



Hepatitis A Universal Vaccination of Military Personnel: The Russian Experience

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Background

- **Military populations are at risk of hepatitis A infection.**
- **Military forces world wide commonly conduct vaccination against hepatitis A to reduce case incidence, virus circulation, and to prevent common-source outbreaks.**
- **Hepatitis A immunization of military personnel of the Internal Forces in Russia began in 1996.**
- **High levels of vaccine coverage and epidemiological surveillance in this population, where the risk of outbreaks is high, allow for reliable evaluation of vaccine effectiveness through comparison with epidemiologic conditions prior to vaccination.**

Study Objectives

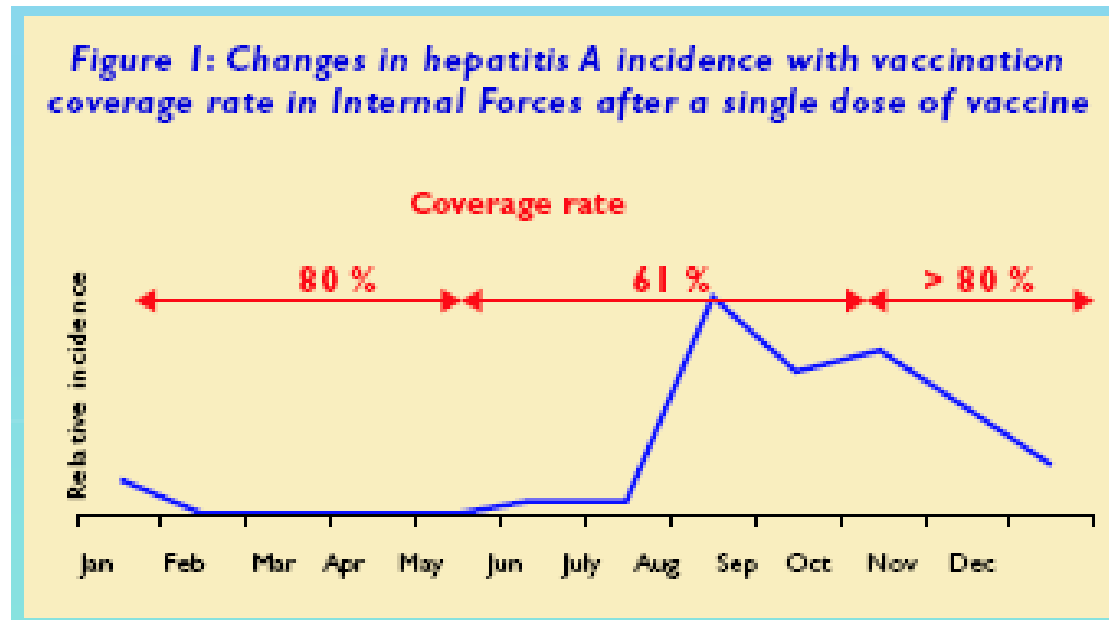
- **Evaluation of effectiveness of vaccination against hepatitis A**
- **Evaluation of immunogenicity of vaccines against hepatitis A**
- **Estimate persistence of anti-HAV antibodies following one-dose vaccination**

Methods

- **Three vaccines have been universally administered since 1996 to several hundred thousand internal forces recruits**
 - Avaxim (Sanofi Pasteur)
 - Havrix 1440 (Glaxo SmithKline)
 - Hep-A-in-Vac (Russian local manufacturer)
- **Cases of hepatitis A are routinely reported**
- **Estimation of the effects of vaccination on hepatitis A epidemiology have been conducted in a number of Russian military units including those in Hepatitis A endemic areas**
- **Vaccine immunogenicity was evaluated in selected groups of recruits**
- **Laboratory tests of anti-HAV concentrations were performed using commercial quantitative ELISA kits. Cut-off level of anti-HAV antibodies concentrations was 20 mIU/ml.**
 - The Central Laboratory of the Ministry of Internal Affairs (“Vectogep-A-antitela”, Vector-Bialgam, Russia)
 - The Laboratory of Infectious Immunology of the State Centre of Sanitary and Epidemiological Surveillance of Internal Forces (“ETI-AB-HAVK PLUS” DiaSorin, Italy).
 - The Epidemiological Surveillance Center of Ministry of Defense (“ETI-AB-HAVK PLUS” DiaSorin, Italy)

