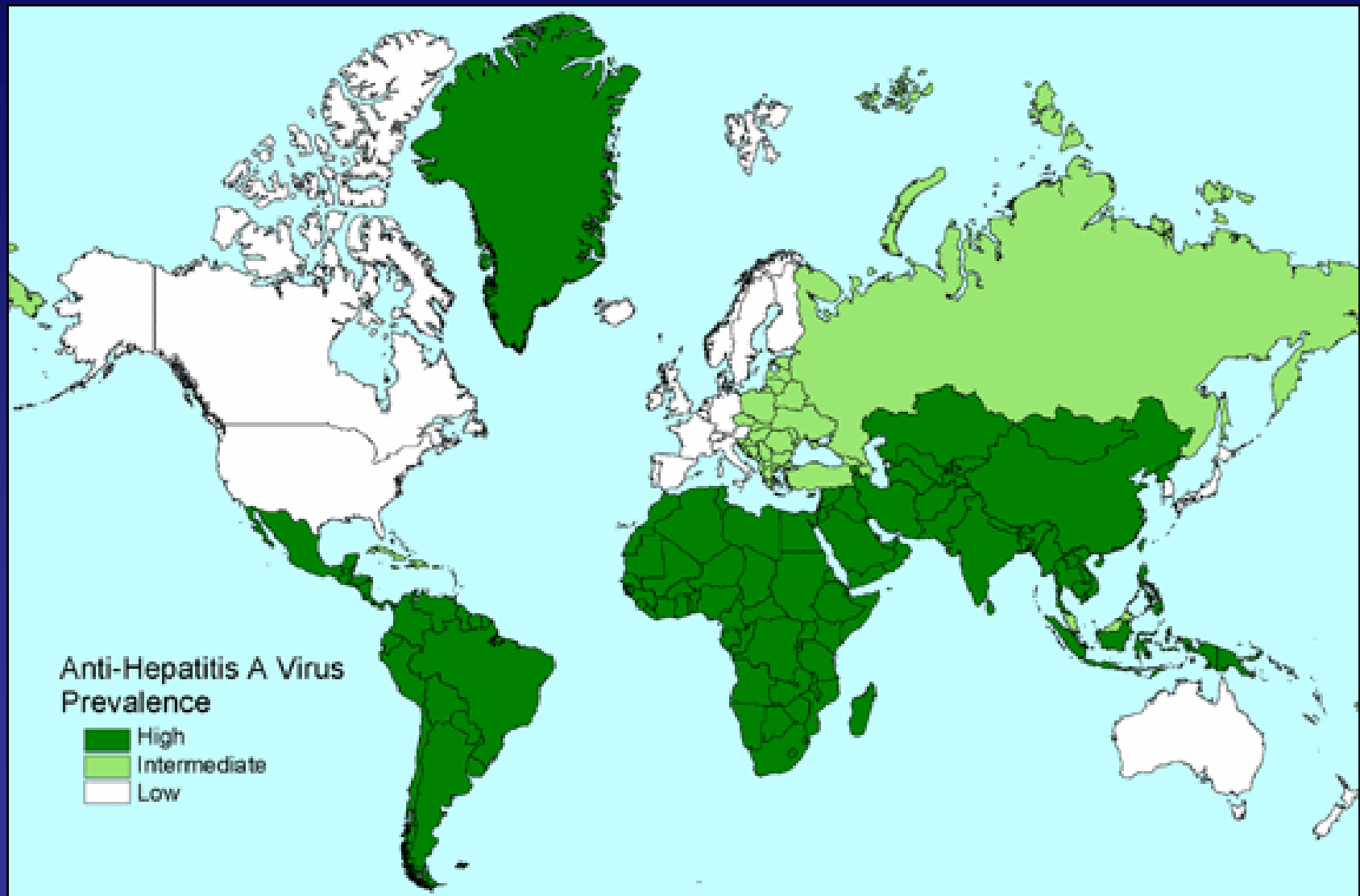


HEPATITIS A IN SAUDI ARABIA

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Geographic Distribution of HAV Infections



