18
	>18	50	1.0	0, 6-18

* EL.U. – Enzyme-linked immunosorbent assay (ELISA) units

** Units

has 2-phenoxyethanol as a preservative

has no preservative



**THANK
YOU**