

Recommendations of Scientific Committee on Vaccine Preventable Diseases (SCVPD) on vaccinations for healthcare workers in Hong Kong



Vaccine recommendations for healthcare workers (HCW)

- Vaccination is one of the most effective tools to prevent infectious diseases
- Many overseas health authorities have recommended HCW to receive vaccination to reduce the chance of getting or spreading vaccine-preventable diseases
 - In general, **hepatitis B**, **measles**, **rubella**, **chickenpox** and **seasonal influenza** vaccination are recommended for HCW

Definition of HCW

- No universally agreed upon definition on HCW - overseas health authorities vary in their definitions
- Local context - personnel (including students and volunteers in health care disciplines) involving potential contact with patients, their blood or body substances in health care settings, and hence at potential risk of acquiring and transmitting infections in such setting

Summary of recommendations by SCVPD

1. HCW should be **immune to hepatitis B** and *post-vaccination serological status should be ascertained*

醫護人員應對乙型肝炎具免疫力，並須於接種疫苗後進行血液抗體測試確認其免疫力

2. HCW should be **immune to measles and rubella**, by *either vaccination or medical evaluation*

醫護人員應透過疫苗接種或醫療評估確認對麻疹和風疹(德國麻疹)具免疫力

Summary of recommendations by SCVPD (cont'd)

3. HCW should be **immune to varicella (chickenpox)**. HCW with *negative or uncertain history of receiving 2 doses of varicella vaccines or disease of varicella or herpes zoster should be serologically tested*. Vaccines should be offered to those without varicella zoster antibody

醫護人員應對水痘病毒具免疫力。如醫護人員沒有或未能確定曾接種兩劑水痘疫苗或曾感染水痘/帶狀疱疹，就應進行血液抗體測試，若沒有抗體便應為醫護人員提供疫苗注射

4. All HCW should **receive seasonal influenza vaccination annually**

所有醫護人員每年都應該接種季節性流感疫苗

Hepatitis B

About hepatitis B

- Hepatitis B virus can be found in blood and body fluids of an infected person or carriers
- Can spread via blood contact in health care setting (e. through skin cuts, abrasion, or mucosal membranes of eyes and mouths)
- Universal hepatitis B vaccination (a 3-dose course) given to infants in HK since 1988
 - About 90 to 95% of people will gain life-long immunity to hepatitis B after a full course
- Decreasing trend of hepatitis B carriers in the population esp. among younger generations

Prevalence of carriers among newly recruited HCW of DH

Year	Male		Female	
	No. tested	HBsAg +ve (%)	No. tested	HBsAg +ve (%)
2013	282	8 (2.8%)	418	19 (4.5%)
2014	261	3 (1.1%)	370	13 (3.5%)
2015	324	8 (2.5%)	391	15 (3.8%)
2016	278	8 (2.9%)	409	16 (3.9%)

Hepatitis B recommendation

- **“HCW should be immune to hepatitis B and post-vaccination serological status should be ascertained”**
- A 3-dose regimen of hepatitis B vaccine should be offered to seronegative HCW with no or unknown history of receiving hepatitis B vaccination
- **Post-vaccination serological status** should be ascertained for HCW at 1-4 months after the 3rd dose to obtain the peak antibody levels
- Studies have documented long-term protection in healthy individuals after completion of a course of vaccination with antibody response. An anamnestic response to subsequent challenge of hepatitis B exists regardless of the titre of anti-hepatitis B antibody

Scenarios

- Had completed vaccination (3 doses)
 - with document immune response -> immune
 - without documented immune response -> proceed to test
- Without completion of vaccination
 - proceed to test
- All seronegative HCW should be vaccinated

Suboptimal antibody level after a course of vaccination

- If HCW received a primary series of hepatitis B vaccination previously but the antibody level is suboptimal, 1-3 doses of hepatitis B vaccine should be offered coupled with serological testing
- Those who have received **6 doses** but still with suboptimal antibody levels should be considered as **non-responders** or **hypo-responders**.
 - Post-exposure prophylaxis has to be considered in the event of occupational exposure in future

Measles & Rubella

About measles & rubella

- Both are highly infectious
 - Can be transmitted by contact with secretions from nose and throat of infected persons through droplet spread or direct contact
 - Infected persons are communicable days before onset of rash
- Rubella can also cause anomalies in the developing foetus, esp. during the first 3 months
- Outbreaks of measles occurred in local healthcare settings in recent years with HCW involved

