

# VACCINE FOR VIRAL HEPATITIS (A AND B)

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# Cirrhosis of liver struck teetotaler Big B after Coolie

TNN, Apr 25, 2010, 04:21am IST

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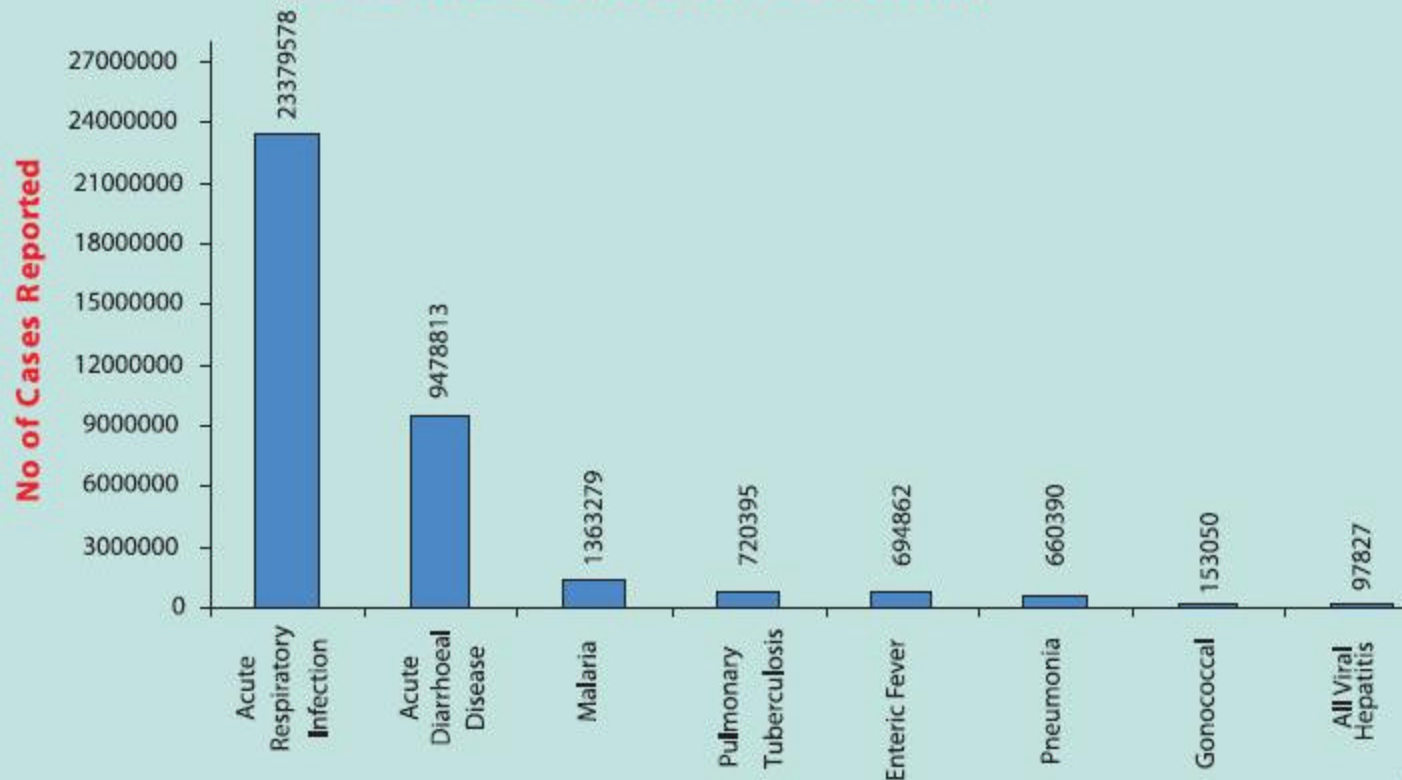
NEW DELHI: Liver cirrhosis has claimed about 25% of Amitabh Bachchan's liver, the filmstar has revealed in his blog. On Friday, he admitted he needs constant medical tests "to keep checking if there is any further damage taking place in the liver". Just a few days ago, the 67-year-old Bollywood actor's blood report showed "a sudden rise in liver counts and the doctor felt it necessary to investigate further through an MRI".