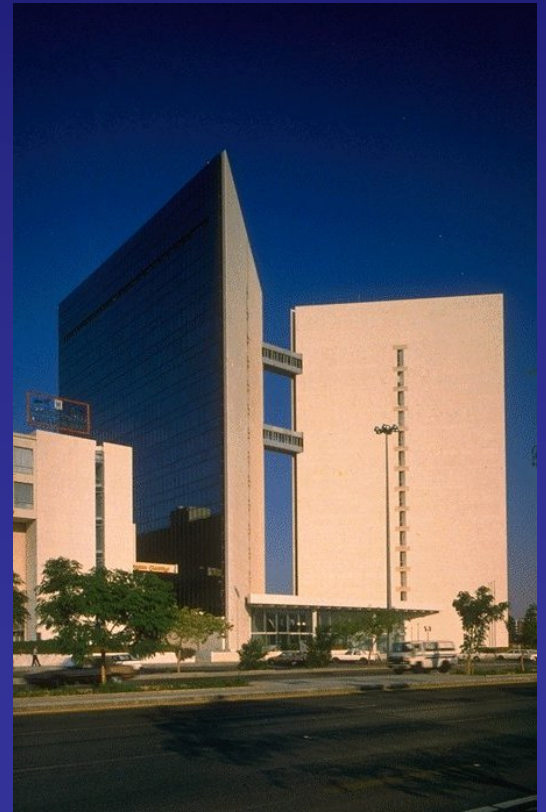


Saudi Arabia

- Population 23 million, ¼ expatriates
- Equal Urban: rural distribution
- Fifty percent of Saudis <15 years of age
- Two – three million pilgrims/year
- Improved socio-economic conditions, water sanitation and sewage disposal past 2 decades.









Etiology of icteric hepatitis in 133 Saudi patients from June 1993 – May 1994

	HAV	HBV	HCV	CMV	NANBN C	TOTAL
1-12 years	45	3	7	3	5	76
>12 years	6	14	20	-	30	57
total	51	17	27	3	35	133
(%)	(38.3)	(12.8)	(20.3)	(2.3)	(26.3)	(100)

