Rubella Epidemic in Samoa

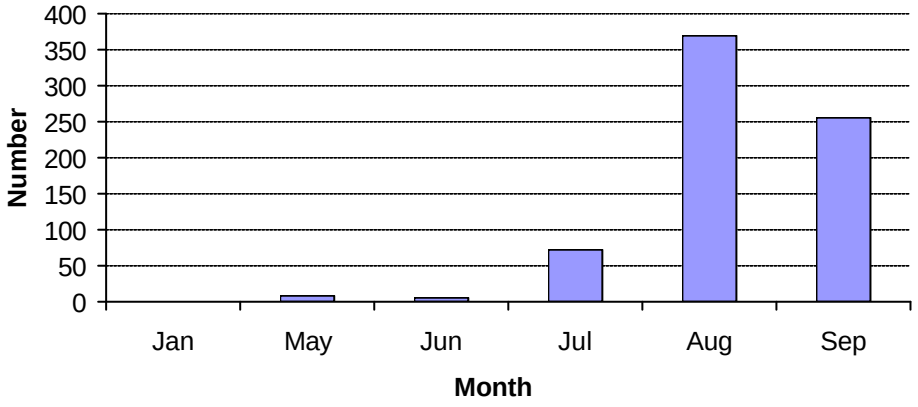
This paper is a compilation of the paper on Samoa's rubella experience presented at the SPC/WHO 1st Regional EpiNet Workshop in Suva 1–5 September 2003 and the PacNet posting dated 19 September 2003.

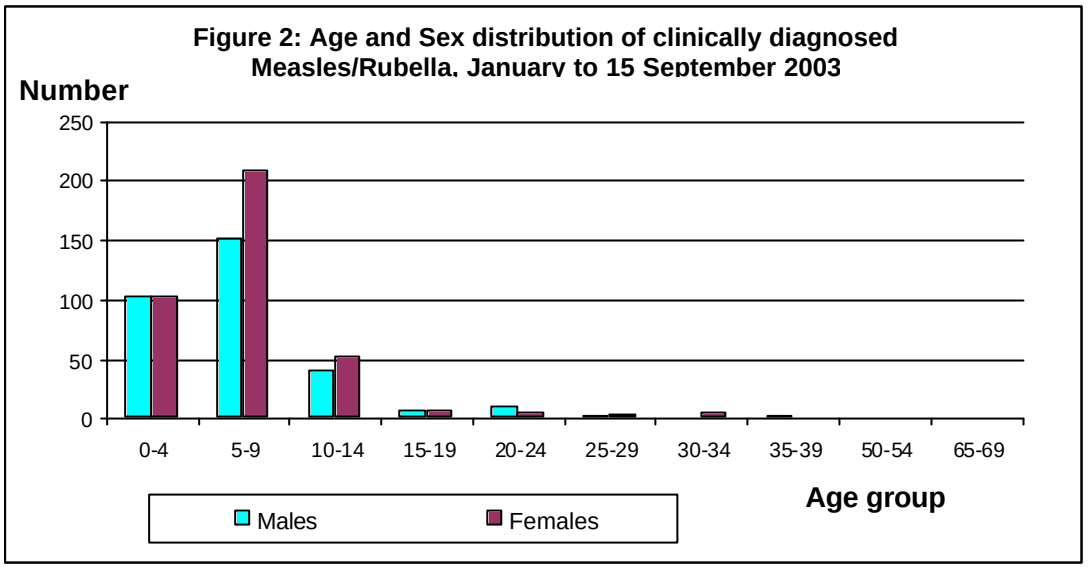
A rubella epidemic in Samoa was confirmed on 22 August 2003 by the Victorian Infectious Disease Research Laboratory (VIDRL) in Melbourne. This was declared immediately thereafter in Samoa on 25 August 2003 by the Chief Executive Officer, Ministry of Health, Dr Eti Enosa further to technical advice from the Samoan Communicable Disease Control Committee (CDCC) which comprises members of both the Ministry of Health and the private medical sector. The World Health Organisation provided prompt technical assistance to Samoa by Dr Alan Ruben from 29 August to 4 September 2003.

Epidemiological Profile

As of 15 September 2003, a total of 710 clinically diagnosed "measles and rubella" have been recorded in the Samoa Health Information System, defined as those with the clinical diagnosis of rubella, measles and "Acute Fever and Rash (AFR)" since May 2003.