Measles-containing vaccines provided under childhood immunisation programme

- Introduced in 1967 as single dose of anti-measles vaccine
- Changed to MMR vaccine in 1990 for one year old
- 2nd dose introduced at 1997 for P.1 students
- Special campaign in 1997 for persons aged 1- 19 years without 2 doses

出生年份		政府提供的含麻疹疫苗	
		第一劑	第二劑
於1967年前出生		未有提供	
於1967至1988年出生	所有人士 (不包括於1996/97學年就讀小六或於1997/98學年或以後就讀小一)	於六個月至一歲接種AMV	請參考個人免疫接種記錄# [^]
	於1996/97學年就讀小六	於一歲接種AMV	於小六在學校接種MMR
	於1997/98學年或以後就讀小一	於一歲接種AMV	於小一在學校接種MMR
於1989年或以後出生	於1997/98學年以前就讀小一	於一歲接種MMR	請參考個人免疫接種記錄# [^]
	於1997/98學年或以後就讀小一	於一歲接種MMR	於小一在學校接種MMR

AMV: 麻疹疫苗

MMR: 麻疹、流行性腮腺炎及德國麻疹混合疫苗



#政府於1997年7至11月期間推行「麻疹疫苗加強劑注射運動」，1978至1996年出生人士透過該計劃可能已接種一劑MMR混合疫苗。此計劃為未曾接受兩劑MMR混合疫苗或AMV的1至19歲兒童和青少年（1978至1996年出生）注射一劑MMR混合疫苗。

[^]於1997/98學年或以後就讀小六的人士可能已在小六學年在學校接種MMR混合疫苗。

Seroprevalence rates of measles virus antibodies

Year	Age group								
	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	>39
2013	97.5%	98.5%	100%	96%	98%	96%	98%	100%	100%
2014	96%	98%	99%	99%	100%	98%	98%	100%	100%
2015	98%	99.5%	100%	96%	98%	96%	98%	94%	99%
2016	95.5%	99.5%	99%	95%	94%	100%	94%	92%	97%
2017	95%	100%	98%	99%	100%	98%	98%	98%	100%

Rubella-containing vaccines provided under childhood immunisation programme

- Introduced in 1978 for **girls** at P.6 as single dose of anti-rubella vaccine
- Changed to MMR vaccine in 1990 for both boys and girls at one year old
- 2nd dose introduced at 1997 for P.1 students
- Special campaign in 1997 for persons aged 1- 19 years without 2 doses

出生年份		性別	政府提供的含德國麻疹疫苗 (風疹又稱德國麻疹)
於1967年前出生或所有不屬於以下類別人士		所有人士	未有提供
於1967至1988年出生	於1978/79學年至1995/96學年就讀小六	女士	於小六在學校接種ARV
		男士	請參考個人免疫接種記錄#
	於1996/97學年或以後就讀小六	所有人士	於小六在學校或經「麻疹疫苗加強劑注射運動」接種MMR#^
於1989年或以後出生		所有人士	於一歲接種MMR及在不同年歲接種第二劑MMR#^*

ARV: 德國麻疹疫苗
MMR: 麻疹、流行性腮腺炎及德國麻疹混合疫苗

政府於1997年7至11月期間推行「麻疹疫苗加強劑注射運動」，1978至1996年出生人士透過該計劃可能已接種一劑MMR混合疫苗。此計劃為未曾接受兩劑MMR混合疫苗或麻疹疫苗的1至19歲兒童和青少年(1978至1996年出生)注射一劑MMR混合疫苗。

^ 於1997/98學年或以後就讀小六的人士可能於小六時已在學校接種MMR混合疫苗。

* 於1997/98學年或以後就讀小一的人士已於小一時在學校接種第二劑MMR混合疫苗。

Seroprevalence rates of rubella virus antibodies

Year	Age group								
	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	>39
2013	98%	97%	97%	88%	92%	96%	94%	88%	87%
2014	98.5%	98.5%	96%	91%	92%	92%	88%	90%	91%
2015	95%	99%	96%	93%	96%	96%	90%	92%	92%
2016	98.5%	98.5%	99%	88%	92%	94%	98%	96%	83%
2017	93%	98%	95%	94%	90%	90%	90%	96%	92%