The actor, a teetotaler, disclosed that the ailment was the result of his near-fatal accident on the sets

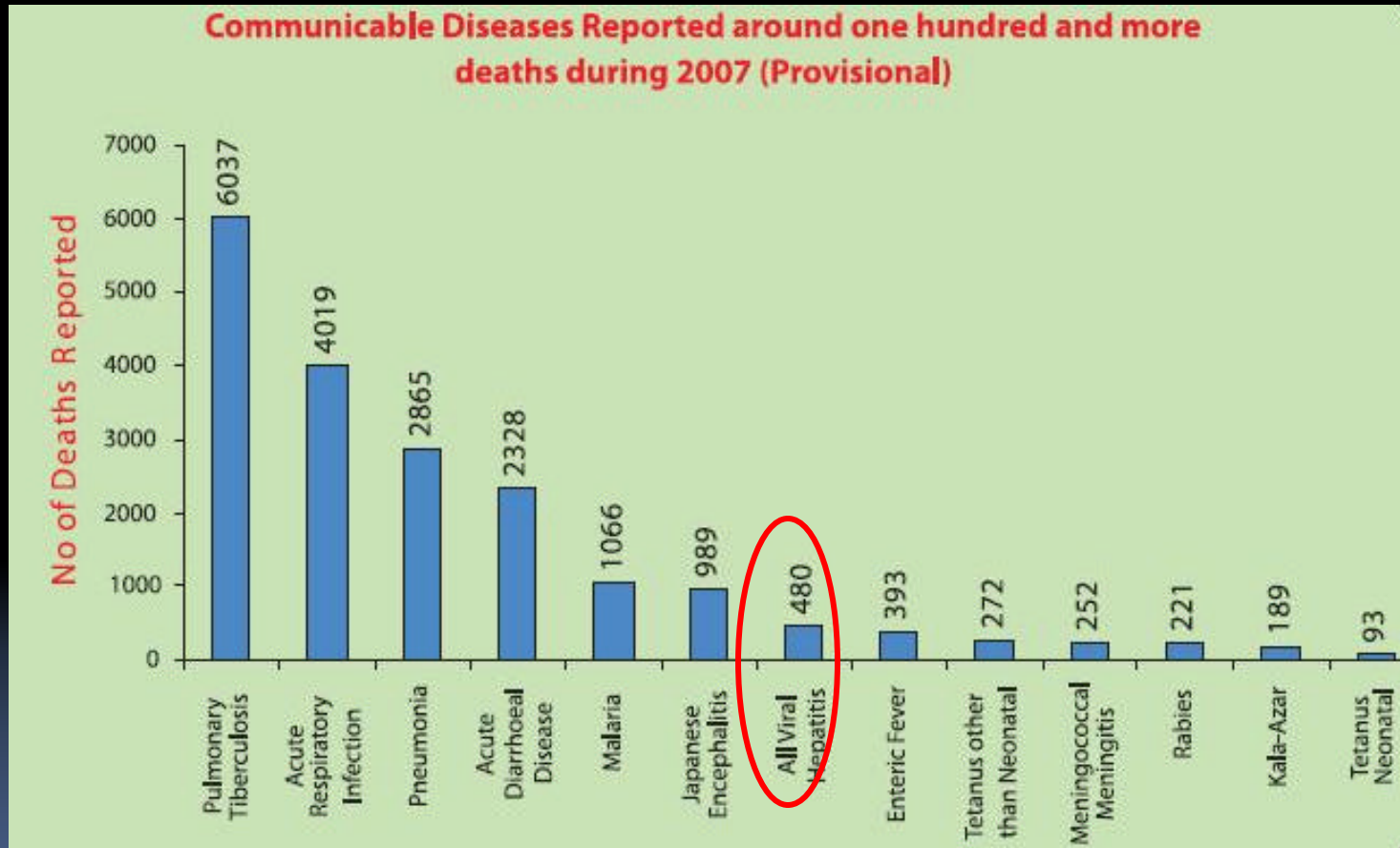
*I got liver cirrhosis from 'Coolie' accident: Big B*