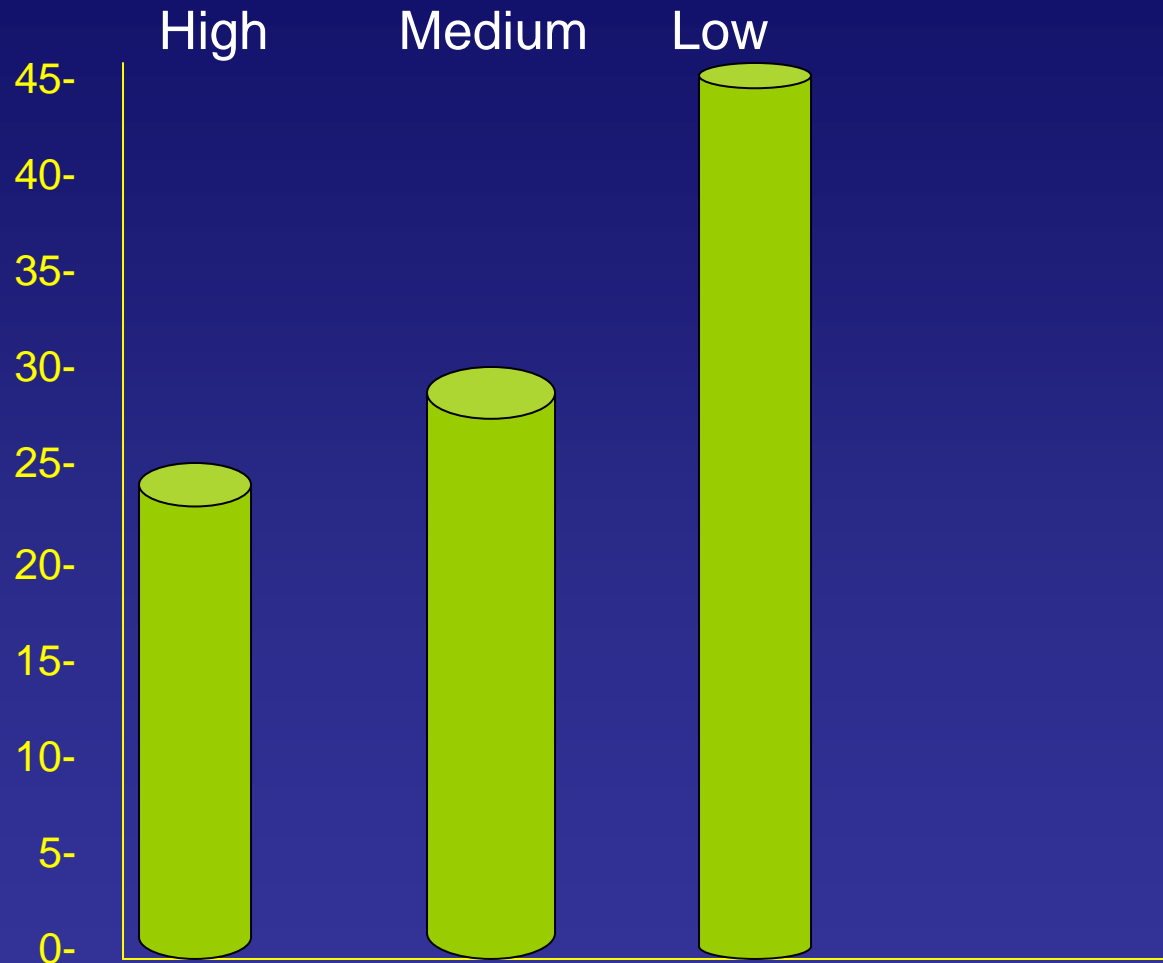
Summary of the studies on anti-HAV IgG prevalence in Saudi Arabia (1986-2006)

Reference No.	Year	Area (Region)	No. of Subjects	Age Group (years)	Percent anti-HAV (IgG)
Ramia et.al	1986	Western	1015	1-15	76.5
Fathalla et.al	1987	Eastern	5876	6-18	79
El-Hazmi	1989	All Regions	2582	1-10	92
Al-Rashed	1989	All Regions	4375	1-10	52.4
Al-Faleh et.al.	1989	All Regions	4575	1-12	50.5
Arif M et.al.	1995	Central (Riyadh)	243	1-12	24.7
Khalil et.al.	1996	Central (Riyadh)	592	1-15	30.2
Al-Faleh	1997	All Regions	5355	1-12	24.9
Al Muneef	2005	Central (Riyadh)	2399	All (mostly children)	28.9