Measles & rubella recommendations

- “**HCW should be immune to measles and rubella, by either vaccination or medical evaluation**”
- Ascertainment of immunity:
 - **written documentation** of vaccination (2 doses of measles-containing vaccine administered at least 28 days apart and at least one dose of rubella-containing vaccine); OR
 - laboratory evidence of immunity (positive antibody); OR
 - past infection with laboratory confirmation

Measles & rubella recommendations (cont'd)

- HCW without evidence of immunity should be offered vaccination
- **Combined MMR vaccine** is the preferred choice of vaccine as it confers protection against mumps as well
- Schedule of MMR vaccination: 2 doses given at least 4 weeks apart

Varicella (chickenpox)

About varicella

- Endemic in Hong Kong
- Most common notifiable infectious disease
 - Around 8000-10000 notification per year in 2013-17
 - ~75% affected children aged ≤ 10 years
- Universal vaccination for children born in 2013 or after in HK
- In health care settings, varicella requires infection control measures that are cumbersome, and the use of varicella-zoster immunoglobulin in prophylaxis for high risk close contacts is expensive

Seroprevalence rates of varicella virus antibodies

Year	Age group								
	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	>39
2000	25%	65%	84%	97%	95%	99%	94%	99%	95%
2005	24.5%	61.5%	79%	92%	94%	92%	96%	94%	98%
2010	26%	56.5%	77%	88%	94%	90%	96%	96%	98%
2015	36%	50%	62%	76%	92%	94%	100%	92%	98%

Varicella recommendation

- **“HCW should be immune to varicella. HCW with negative or uncertain history of receiving 2 doses of varicella vaccines or disease of varicella or herpes zoster should be serologically tested. Vaccines should be offered to those without varicella zoster antibody”**
- HCW considered to be protected against varicella:
 - 1) documented history of receiving 2 doses of varicella vaccine; OR
 - 2) a definitive clinical history of varicella or herpes zoster

Varicella recommendation (cont'd)

- HCW with a negative or uncertain history of vaccination or disease of varicella or herpes zoster should be serologically tested
- Vaccines should be offered to those without varicella antibody
- Schedule: 2 doses of varicella vaccine, 4-8 weeks apart

Seasonal influenza

About seasonal influenza

- Usually 2 influenza seasons in HK each year
 - Main season is usually the winter influenza season occurring from Jan - Mar/Apr
 - Another summer influenza season usually in July - Aug
- Can cause serious illnesses in high-risk individuals and even healthy persons
- Vaccine efficacy against closely matched viruses typically range from 70% to 90%
- Given that influenza vaccines are safe and effective, **all persons aged ≥6 months** (except those with known contraindications) are recommended to receive seasonal influenza vaccine for personal protection

Seasonal influenza recommendation

- **“HCW should receive seasonal influenza vaccination annually once the vaccine is available”**
- According to WHO, HCW is an important priority group for seasonal influenza vaccination, not only to **protect the individual and maintain healthcare services during influenza epidemics**, but also to **reduce spread of influenza to vulnerable patient groups**
- HCW being one of the priority groups for seasonal influenza vaccination recommended by SCVPD
- Promotion and facilitation of seasonal influenza vaccination should be done in healthcare organisations to improve coverage

