4. DISCUSSION

As a result of both the size of the audience and the very high response rates from all the sites, the overall rate being approximately 93 per cent, this evaluation provides a good basis for reflecting upon Bug Breakfast and suggesting ways that it might be improved. The session evaluated coincided with school holidays in New South Wales and when it was not possible to move the evaluation to another date there were concerns that the audience would be small. However, the combination of a topic that was of current concern, meningococcal disease, and the commitment of the remote facilitators to advertise the session ensured a large audience.

The evaluation allowed the size and composition of the audience to be described for the first time. In particular it revealed the size of the remote audience, which, had all sites been connected, would have been larger than the audience at the live site. While the audience at the live site was comprised primarily of people working in public health, more than half of the remote audience were clinical hospital staff. What linked participants was a common interest in communicable diseases. Remote participants cited as reasons for attending, that the sessions contained 'clinically relevant material', that they are 'unable to obtain such information from other sources' and that they appreciated 'the different aspects of covering the subject (epidemiological, clinical etc.)'.

The audience at the live site contained many trainees, reflecting the origins and purpose of the session. These days, however, there are trainees other than those on the NSW Public Health Officer Training Program participating, including trainees from the NSW Biostatistical Officer Training Program, which is also offered by the Department; the Master of Applied Epidemiology Program offered by the National Centre for Epidemiology and Population Health; and the Advanced Training in Public Health Medicine offered by the Australasian Faculty of Public Health Medicine. The remote audience also contained trainees, the majority of these being nursing trainees.

4.1 Videoconferencing and the learning environments

Live Site: North Sydney

The evaluation confirmed that both the size of the venue in North Sydney and the use of videoconferencing interfered with the quality of the learning experience for the participants at this site.

The venue, the Wallumatta conference room, is designed to seat 20 people around a fixed table. Bug Breakfast, however, is a didactic presentation, usually delivered by a number of speakers followed by a question and answer session that prompts general discussion. The set-up in the Wallumatta room has been made to 'fit' Bug Breakfast, and for as long as the live audience was relatively small this was manageable. However, with a large and growing audience, the evaluation has confirmed that this room is no longer able to provide comfortable accommodation. The layout of the room also restricts the way in which videoconferencing can be used as the equipment is fixed at one end of the room to facilitate round table videoconferencing.

Bug Breakfast presenters are asked to prepare visual presentation materials in Microsoft PowerPoint, and these are projected onto a large freestanding screen at the live site. As previously referred to in the Background, different methods of displaying the presentations for the remote sites have been trialled. For a number of sessions, the presentations were

relayed to the remote sites directly through the videoconferencing system. While this enabled the presentation to be viewed more clearly, the presenter could not be seen. This method also required an additional operator at the live site. Currently, the camera at the live site is positioned to capture both the presenter and the screen onto which the presentations are projected. The disadvantage for the live site of this arrangement is that due to the position of the camera, the screen is close to the entrance to the room. The organisers had been concerned that latecomers were disturbing both the presenter and the audience, and nearly a third of the live audience confirmed that this was distracting. However, those who provided comment were sympathetic to latecomers.

Remote sites

The quality of the picture was reported by the majority of the remote audience to be average, however this observation varied from site to site and a quarter considered the quality to be good. The bandwidth used for the transmission affects the quality of the picture but does not affect the quality of the audio reception—the higher the bandwidth the sharper the picture. Different bandwidths have been trialled; the initial broadcasts were made at the highest bandwidth (384 kbps) and a couple were tried at 128 kbps, the lowest bandwidth. All sessions are currently delivered at the mid bandwidth, 256 kbps. The bandwidth also determines the cost, higher bandwidths incur higher costs. The costs of transmitting Bug Breakfast seminars using different bandwidths and to different numbers of sites is summarised in Table 8. Other factors influence picture quality, such as the different types of videoconferencing systems used by sites, but the transmission bandwidth is the only factor that the organisers can control.

The evaluation revealed unexpected results regarding the quality of the sound for the remote audiences. Three-quarters of the remote audience judged the sound quality as 'poor' and the remainder assessed it as 'average'. Indeed, poor sound quality emerged as the main issue for remote sites. The facilitators confirmed this finding. The problem appeared to have two parts:

1. type and position of the microphone for the speakers;
2. interference from various sources of background noise.

At the live site, the microphones are positioned on the table in the centre of the room (to accommodate round table conferencing). Consequently, during the presentations, when the speakers are standing to the side of the table, the microphones are at a distance to them. What emerged from the evaluation was that speakers with soft voices and speakers who turned away from the microphone could not be heard.