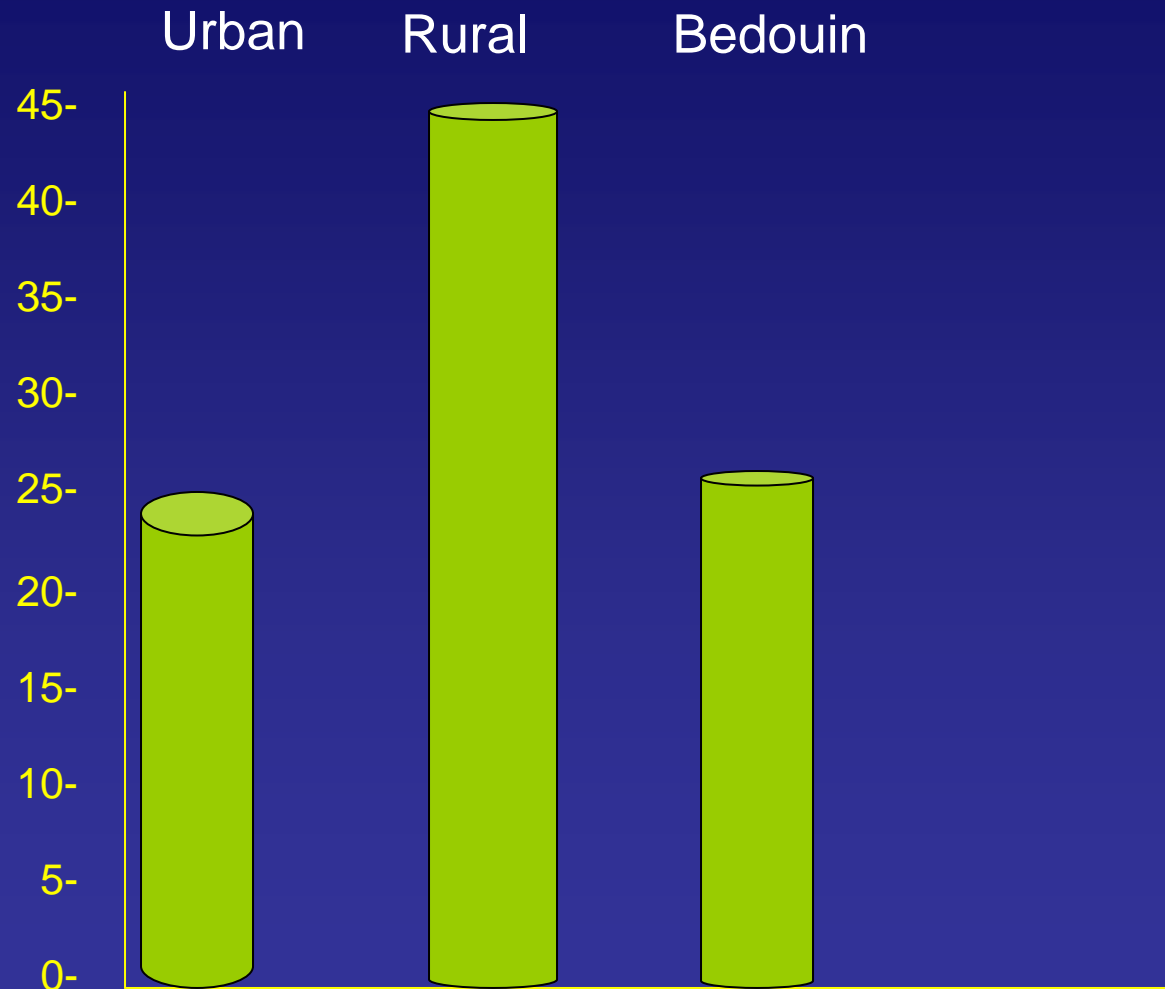
HAV Seroprevalence in 490 Saudi Children in Riyadh

Age group	% HAV positive
6 months <6 years	13.5% (26/192)
6 years <11 years	30.8% (53/172)
>11 years	45.2% (57/126)
Total	27.5% (136/490)