# VIRAL HEPATITIS IS A PUBLIC HEALTH PROBLEM

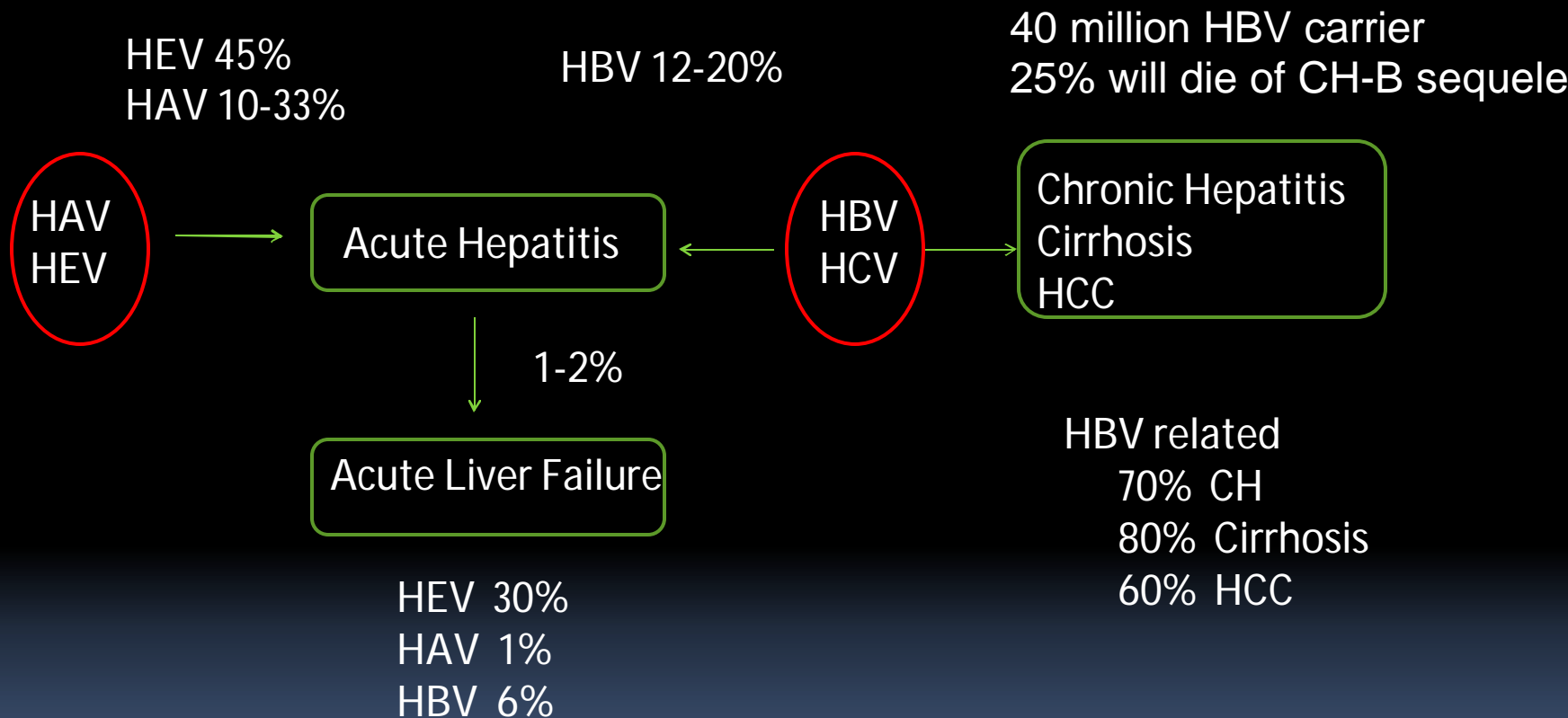
**Communicable Diseases Reported around one lakh and more cases during 2007 (Provisional)**