Regarding the background noise, there appeared to be at least two sources. First, the sensitivity of the microphones at the live site picked up background noise from the participants in the room as well as transmitting the speakers' voices. (This arrangement of the microphone meant that the background noise could not be muted without also losing the speaker's voice.) Second, the remote sites heard noise from other remote sites that failed to mute. This form of background noise also intrudes into the environment at the live site. A third form of noise that was not directly investigated was distortions caused by the link. One participant referred to 'loud beeps and whistles in the sound' which may not have been related to the microphone.

These findings highlight the difficulties created when facilities designed for one purpose are adapted for another. The expansion of participation in Bug Breakfast has stretched a system that was not designed to accommodate events of this type. Consequently some of the difficulties experienced can be attributed to:

TABLE 8							
Transmission costs of Bug Breakfast sessions							
Transmission Date	No. Sites (including live site)	Trans. speed (kbps)	Trans. duration (minutes)	Trans. cost ($)	Admin. cost ($)	Total cost ($)	Average cost per site ($)
June 1999	2	384	70	150*	70	220	110
Sept 1999	3	384	60	533	150	683	228
Feb 2000	4	384	60	640	70	710	178
March 2000	3	384	90	525	70	595	198
July 2000	2	384	70	150*	70	220	110
March 2001	4	384	66	769	70	839	210
May 2001	8	128	76	851	70	921	115
June 2001	5	128	78	583	70	653	131
July 2001	7	256	72	904	70	974	139
Sept 2001	7	256	69	976	70	1046	149
Dec 2001	9	256	80	1376	70	1446	161
Feb 2002	6	256	67	981	70	1051	175
April 2002	7	256	93	1542	70	1612	230
June 2002	10	128	82	1383	70	1453	145
July 2002	9	256	90	1976	70	2046	227

Notes
- Not all rural public health units have access to videoconferencing facilities and some transmissions therefore include audio only sites. Audio connections are significantly less expensive, but for the purposes of calculating average cost per site, all sites have been considered equally.
- Some sessions were videotaped and the additional cost of this has been included in the 'transmission cost'.
* approximate cost only.

1. facilities that were never intended to accommodate large audiences for didactic sessions;
2. connecting large numbers of sites that use different videoconferencing systems. At least two of the remote sites use non-standard equipment, which can lead to transmission failure.

However the NSW Telehealth Initiative is seeking to develop the education and training capacity of the network and many of the recommendations and outcomes described in Parts 5 and 6 are in response to the difficulties described.

Question time

Question time emerged as an important part of the session. Before videoconferencing began, the audience at the live site had 15 minutes for questions. Since videoconferencing commenced the time allowed for questions has remained the same and as a courtesy to the remote sites they are given the first opportunity to pose a question. Consequently, as the number of sites has expanded, all sites are restricted to a single question. Thus, over time the opportunity for the live site audience to pose questions has declined and the evaluation sought to understand their response to this. On the day of the evaluation, because the

speakers ran over their time, there was no time available for questions, and this situation may have thrown this issue into relief.

North Sydney participants confirmed that question time was a valuable component of Bug Breakfast for the whole audience. This was confirmed by the remote participants some of whom unprompted commented on the value of questions and several in response to the question exploring what they liked least about Bug Breakfast stated 'no opportunity to ask questions'. Indeed some participants suggested that the session be longer to ensure enough time for questions.

4.2 Professional development of participants

Perceived value to the professional development of participants

The value that participants place on Bug Breakfast emerged strongly from the evaluation. Both the high response rate and the constructive criticism expressed in the participants' comments are a measure, we believe, of this support. In addition, the majority of respondents stated that they would attend a session in the future.

The quality of the presentations and of the presenters appears central to its popularity. Participants enjoyed the 'high quality presentations that distil the information on a topic' and 'the ability to interact with experts'.

Facilitators, Public Health Officer organisers and the participants confirmed the value of the session to their continuing professional development. The session promotes discussion at a local level and within the state and also provides an opportunity for networking. The facilitators confirmed the multidisciplinary nature of the remote audience and that they have encouraged this to develop. The participants reported that they found the presentations relevant to a wide variety of professions working in communicable diseases. For example, within the remote audience there were a number of nurses responsible for infection control.

This raises the question of whether the role and function of Bug Breakfast should be reviewed. The expanded audience includes many groups whose learning needs have not been considered in the way the sessions are currently planned.

Access

Videoconferencing allows rural health professionals access to Bug Breakfast from their local area health service and thus minimizes the time and associated costs incurred in travelling to Sydney to participate. The organisers were aware however that many remote participants still had to travel long distances to reach a videoconferencing site. Consequently the evaluation sought to clarify the burden of travel by participants at all sites.