Proportion of HAV positives according to social level in 490 children



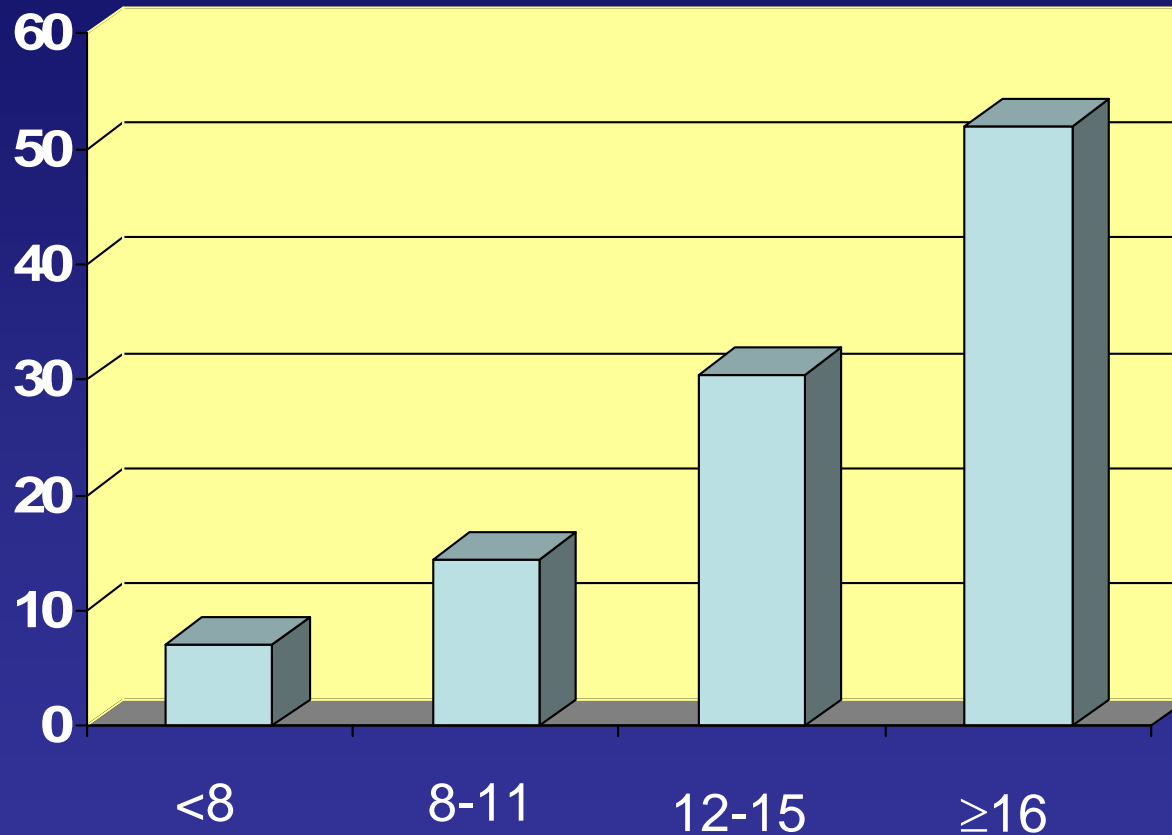
Proportion of HAV positives according to environment level in 490 children



Anti-HAV Seroprevalence in 2399 Saudis

Characteristics	Total Number in the group Number (%)	Positive for HAV Number (%)	<i>P</i> -value
Gender			0.49
male	1084 (45.19)	306 (28.33)	
female	1315 (54.81)	388 (29.51)	
Age in years			<0.0001
<8	353 (14.71)	25 (7.08)	
8-11	581 (24.22)	84 (14.46)	
12-15	825 (34.39)	252 (30.55)	
16 and above	640 (26.68)	333 (52.03)	