Figure 1: Clinically diagnosed measles/rubella, Janurary to 15 September 2003





Of the 710 cases to date, 321 (45.2%) are males; 389 (54.8%) females. The overwhelming majority are in the 0-14 years age group 663 (93.4%), and the rest of the age groups account for 47 (6.6%).

Complications: To date, there have been 6 rubella encephalitis cases, with 2 deaths.

(Source: Update to CDCC dated 16 September 2003 by Elisapeta Pasa, Principal Information Officer, HRPIRD, Ministry of Health)

It is too early at this stage to determine with any degree of certainty whether the current rubella epidemic has peaked or not. Surveillance and other public health measures will have to continue vigilantly in the meantime.

The Response

Three options were put forward by Dr Ruben to the Samoan Ministry of Health (MoH).

1. A mass immunisation campaign for all children aged 1–14 years and for all women of child-bearing age, followed by introduction of combined measles and rubella (MR) or measles, mumps and rubella (MMR) vaccines at age 12 months
2. A mass immunisation for all school children now, to be followed by a catch-up campaign for children aged 1–4 years and for women aged 15–44 years, and the introduction of combined MR or MMR at age 12 months.
3. No mass campaign now. But to evaluate the situation and, if necessary, rehabilitate the EPI programme. Should the EPI be rehabilitated, introduce the vaccines (MR) through a staged mass immunisation campaign over a 6–12 month period. There would also be a need to obtain essential information by conducting four surveys:
    - 3.1 Antenatal Survey to determine the immunity status to rubella of pregnant women;
    - 3.2 Health Centre Survey to obtain information on the progress of the epidemic;
    - 3.3 Village Survey to estimate the proportion of the population who suffered from an "acute fever and rash" (AF&R) illness; and
    - 3.4 EPI Survey to estimate the number of children who received vaccinations.

Further to considerations of both the advantages and disadvantages of each of the above three options by the Samoan Ministry of Health through the CDCC, it was resolved to take Option 3. Hence, surveys were planned and one of them started on Friday 12 September. It was anticipated that these surveys would be completed by Friday 26 September.

Lack of resources — in particular, financial and human resources — to undertake the current field surveys and to procure vaccines (MR) remain a major concern of the Samoa MoH. However, it is making the best out of limited available resources in the meantime. It must be noted that further to the recent WHO RCM in Manila, our CEO informed the CDCC that WHO will continue to provide technical assistance in the future. However, it is anticipated that some assistance could be sought from Samoa's development partners as regards meeting the cost of procurement of MR vaccines.

Defining the problem/history

End of May/June

At the end of May/beginning of June 2003, paediatricians expressed concern in CDCC meetings (during the peak of the SARS outbreak) about the possibility of a measles outbreak. Blood specimens were sent to Samoa National Health Laboratory (specimens were "fermented" in Samoa Lab).
At this time, 6 measles cases and 12 chicken pox cases were recorded to the Health Information System.

June/July

In June/July 2003, more blood specimens were taken and sent to laboratory for viral investigations.
A first batch of 61 laboratory specimens was sent at the end of July to Lab Plus in Auckland, New Zealand.

- 35 were tested for adenovirus, respiratory syncytial virus, influenza A and B, P/influenza screen (serology 1-3):
  - 34 were negative; 1 positive titre to RSV, dengue IgM negative, dengue IgG positive.
- 21 were tested for measles:
  - 8 measles IgG positive, 1 measles IgM positive, 12 negative.
- 6 were not tested.

Rubella was not tested.

In July, the Med Cen Private Hospital in Samoa sent serological specimens to NZ. These were all negative for measles.

During a second visit of WHO consultants, Dr Rob Condon and IC Nurse Meredith, from 22 to 25 July 2003 — re SARS and the CD surveillance and response (typhoid) — Dr Condon made contact with the VIDRL.

Please note that during this period, other PICTs declared measles outbreaks — Papua New Guinea in June–July; Marshall Islands and Hawaii in July.

August

Week 1: The laboratory was mandated by CEO MoH to send more specimens to VIDRL.
Week 2: A second batch of 65 specimens was sent by Courier to VIDRL (licence obtained but still got held up in Sydney Customs). The follow-up was done by Dr Rob Condon.

Week 3: On 22 August, results were obtained.
Week 4: The epidemic was declared and a Strategic Plan for the control of the rubella epidemic was put in place.
Week 5: Dr Alan Ruben, WHO Consultant, arrived on Friday 29 August.