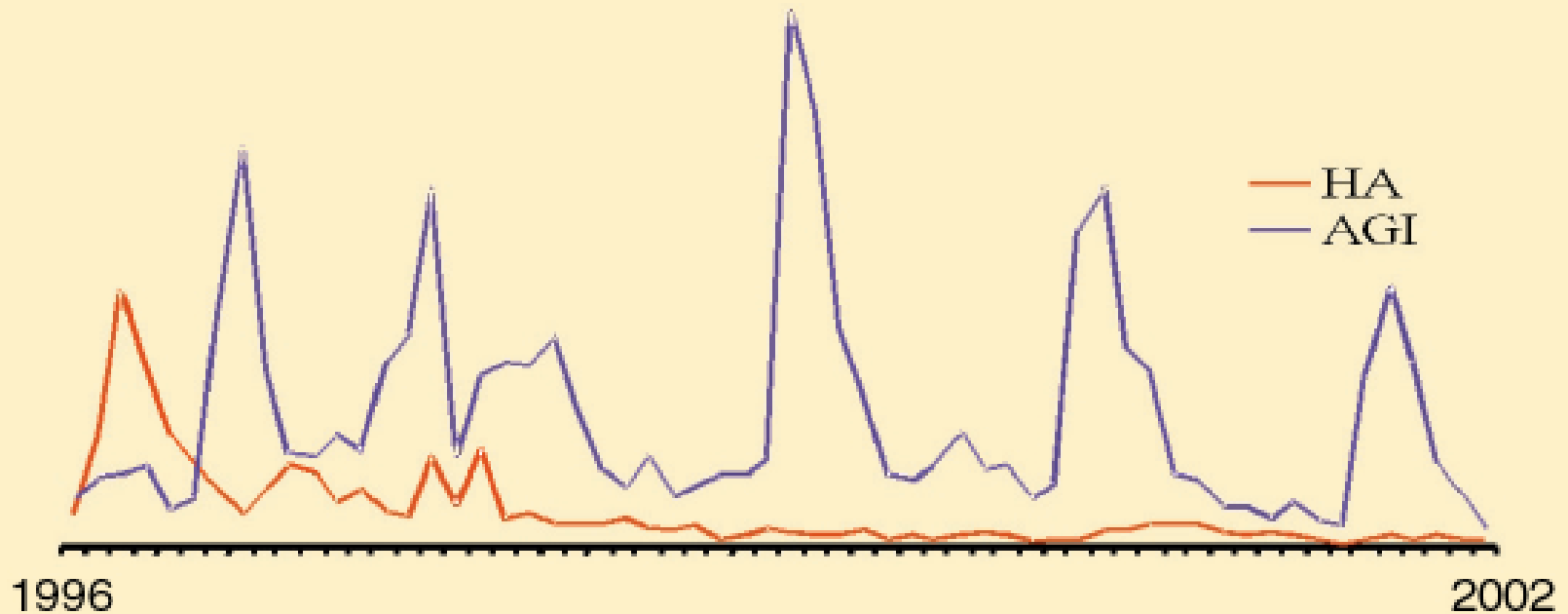
Control of Hepatitis A Outbreaks by Vaccination

- Vaccination during outbreaks in unvaccinated units prevented new cases within:
 - 5-28 days, if 100% coverage
 - 18-42 days, if 70% coverage



Incidence of Hepatitis A vs. Incidence of Non-specified Acute Gastrointestinal Infections

Figure 2: Relative incidence of hepatitis A decreased against a background of periodic increases in the incidence of acute gastrointestinal infections (AGI)