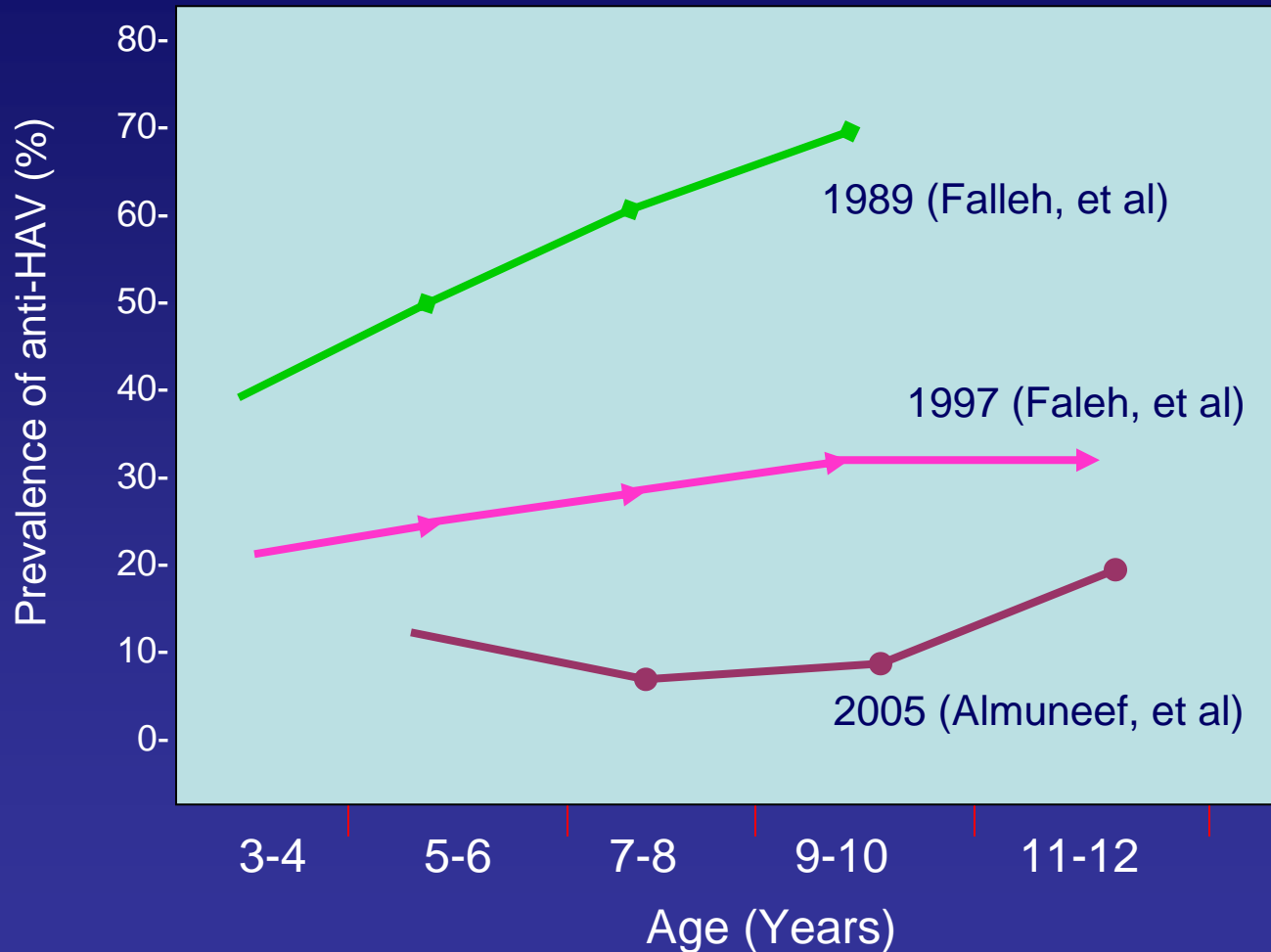
Hepatitis A seroprevalence by age group (2005)



Prevalence Rates (%) of anti-HAV among Saudi children 1- 12 years old in 1989 and 1997 according to region.

REGION	ANTI-HAV	
	1989 N=4575	1997 N=5355
Riyadh	39.0	16.0
Gassim	62.7	31.6
Hail	56.0	20.4
Medina	59.5	28.2
Makkah	55.0	20.1
Aseer	44.5	19.0
Al-Baha	40.6	22.1
Jizan	80.0	82.0
Najran	79.1	50.3
Al-Jouf	60.4	47.0
Tabouk	76.0	45.6
Dammam	38.4	18.2
Jeddah	51.0	17.5
Taif	19.0	9.0
TOTAL	50.5	24.9

