


# Mumps in the Community

Dr. Isabel Oliver,  
A Webber Training Teleclass

## MUMPS in the Community

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A Webber Training Teleclass  
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### Overview



- The Health Protection Agency
- Mumps
- Control of mumps
- Epidemiology of mumps in the UK and the South West of England
- The USA experience
- Control of mumps outbreaks
- National recommendations
- Reflection

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### Health Protection Agency Functions



- Advise government on public health protection issues
- Deliver services and support the NHS and other agencies in protecting people from infections, poisons, chemical and radiation hazards
- Provide an impartial and authoritative source of information and advice to professionals and the public
- Respond to new threats to public health and to provide a rapid response to health protection emergencies

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### HPA South West



Regional Unit

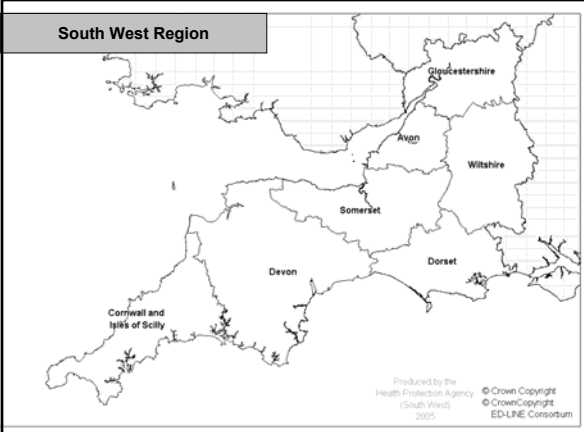
- Regional Epidemiology
- Health Emergency Planning
- Environmental health

3 Health Protection Units co-terminus with SHAs

- 7 County-based Health Protection Teams


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### South West Region

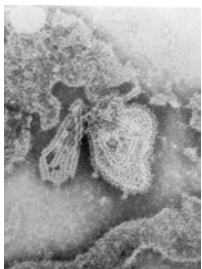


Produced by the Health Protection Agency (South West) 2005  
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### Mumps virus



- Paramyxovirus
- Single stranded RNA virus
- Rapidly inactivated by chemical agents, heat and UV light
- Reservoir: humans



Electron micrograph of the mumps virus  
Source: CDC/Dr. Erskine Palmer/B.G. Partin

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## Epidemiology



Transmission: respiratory droplets

Incubation period: 14-25 days

Infectious period: days before the onset of parotitis to 7-10 days after. Maximum infectiousness between 2 days before and 4 days after onset

Highly infectious: Ro: 10-12

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## Clinical features



Source: CDC/Dr. Heinz F. Eichenwald

Acute viral illness:

- Prodrome: fever, headache, malaise
- Swelling and tenderness of one or more salivary glands, usually the parotids
- One third of infections are sub clinical

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## Other features / complications



- CNS involvement: 50%
  - symptomatic meningitis: 15%
  - encephalitis: rare (1/6,000 – 1/100,000)
- Orchitis: 20-50% young male adults
- Oophoritis: 5% post pubertal females
- Permanent hearing impairment: 1/15,000-20,000
- Pancreatitis



Source: American Academy of Pediatrics

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## Differential diagnosis



- Mumps is the only cause of epidemic parotitis.
- Other causes of parotitis should be considered:
  - Infections (parainfluenza, Coxsackie virus, Epstein-Barr virus)
  - Salivary calculi
  - Tumours
  - Sarcoid
  - Sjogren's syndrome

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## Laboratory diagnosis



- Blood
  - leucopaenia with relative lymphocytosis
  - raised CRP and ESR
- Detection of IgM antibody in salivary samples
- PCR

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## Treatment



- Supportive
  - Anticonvulsants
  - Ventilatory support in severe neurological cases
- No antiviral treatment exists

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#### Control of mumps



- Vaccination
- Response to a case:
  - consider exclusion from school or workplace for 10 days from the onset of parotid swelling if susceptible contacts are present.
  - check vaccination status
  - arrange or laboratory confirmation
  - concurrent disinfection
  - no post-exposure prophylaxis. Antibody response to mumps component too slow.
- Outbreaks

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#### Vaccination



- MMR II vaccine (Jeryl Lynn strain)
- Live attenuated virus
- Vaccine efficacy: 80-85% after 1 dose
- 2 doses recommended:
  - First dose: 12 – 15 months of age
  - Second dose: preschool: 4 – 5 years of age

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#### Contraindications



- Acute illness: postpone vaccination
- Children receiving immunosuppressive treatment, children with malignant disease or other alterations of the immune system.
- Children who have received another live vaccine within 3 weeks
- Avoid pregnancy for one month
- Do not give within 3 months of of an injection of immunoglobulin