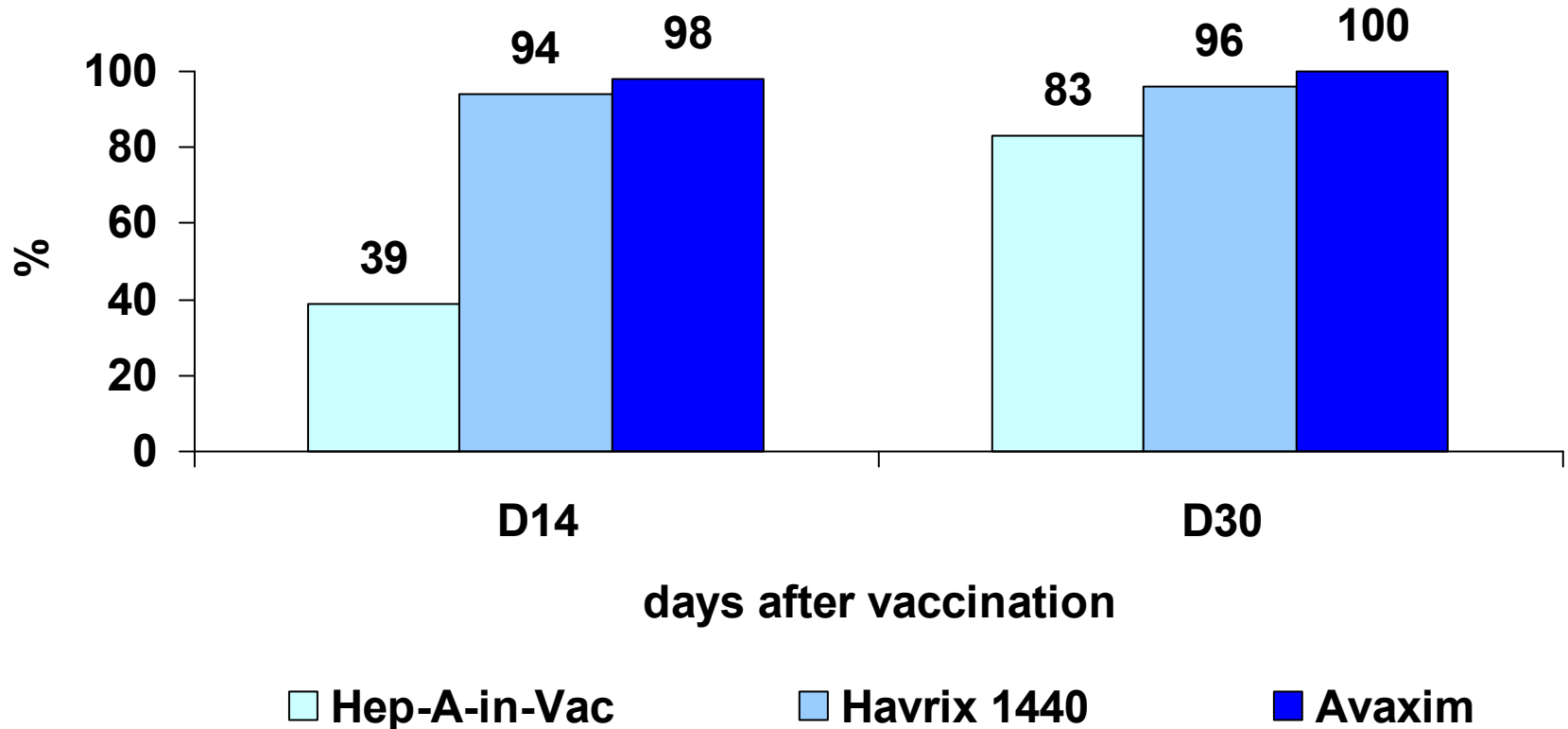
Effectiveness of a Single-Dose Vaccination against Hepatitis A

- **From 2001 to 2006:**

- Only 5 cases of Hepatitis A were reported in >60,000 personnel given one dose of Avaxim vaccine.
- Three of these five cases were diagnosed within 10 days after vaccination.