Confirmation/the evidence

Laboratory evidence
Samoan serum samples results:
35/ 65 (54%) positive rubella IgM;
10/65 (15%) equivocal rubella IgM;
20/65 (31%) negative rubella IgM.

The first 10 specimens of above batch were tested for:

- measles IgG and IgM, all negative;
- parvo IgM, all negative; and
- parvo IgG, 4/10 (40%) positive, 6/10 (60%) negative.

Laboratory evidence confirmed rubella as the cause of the AF&R illness in Samoa; however, in view of the clinical case presentations of fever, rash and in particular the presence of koplik spots, clinicians still are not convinced that measles (atypical) can be ruled out. Furthermore, they were concerned that in an allegedly high vaccinated population (last measles mass vaccination in 2002), there appeared to be very little laboratory evidence of detectable IgG against measles.

Experience analysis

Selected strengths

- Supportive Government, MoH a priority sector, good MoH Leadership e.g. Chief Executive Officer and A/CEOs.
- Advanced reform process — MoH Forced commitment and action of health personnel and G.T.A.R.SGood Governance principles of Transparency Accountability Responsibility and Sustainability).
- Supportive local partners in health, private medical sector; education sector.
- CDCC Forum — established in 1992–1993 for typhoid and dengue became very hyperactive in 2003 (22 meetings from January to August).
- Early warning by clinicians at the CDCC Forum .
- High public and community participation.
- WHO Representative Office presence in Samoa — prompt response re technical assistance (arrival of STC within one week of request) and excellent. communication, Dr Rob Condon's and VIDRL's proactive support.
- Relatively good IT/fax/phone/email access and networking.
- Supportive/ hyperactive local media.
- Member PPHSN-PacNet/EpiNet/LabNet.

Selected weaknesses

- Undue delayed response by CDCC in addressing current AF&R outbreak as all attention and energy was hijacked by SARS.
- Undue delayed response locally — laboratory confirmation process re sending of specimens overseas.
- Poor management/leadership/technical skills in certain areas — CDCC accused by clinicians of "more talk than action".
- Lack of proper utilisation and coordination of resources — technical, funding, and materials — re response to epidemics.
- Reporting and surveillance — there is a lot of room for further improvement and strengthening — in particular, reporting of diagnosis by clinicians.
- Delayed posting of the current rubella outbreak on PacNet.
- Too early prediction by health leaders that outbreak has peaked and perhaps decreasing.
- Planned mass immunisation of rubella is very expensive and will redirect limited resources thus other planned public health activities that may be compromised e.g. filariasis Mass Drug Administration planned for October.

Opportunities

- Social marketing of preventive health services re rubella and measles and other CDs with extensive utilisation of the media — TV, radio, and newspapers.
- Increasing public and health-care workers' awareness on CD issues and threats like rubella, measles, and typhoid.
- Mobilising of more resources for Public Health Surveillance and CD Control Programmes.
- Capacity building re improvement of Public Health CD services through training/advice of CDCC members using STC's findings and recommendations.
- Overall — test, review and strengthening of: CDCC's response capabilities re the Public Health Surveillance system, epidemics, and verification of the Health Information System; communication; vaccinations; and relationships/networking (locally and regionally).
- Learning experience for all CDCC members.
- Reaffirmation of the need for more postgraduate specialisation in public health/epidemiology, and clinical pathology including laboratory technology.
- For further professional development – operational research and publications for Inform'ACTION and PHD.
- For technical assistance from WHO.

Threats

- International health — travel (spread to other countries, negative effect on tourism).
- Public panic.
- Negative measure of health services, leadership.
- Complications of rubella (CRS - Congenital rubella syndrome).
- Hijacking.

Lessons learned

- Strengths must be built on.
- weaknesses must be realistically and holistically addressed;
- opportunities must be utilised; and

- threats minimised and transformed into opportunities or challenges for further future development.
- Laboratory — timely availability of laboratory confirmation of any outbreak is essential;
- technical assistance of development partners in health like WHO and SPC through PPHSN PacNet, EpiNet and LabNet is invaluable;
- local capacity building of health-care providers to build on the critical mass of health leaders, and health professional specialists within our own respective countries is a long term sustainability strategy that must be realistically addressed as a matter of urgency;
- commitment and inter-sectoral participation by all key stakeholders in health at all levels is essential;
- the love–hate relationship with the media can be further developed into a "win–win" partnership built on mutual respect and equal partnership; and
- improvement in the quality of life of our people through our being responsive to their health needs via optimal well coordinated responses and control of epidemics of any kind is what we and PPHSN is all about.

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