(Source: Immunisation against infectious diseases, Department of Health, 1996)

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#### Epidemiology of mumps in the UK



- Before the introduction of the vaccine in 1988 mumps was a common childhood infection that accounted for 1,400 hospital admissions each year.
- It had a seasonal distribution with peaks in the winter and spring and 3 yearly cycles.
- Mumps became a notifiable disease in 1989. In that year 21,000 cases were notified.
- Surveillance: statutory notifications (NOIDS) followed by laboratory confirmation

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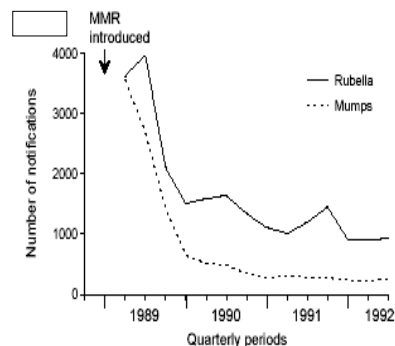
#### Notifications



- Statutory requirement since 19<sup>th</sup> century
- Legal requirement under the Public Health (Control of Disease) Act 1984 and the Public Health (Infectious Diseases) Regulations 1988 when mumps was included
- Clinical suspicion of a notifiable infection is all that is required
- Failure to notify carries a fine
- Responsibility for administering the system was transferred to the Communicable Disease Surveillance Centre in 1997

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Figure 2 Mumps and rubella notifications for children aged under five years



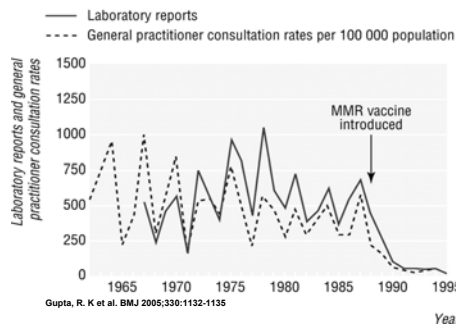
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#### Incidence of mumps and numbers of confirmed cases, 1962-95



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#### The USA experience

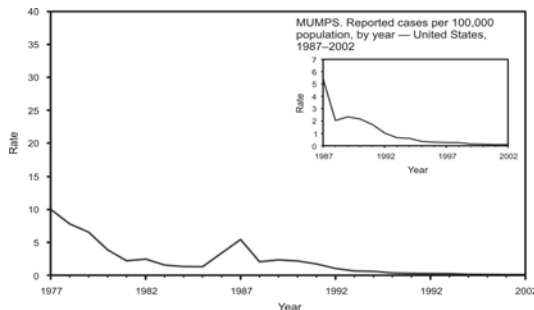


- Reportable since 1968
- Following vaccine licence in 1967 mumps declined rapidly
- 1986 – 1987, relative re-surgence in the 10-19 cohort born before routine mumps vaccination
- outbreaks in highly vaccinated school populations due to vaccine failure

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#### MUMPS

Reported cases per 100,000 population, by year, United States, 1977-2002



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#### UK mumps vaccination policy



##### Historical policy

- 1 dose of MMR introduced in 1988 for children aged 12-15 months
- MR catch up campaign in 1994 following outbreaks of measles
- Incidence of mumps declined rapidly but mathematical model supported the introduction of a second dose in 1996
- This policy left a cohort of susceptible people (those born between 1983 and 1987)

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#### UK mumps vaccination policy



##### Current vaccination policy

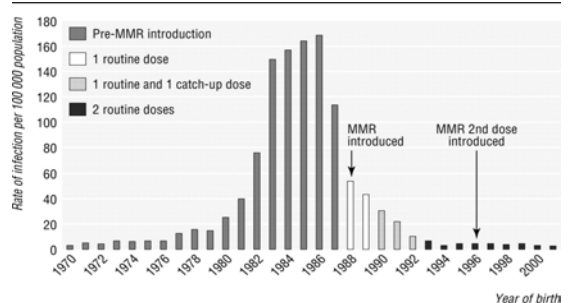
- 2 doses recommended at 12–15 months of age and 4–5 years of age
- Children not known to have measles and rubella vaccine should be offered MMR
- School leaving booster is an opportunity to ensure that all recommended vaccinations have been completed

(Source: Immunisation against infectious diseases, Department of Health, 1996)

In 2000, the Joint Committee on Vaccinations and Immunisation recommended that individuals in the susceptible cohorts should be offered at least one dose, ideally two doses, of MMR