# VIRAL HEPATITIS IS A PUBLIC HEALTH PROBLEM



# VIRAL HEPATITIS : DISEASE BURDEN

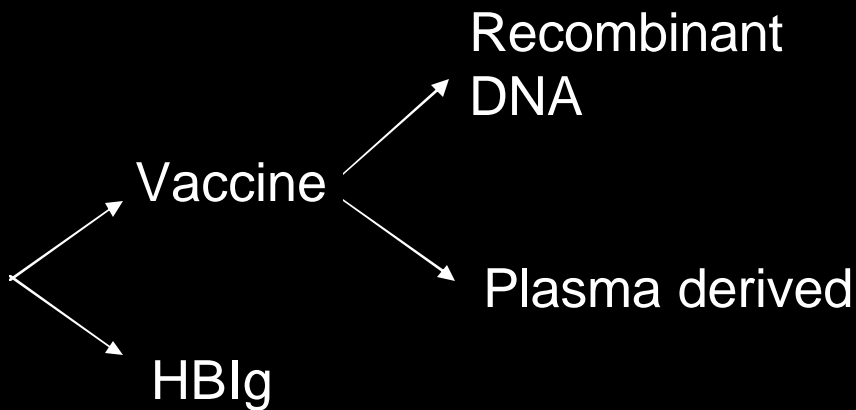


Acharya, Hepatology 2010;51:1-10

Nandi, MJAFI 2009;5:7-9

Tandon, Gut 1996;38:S56-59

# HBV IMMUNIZATION : VACCINE



Shanvac (Shanta Biotech)  
Genevac (Serum Institute)  
Revac (Bharat Biotech)  
Biovac-B (Workhardt)  
Engerix B

- Immediate protection
- 3 – 6 months
- Post-exposure/Neonate
- 0.06 ml/kg

Recommended  
Primary Immunization  
High risk behaviour  
Health Care Workers  
Contacts

# HBV VACCINE : DOSE AND SCHEDULE

|                                   |       |
|-----------------------------------|-------|
| Infants and children (< 11 yrs)   | 10 ug |
| Adolescents (> 11 yrs) and adults | 20 ug |
| Immunocompromised                 | 40 ug |

0,1 and 6 months routine pre-exposure prophylaxis

0,1,2 and 6 months immunocompromised patients

IM Route, Deltoid / anterolateral aspect of thigh (infants)

Quadrivalent (DPT+HB) 6,10, 14 wks / 0,6,10,14

Pentavalent (DPT + HB + Hib)

# HBV VACCINE

## Interruptions

2<sup>nd</sup> dose ASAP. 2 months between 2<sup>nd</sup> / 3<sup>rd</sup> dose  
3<sup>rd</sup> dose as and when convenient

Long term protection: 34 cohorts, n=9356.

Breakthrough infection 5-20 yrs after vaccination: 0.007 (95%CI 0.005-0.010)

Booster only for high risk

Adverse Reaction: Pain, Fever, Fatigue

Anaphylaxis (1/1.1 million). No GBS or MS

CDC MMWR 2006

Vaccine 2010;28:623-631

# HBV VACCINE : RESPONSE

Response: Anti-HBs > 10 mIU / mL

Non-responders (5-10%). Repeat 3 doses (30-50%)

- Age
- Smoking
- Obesity
- Genetic
- Liver Disease 60-70%
- Renal failure  
HIV infection  
immunosupp 50-70%

|          |      |
|----------|------|
| Neonates | >95% |
| 2-19     | ~99% |
| 20-29    | ~95% |
| 30-39    | ~90% |
| 40-49    | ~85% |
| 50-59    | ~70% |
| >59      | ~50% |