To date, connections to the rural areas have been limited to one site per area health service. Within Greater Metropolitan Sydney there have been two sites, the live site in North Sydney and a remote site at Warrawong in the Illawarra. The evaluation revealed that while many remote participants travelled to participate, some travelling for over an hour, that more of

the North Sydney audience travelled and that some of these participants travelled for longer than their remote colleagues.

The travel time of some participants indicates that it would be an advantage if additional remote sites were made available both in the rural areas and within Sydney. There is also a demand from other new sites seeking to connect entirely new audiences. The evaluation has therefore highlighted both the demand and need for additional videoconferencing sites.

Before increasing the number of sites however, several issues must be considered. First, an increase in sites would increase the time required to organise each session. Second, additional sites will further reduce the question and answer time available to each site. Finally, there are financial implications. Additional sites would mean a greater cost. Currently, connections are made on a dial-out basis, the cost of which is met by the Department of Health. While calls can be made on a dial-in basis, there are several disadvantages of using this method, primarily: the increased complexity of organising sessions and the difficulty associated with not knowing which sites are connected. (Where calls are organised on a dial-in basis, the bridge provider does not provide a rollcall or follow-up sites that fail to connect).

4.3 Other findings

Facilitators

The evaluation highlighted the important role that the facilitator assumes at the remote sites; particularly in advertising the session and ensuring videoconferencing facilities are booked. The facilitators described the demand upon the local videoconferencing facilities and expressed a wish for a regular time slot for the session so that they could book the facilities well in advance. It also showed that few had been offered training in the use of the technology.

The facilitators are a good resource for Bug Breakfast to both gauge the needs of the audience and to provide feedback on the quality of the transmission. This evaluation has highlighted this capacity and ways of seeking regular feedback will be sought.

Presenters

The evaluation revealed that presenters would appreciate some guidance. The challenge of presenting simultaneously to a live audience and to remote sites is new to many. It became apparent from the presenters feedback, that they would like to be briefed on both the format of Bug Breakfast and the use of videoconferencing facilities.

Other issues identified by the participants that could also be met through a detailed briefing were the need for presenters to adhere to their allocated time so that the presentations do not encroach on question time and the use of PowerPoint formats that are more easy to read on screen at the remote sites.

Resources

The delivery of Bug Breakfast has always been resource intensive and each session requires several days of preparation. Videoconferencing has considerably increased the resources required for its delivery.

Without videoconferencing, the sessions take approximately two and a half days to organise and involve the following tasks: identifying and liaising with speakers; booking and setting up the venue at North Sydney; advertising the session and handling registrations; organising and providing breakfast for North Sydney participants; clearing up the venue following the session; maintaining appropriate records and other administrative tasks.

Videoconferencing takes at least one additional day of preparation from the Public Health Training and Development Branch (including the trainee Public Health Officers) as well as resources from the Telehealth Initiative. The additional tasks include: arranging the videoconferencing bookings with the provider; liaising with the remote sites regarding their contact details; liasing with the Telehealth Coordinator; emailing the presentations to the remote sites; and managing the videoconferencing technology during the session. As previously stated further expansion will require more resources unless a 'dial-in' mode is used.

The facilitators at the remote sites appreciate the organisation that is provided. Several stated that it was of a very high standard and that it minimised the amount of time that they had to spend to establish the connection.

4.4 Conclusion

This evaluation of Bug Breakfast has described the learning environment and in particular the problems experienced by the participants at both the live and remote sites resulting from the use of videoconferencing. As the participants judged the quality of the session to be typical, the findings indicate that intervention is required. A series of recommendations are presented in Part 5 to systematically address the issues raised. Some of these recommendations have been actioned whilst this report was being prepared and these actions are described in Part 6.

The evaluation has also allowed the perceived value of the session to the professional development of the participants to be documented. Bug Breakfast now regularly serves a large multidisciplinary audience who are linked by a common interest in communicable diseases. The majority of the audience, however, remain public health professionals. The session is meeting a range of professional development needs: allowing networking; providing access to experts; building confidence and competence; meeting clinical needs including requirements for Continuing Medical Education; and reducing feelings of isolation. Undertaking the evaluation has forced the organisers to acknowledge the size of this audience and to question the capacity of the facilities to support further expansion.

The preparation of this report has also enabled the history of the development of Bug Breakfast to be described as well as the different methods of delivery that have been tried. It also creates a baseline from which further developments can be evaluated.

The evaluation confirmed the important role that Bug Breakfast performs in supporting the NSW Health workforce to continue to deal effectively with communicable diseases issues.