Anti-HAV prevalence in children <12 years in Saudi Arabia

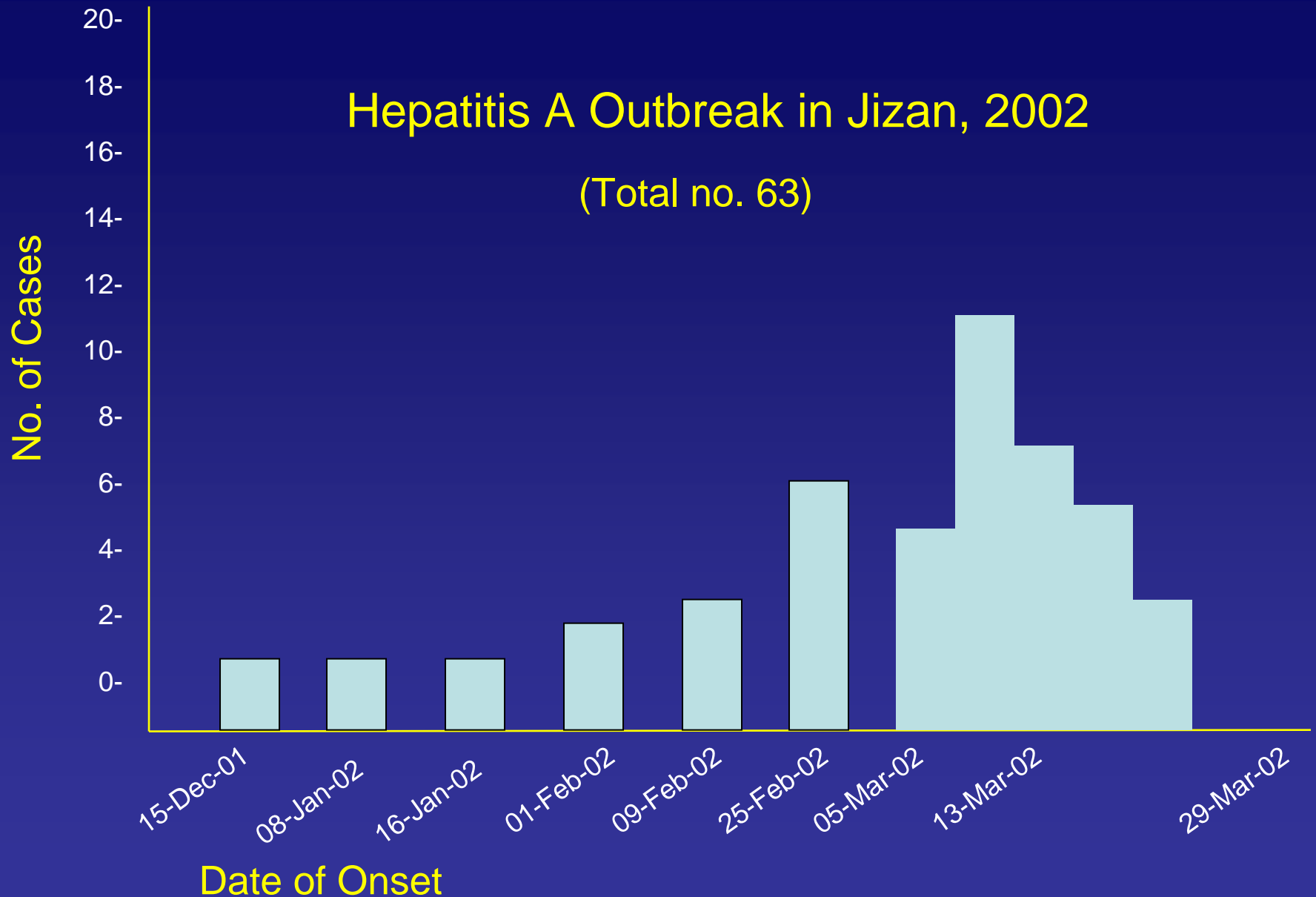


Reported Hepatitis A Outbreaks in Saudi Arabia

Year	Area	No. of Cases	Control Method	Author
1997	Afif, Riyadh	72	IG	Dehish et.al.
2002	Jizan	63	IG	Khaledi et.al
2003	Bisha	114	IG	Basurrah et.al
2004	Al Berk, Asir	110	IG	Al Saleh et.al

Hepatitis A Outbreak in Jizan, 2002

(Total no. 63)



