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Trachoma and Water

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Trachoma Prevalence and Transmission

There are four reasons why one might expect improvements in water supply to reduce the transmission of trachoma in a community.

1. Children's faces are the sources and sites of re-infection with the organism, *Chlamydia trachomatis*, which causes the disease. Increased water availability means that faces can be cleaned more thoroughly and more frequently.
2. It also means that the objects which carry the organism between one person and another (such as fingers and bed-clothes) can be kept cleaner and are less likely to be infected.
3. Trachoma is transmitted by flies (see the article in this Issue). If there is more water in a dry environment, including water spilt or thrown on the ground, this will provide alternative sources of moisture to flies which would otherwise seek it on children's faces.
4. Finally, the water supply helps people to maintain a cleaner domestic environment (for instance, by washing dishes rather than leaving them around with food remains on them). The environment will be less attractive to flies.

Trachoma and Water Supplies

Certainly, trachoma is generally found in the more dry parts of the world, such as the Sahel, India, and the Australian interior where water is scarce. However, the relationship between water supplies and trachoma is sometimes more complex than it might seem, and the proof that water supply improvement can help to reduce trachoma can sometimes be difficult. One study from Ethiopia¹ even found that people living further than 15 minutes' walk from a water source had *less* active trachoma than those with a source of water

closer at hand.

Part of the explanation for such negative study results is that hygiene improvements do not follow automatically from the provision of a convenient water tap. If we study overall domestic water consumption as an indicator of hygiene and the time required to collect a bucket of water as an indicator of water availability, we find that the relationship between them takes a rather surprising form (Fig. 1).

The surprising part is where the water

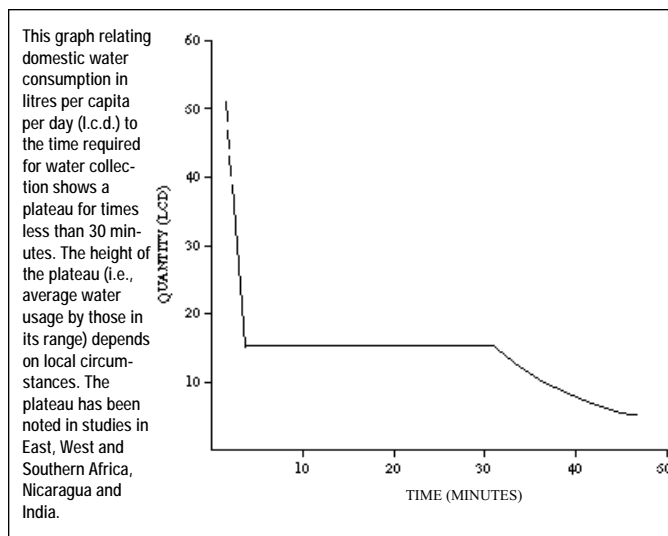


Fig 1: Domestic Water Consumption and Time Required for Water Collection

source is less than half an hour's round trip away from the household. In general terms, a half hour round-trip water collection journey corresponds to a distance each way of about 1 km (walking at 4 km/h, with no queue at the tap). When the existing source is farther away than this, then a tap closer to the home can be expected to lead to an increase in consumption. However, when this level of availability has already been reached, bringing the water source closer to the door has practically no influence on water consumption, unless the water is provided in the yard or in the house.

This 'water use plateau' has been documented by studies in East, West and Southern Africa, Asia and Central America. It means, that for people who are already on the plateau, a water supply providing an in-house level of service will increase their water consumption, affect their hygiene and by implication reduce their level of trachoma. If house connections of water are not feasible or affordable, priority in allocating water supplies should go to those who are farthest from



Collection of water – at a distance – in Southern Africa

Photo: Erika Sutter

their water source, and farthest off the 'edge' of the plateau. That priority will help to ensure the maximum benefit in terms of eye health. Happily, it will also give the maximum benefit in terms of diarrhoeal disease reduction and also save in the weary task of carrying water. Water supplies which are good for health in general are also best for trachoma control.