# HBV VACCINE : POST EXPOSURE

| Status of Exposed           | Source HBsAg positive                      | Source HBsAg negative | Source HBsAg unknown   |
|-----------------------------|--|-----------------------|------------------------|
| Unvaccinated                | HBIg + Vac                                 | Vac                   | Vac                    |
| Vaccinated Responder        | No   | No                    | No                     |
| Vaccinated Nonresponder     | HBIg +<br>Vac / rpt HBIg                   | No                    | HBIg + Vac/rpt<br>HBIg |
| Vaccinated Response Unknown | Test for anti-HBs<br>HBIg +<br>Booster vac | No                    | Booster vac            |

# HAV VACCINE

Inactivated vaccine

IM upper arm

Dose (720 iu) x 2 (0, 1 months)

## Recommendations

All children at 12 months

Travel to endemic area

Chronic Liver Disease

(No recommendation for HCW / sewage workers)

Soreness at local site

Headache/Anorexia/Fever/Fatigue

Long lasting protection in adults (25 years)

# HBV VACCINE : IMPACT

## Taiwan experience (*Vaccine 2000;18(suppl 1): S35-38*)

|      |  |             |                |
|------|--|-------------|----------------|
| 1980 | 15-20% HBV pos general population      |             |                |
| 1984 | Mass vaccination (coverage > 90%)      |             |                |
| 1993 | Prevalence of HBV in children < 6 yrs  | 10.5 %      | → 1.7%         |
|      | Babies pos in infectious mothers:      | 96%         | → 14%          |
|      | Babies pos in less infectious mothers: | 12%         | → 4%           |
|      | Average annual incidence of HCC:       | 0.7/100,000 | → 0.36/100,000 |

## Gambian experience (*Lancet 1993;341:1129-1132*)

3-4 year old children. 720 vaccinated vs 816 unvaccinated  
84% effective against preventing infection

## South African experience (*Vaccine 2001;19:3919-3926*)

Seroprotection rate 519/598 (1995 -2000)

# HBV VACCINE : DEBATE

HBV Immunization not included in EPI in India  
Pilot projects in some districts

Low prevalence  
Low priority  
Low incidence of HCC  
Low coverage of EPI

Cost –effective analysis  
Transmission in childhood  
No effective treatment  
Prevents a cancer (HCC)

It is a preventable disease, so it should be prevented

# HAV VACCINE : DEBATE

Is immunization against hepatitis A necessary?

N=500 students (10-17 yrs) and 870 adults with AVH

Immune to HAV: 96.3 – 98.2%

HAV in adults with AVH: 8%

Batra, Bull WHO Vol 80 Sep 2002

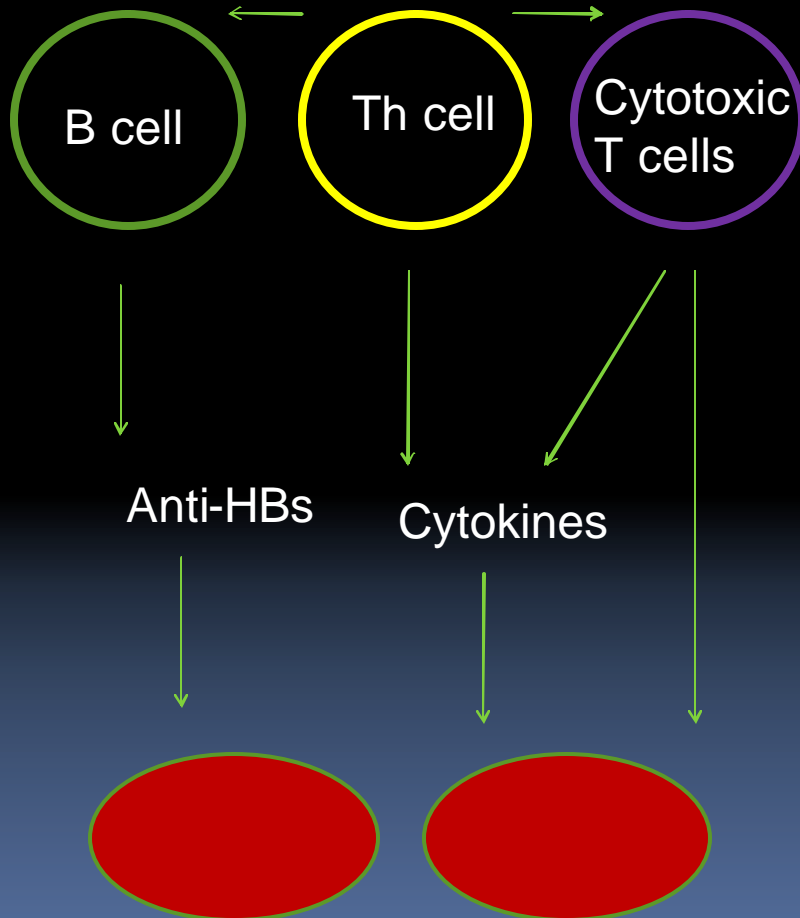
N=224. (Adults with AVH).