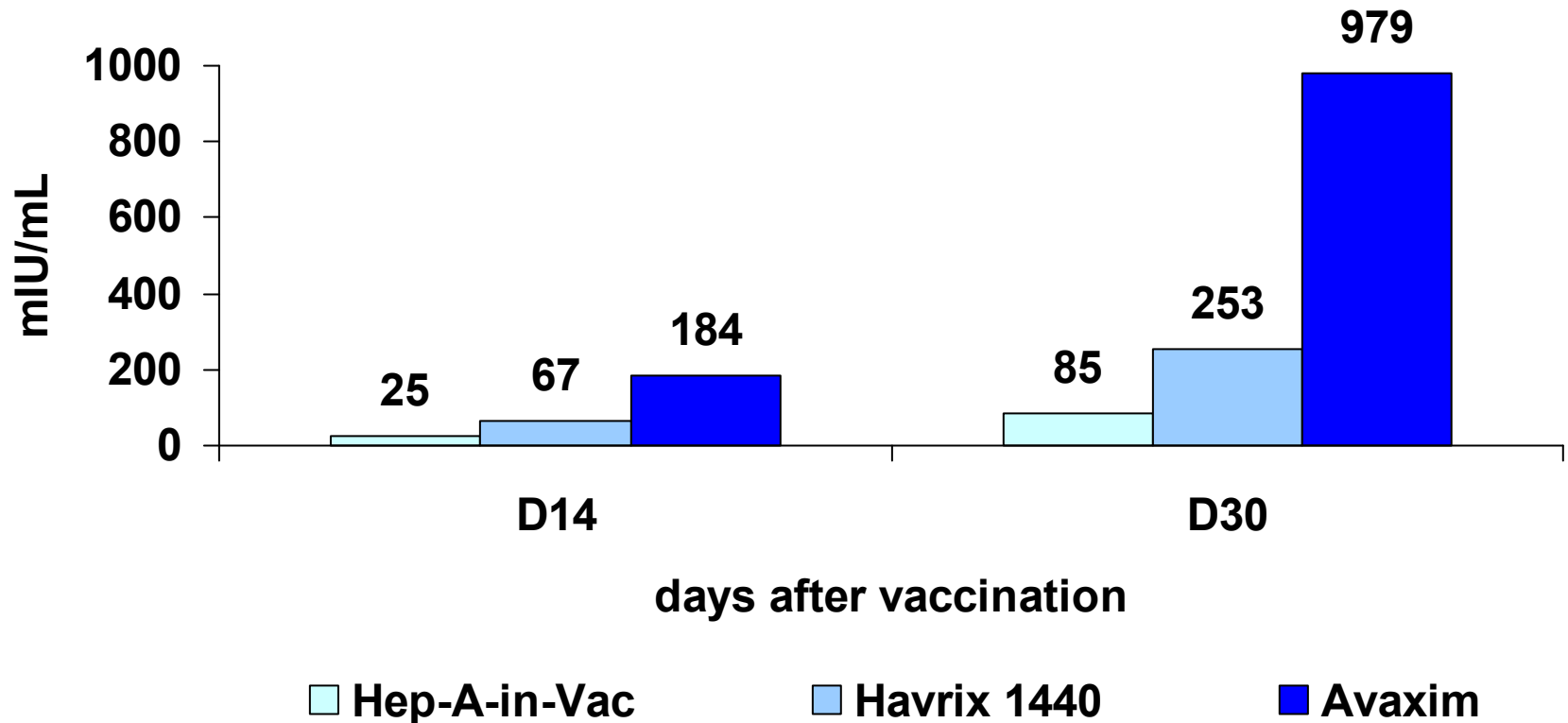
Immunogenicity of a Single-Dose Vaccination against Hepatitis A