Infact, both water and sanitation are good for trachoma control. A number of studies^{1,2} have found less trachoma in families with latrines. Latrines help to control the *Musca sorbens* flies which land on children's faces, which may explain why they protect against trachoma.

The total amount of water people use gives only a crude indication of their hygiene. How the water is used determines whether it will help to control trachoma. For example, a study in The Gambia³ found that the total quantity of water used by a household had no effect on the prevalence of active trachoma, but that trachoma-free households used more water for washing children than households with trachoma cases.

Trachoma and Health Education

This raises the possibility of using health education to encourage the use of water for specific hygiene purposes such as face-washing. Health education is probably cheaper than building water supplies; even so, there are no specific resources in most poor countries for health education simply to prevent trachoma. On the other hand,

adding too many messages to an existing health education programme weakens its impact, so that health educators may be unwilling to add a trachoma message to an already overburdened programme.

One promising possibility is that hand-washing, which is increasingly promoted to prevent diarrhoeal diseases, may also help to prevent transmission of trachoma and other eye infections. Fingers have been considered an important means of transmission of trachoma for sixty years,⁴ and a field study from Indonesia⁵ has shown that

an intervention to promote hand-washing could be successful in reducing not only diarrhoea but also eye infections. As with the water supply itself, this is an example of how good primary health care can help to prevent trachoma best when it also prevents other diseases.

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Vision 2020

Vision 2020: The Right to Sight

Report on the Sixth General Assembly of the International Agency for the Prevention of Blindness (IAPB)



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Sixth General Assembly

The 6th General Assembly of IAPB was held at the Friendship Hotel, Beijing, People's Republic of China, September 5–10, 1999. The meeting was co-sponsored by the World Health Organization, the Japanese National Society for the Prevention of Blindness and the American Academy of Ophthalmology.

There was a warm welcome from our Chinese hosts. Nearly 600 people attended, over 200 from China and 350 delegates from other countries.

This meeting is becoming an important event for all those concerned with eye care throughout the world. Although it occupied five days, the level of interest and high quality of debate was maintained throughout. There is now much more known about the epidemiology of the main blinding diseases and the different methods of control than five years ago at the 5th General Assembly in Berlin. The discussion was therefore more specific and at a high level. There was universal agreement that it was a most valuable meeting.

Officers of IAPB

The President of IAPB for the past 5 years (Dr R Pararajasegaram) and the Secretary (Dr Gullapalli Rao) are to be congratulated on the excellent organisation of the meeting.

The new President for 1999–2003 is Dr Hannah Faal and the President-Elect is Dr Allen Foster.

Theme

The theme of the congress was the Global Initiative for the Elimination of Avoidable Blindness, entitled 'Vision 2020'. This Initiative was planned jointly by WHO and the Task Force of IAPB and launched in February 1999 in Geneva. It is set against the current background of over 45 million people blind, a number which is expected to double by 2020 if present trends continue. The purpose of the Initiative is to set common agendas and priorities which will feed into regional and national policy, planning and implementation. The first 5 year phase of the Initiative encompasses:

- specific disease control (large-scale cataract surgery; trachoma; onchocerciasis; childhood blindness; and provision of refraction and low-vision services).
- human resource development.
- strengthening of infrastructure and technology for eye care.

The conference was therefore primarily



Environmental improvements are vital for the control of trachoma

Photo: Paul Courtright

concerned with how these broad strategies can be translated into focused programmes at the local level, with collaboration between all the partners concerned.

Some Highlights

Selected emphases which emerged from the presentations and discussions included:

1. Cataract Surgery

Three recent publications from India have highlighted the disappointing visual results from large scale cataract surgery. These were referred to several times. How these outcomes could be improved – by better training, better facilities, and better quality control – emerged as critical issues. The routine monitoring of quality of outcomes needs to be built into the data collection.

2. Trachoma

There is a major initiative, within the overall Vision 2020 framework, to eliminate trachoma as a blinding disease. The main issues are training of enough surgeons to deal with trichiasis; how the new antibiotic azithromycin should be used in mass distribution; and how environmental improvements can be incorporated into the programmes.