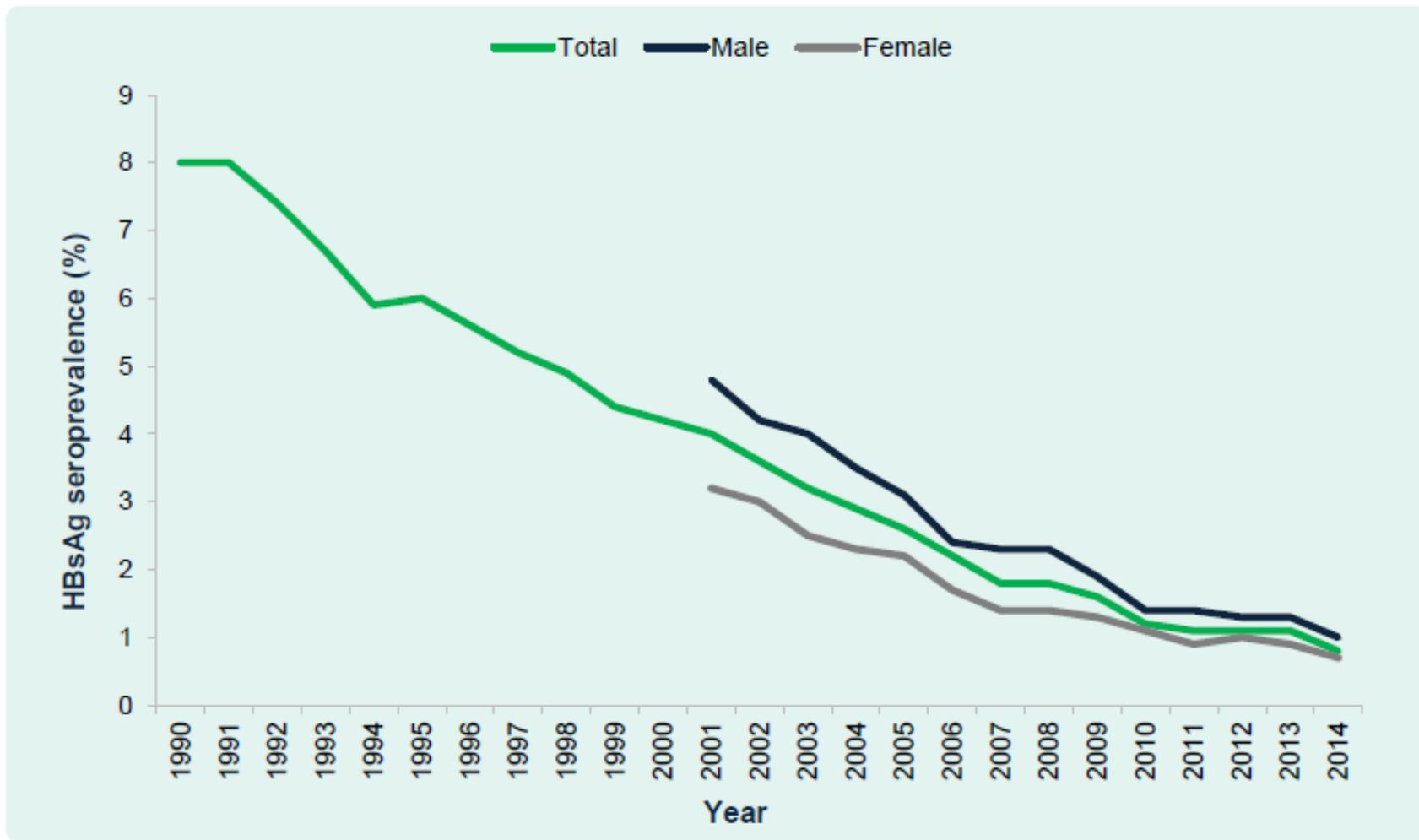
Assessment & documentation

- Immune status of individual HCW should be **assessed at the time of initial employment**
 - A full vaccination history should be obtained and with documentation
- Records of vaccination and serological tests of each HCW should be **kept by both employer and employee**

Thank you

	SCVPD recommendation	Requirement
Hepatitis B	HCW should be immune to hepatitis B and post-vaccination serological status should be ascertained.	Laboratory evidence of immunity (natural or post-vaccination serological status)
Measles	HCW should be immune to measles, by either vaccination or medical evaluation.	<ul style="list-style-type: none"> (i) Written documentation of vaccination with 2 doses of measles containing vaccines administered at least 28 days apart; OR (ii) Laboratory evidence of immunity; OR (iii) Laboratory confirmation of disease
Rubella	HCW should be immune to rubella, by either vaccination or medical evaluation.	<ul style="list-style-type: none"> (i) Written documentation of vaccination with 1 dose of rubella containing vaccine; OR (ii) Laboratory evidence of immunity; OR (iii) Laboratory confirmation of disease
Varicella	HCW should be immune to varicella. HCW with negative or uncertain history of receiving two doses of varicella vaccines or disease of varicella or herpes zoster should be serologically tested. Vaccines should be offered to those without varicella zoster antibody.	<ul style="list-style-type: none"> (i) Written documentation of vaccination with 2 doses of varicella vaccines; OR (ii) Definitive history of varicella or herpes zoster (e.g. recall of physician-diagnosed disease in the past)

Panel B. HBsAg seroprevalence (%) in new blood donors, 1990–2014*



*Sex specific data are available since 2001.

Box 38. Trends of HBsAg in selected population groups from 1990 to 2016 (Data source: multiple sources)