HAV in adults with AVH: 33%

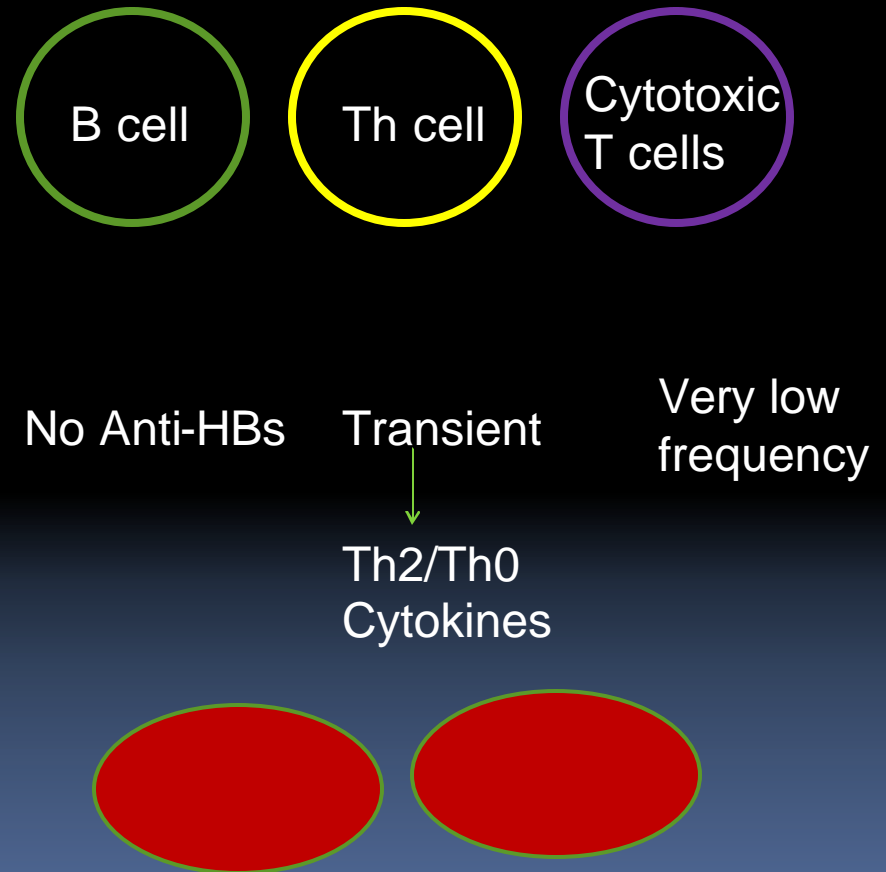
Nandi, MJAFI 2009;5:7-9

# HBV VACCINE : THERAPEUTIC POTENTIAL

## Acute infection & Recovery



## Chronic Infection





ARMY HOSPITAL (R&R), NEW DELHI

**Thank You**