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#### Confirmed cases of mumps in 2004 by year of birth (1970-2001) per 100 000 population and opportunity for MMR vaccination (UK)



\* Excludes 105 date of birth unknown, 351 born 1914-1969 and 30 born after 2001  
Savage, E. et al. BMJ 2005;330:1119-1120

bmj.com

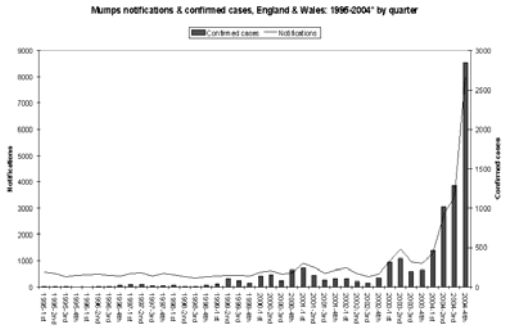
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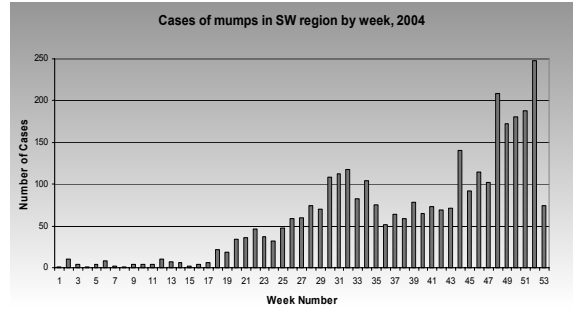
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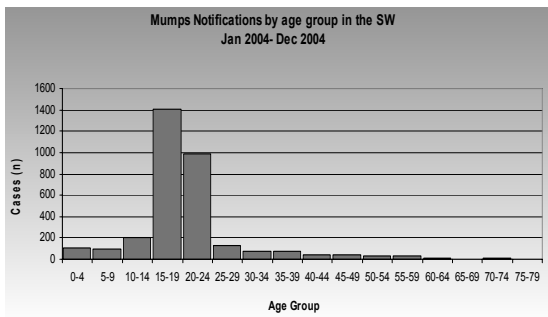
#### Incidence of mumps, 1995-2004



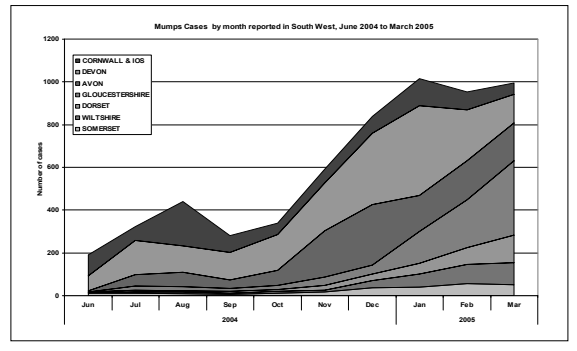
#### Incidence of mumps in the South West, 2004



#### Incidence of mumps by age group in the South West



#### Incidence of mumps by county area in the South West

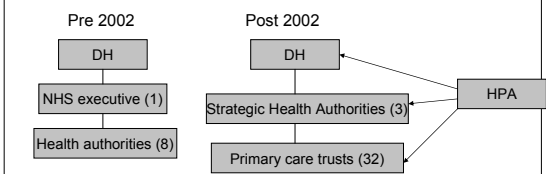


#### Control of mumps outbreaks



- Difficult because:
  - prodromal stage
  - infectiveness
  - relatively large number of asymptomatic cases

Also, organisational change and challenges:



#### Control of mumps outbreaks in the South West



Wide range of actions taken by different Primary Care Trusts during 2004 including:

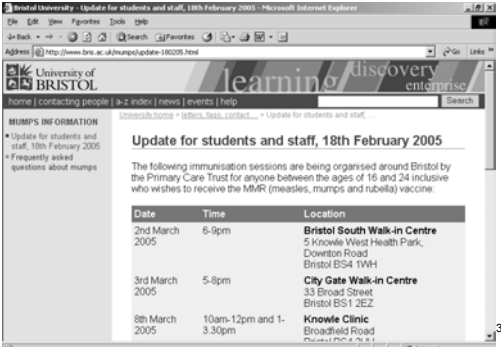
- Payment to general practitioners
- School, college and university vaccination sessions in response to outbreaks
- Ad hoc vaccination sessions in other settings
- Media campaigns
- Inclusion of MMR in the school leavers booster
- Screening of university entrants and offer of MMR

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Interventions



Date	Time	Location
2nd March 2005	6-9pm	Bristol South Walk-in Centre 5 Knowle West Health Park, Downton Road Bristol BS4 1WH
3rd March 2005	5-8pm	City Gate Walk-in Centre 33 Broad Street Bristol BS1 2EJ
8th March 2005	10am-12pm and 1-3.30pm	Knowle Clinic Broadfield Road Bristol BS34 5JF

Interventions



**Mumps vaccinations extended - 26 November UPDATE**

Mumps vaccinations will continue at the University for a further two weeks to give students and staff (aged 16-24) the chance to be vaccinated against the disease if they wish.