Seroconversion rates (≥ 20 mIU/mL) at 14 and 30 days following vaccination



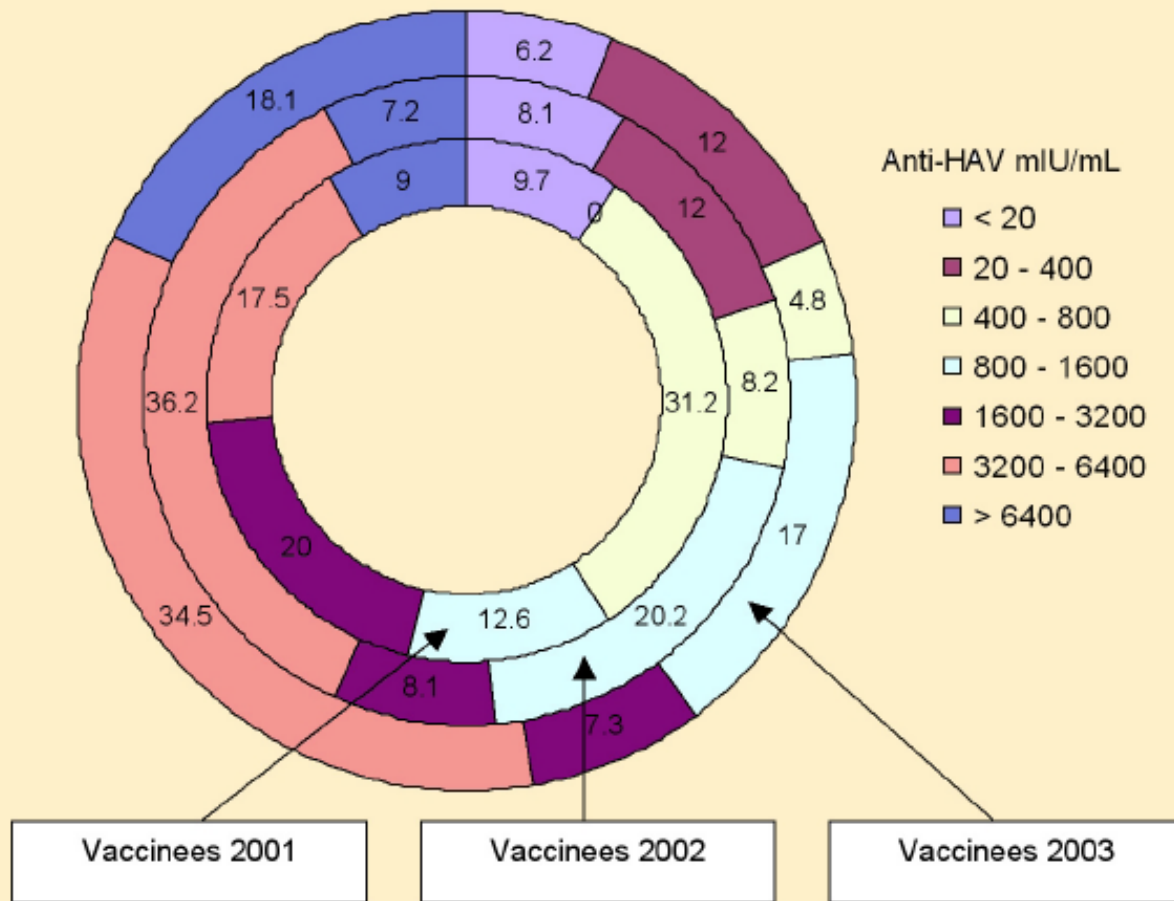
Immunogenicity of a Single-Dose Vaccination against Hepatitis A

GMCs of anti-HAV IgG at 14 and 30 days following vaccination



Persistence of Anti-HAV Antibodies Following One-Dose Vaccination

Figure 4. Anti-HAV antibody concentrations 3 to 5 years after single dose of Avaxim 160U (sectors indicate the percentages of servicemen with given antibody titers)



Conclusions

- **Single-dose vaccination has been effective in control of hepatitis A incidence among military personnel serving for extended periods in high risk environments.**
- **Protection likely persists for 5 years in more than 90% of personnel vaccinated with Avaxim.**
- **Avaxim may have immunogenic advantages, related to kinetics of the antibody response.**
- **These observations should also be of interest for travelers to all regions where hepatitis A is endemic.**

Thank You for attention