Comparisons of Selected Notifiable Diseases, Jan 1992- Mar 1993

	Jan-Mar 1993	Jan-Mar 1992	Total 1993	Total 1992
Diphtheria	3	1	3	2
Pertussis	4	7	4	94
Tetanus, neonatal	2	4	2	15
Tetanus, other	7	3	7	15
Poliomyelitis	0	0	0	2
Measles	862	4312	862	11299
Mumps	922	1166	922	5054
Rubella	209	1190	209	3725
Varicella	7804	37730	7804	93199
Brucellosis	1658	1630	1658	7184
Meningitis, mening.	9	13	9	88
Meningitis, other	89	45	89	411
Hepatitis A	850	914	850	3292
Hepatitis B	931	667	931	2989
Hepatitis, unspecified	440	389	440	1684
Typhoid & paratyphoid	192	221	192	1201
Shigellosis	181	175	181	806
Salmonellosis	170	172	170	1226
Amoebic dysentery	864	1284	864	5645
Syphilis	94	230	94	576
VD, other	160	196	160	910

Asir)

Tetanus, other: 7 (4 Jeddah, 3 Makkah)

Viral encephalitis: 2 (2 Hafr al-Batin)

Reported by the Ministry of Health.

Comparisons of selected notifiable diseases, Apr - Jun 2004-2005

DISEASE	Apr-Jun 2005	APR-Jun 2004	Change %	Jan-Jun 2005	Jan-Dec 2004	DISEASE	Apr-Jun 2005	Apr-Jun 2004	Change %	Jan-Jun 2005	Jan-Dec 2004
Cholera	5	3	67	6	14	Meningitis mening.	4	2	100	11	10
Diphtheria	3	0	300	7	0	Meningitis other	117	106	10	224	508
Pertussis	3	19	-84	8	64	Hepatitis B	1096	1125	-3	2179	4594
Tetanus,neonat	6	8	-25	12	37	Hepatitis C	676	726	-7	1270	2981
Tetanus,other	3	2	50	6	11	Hepatitis unspecified	300	290	3	788	1260
Poliomyelitis	0	0	0	0	2*	Hepatitis A	685	914	-25	1328	2999
Guillain Barre Syndrome	26	25	4	72	99	Typhoid & paratyphoid	126	100	26	194	365
Measles	121	864	-86	196	1775	Amoebic dysentery	792	705	12	1500	2696
Mumps	20	66	-70	103	349	Shigellosis	40	69	-42	91	310
Rubella	2	6	-67	3	17	Salmonellosis	354	438	-19	599	1829
Varicella	16335	28295	-42	29879	67451	Brucellosis	1159	1560	-26	2151	5169

* Imported cases

Hepatitis A Incidence in Saudi Arabia per 100,000

Year	Incidence
1992	14
2003	9

Conclusions

- HAV seroprevalence surveys in Saudi Arabia indicate shifting pattern from high to intermediate endemicity.
- Remaining foci of high endemicity in some regions and in the surrounding countries, ↑ mobility and ↑ older susceptible population pose a real risk for outbreaks.
- Outbreaks expected to result in more severe forms of disease → ↑ healthcare cost.
- Universal hepatitis A vaccination for all children in Saudi Arabia is indicated

Hepatitis A Vaccine Use in Saudi Arabia

1. In high risk groups, childhood immunization schedule in private sector since 2000.
2. Recently approved by Ministry of Health for universal childhood immunization .

Childhood Immunization Schedule in Saudi Arabia January 2008

Age	Vaccine
At Birth	BCG, HepB
2 months	IPV (DTP, HepB, Hib)
4 months	OPV (DTP, Hep B, Hib)
6 months	OPV (DTP, HepB, Hib)
9 months	Measles (mono)
12 months	MMR, Varicella, OPV
18 months	OPV, DTP, Hib, Hep A
24 months	Hep A
4- 6 years	OPV, DTP, MMR, Varicella

Thank you!