The Primary Care Trust has extended its vaccination programme to try and increase the percentage of students and staff that have been vaccinated and bring an end to the current outbreak of mumps on campus.

Staff from the PCT will be available to provide information on mumps and vaccinations in the University's Medical Centre from 11.00-15.00, on Tuesdays and Thursdays for the next two weeks. (30 November, 2, 7 and 9 December).

No appointment is necessary.

For further information on mumps vaccinations, click here.

National Outbreak Control Team – recommendations I

Issued May 2005

**MUST DO**

- Primary immunisation programme
- Pupils in Year 10 to complete two doses of MMR
- Rubella susceptible women of child bearing age

National Outbreak Control Team – recommendations II

**STRONGLY RECOMMENDED**

MMR vaccination should be available to 16 – 23 year olds to complete two doses of MMR. The highest priority is to ensure that a first dose of MMR is provided to those who have not had MMR. The mechanism of delivery should be decided locally including:

- Opportunistic and ad-hoc vaccination of any individuals in above age group.
- University entrants in autumn 2005. University vice chancellors are being advised to ask students to check about vaccination, before arrival at university if possible, on arrival if not.
- Catch-up vaccination for students in Years 11-13 now or from autumn 2005. This group should be prioritised as they can be targeted more effectively.

National Outbreak Control Team – recommendations III

**RECOMMENDED IF VACCINE SUPPLY ALLOWS**

- Further catch up vaccination in Years 11-13 from autumn 2005 to complete two doses of MMR.
- Campaigns in response to local outbreaks in any age group should be decided locally. However, university vaccination campaigns in particular are likely to achieve low uptake and are unlikely to stop outbreaks. The offer of individual vaccination should be available.

Mumps infection control in healthcare settings

- Maintain high vaccine uptake in the community
- Screening and vaccination on recruitment
- Once cases diagnosed:
  - vaccination of staff and patient contacts who are susceptible (born after 1980 & who do not have documentation of two doses of MMR)
  - Isolate index case until 9 days after onset of illness. Respiratory precautions
  - Hospital staff with *clinical* mumps should be excluded from work for 9 days after onset of illness

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## Experience



- Patchy, uncoordinated response in the absence of clear national guidance early in the outbreak
- Slow and inequitable response
- Poor planning led to temporary shortage of MMR vaccine
- Relationships with PCTs compromised in some areas
- Unclear roles and responsibilities.
- Poor uptake of campaigns in educational settings (10-30%)
- Need to determine effectiveness of the various interventions and improve contingency planning

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## Additional information:



Health Protection Agency

[http://www.hpa.org.uk/infections/topics\\_az/mumps/menu.htm](http://www.hpa.org.uk/infections/topics_az/mumps/menu.htm)

Department of Health (Immunisation against infectious diseases, 1996)

[http://www.dh.gov.uk/PublicationsAndStatistics/Publications/PublicationsPolicyAndGuidance/PublicationsPolicyAndGuidanceArticle/fs/en?CONTENT\\_ID=4072977&chk=87uz6M](http://www.dh.gov.uk/PublicationsAndStatistics/Publications/PublicationsPolicyAndGuidance/PublicationsPolicyAndGuidanceArticle/fs/en?CONTENT_ID=4072977&chk=87uz6M)

USA, CDC

[http://www.cdc.gov/ncidod/diseases/submenus/sub\\_mumps.htm](http://www.cdc.gov/ncidod/diseases/submenus/sub_mumps.htm)

WHO

<http://www.who.int/topics/mumps/en/>

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## Other 2005 British Teleclasses

For more information, refer to [www.webbertraining.com/schedule.cfm](http://www.webbertraining.com/schedule.cfm)

**July 19 – (Free Teleclass) After the Tsunami - Infection Control and Natural Disasters**

**September 20 – Controlling Device-Related Infection**

**November 15 – ESBL Infection Management**

Questions? Contact Paul Webber [paul@webbertraining.com](mailto:paul@webbertraining.com)