
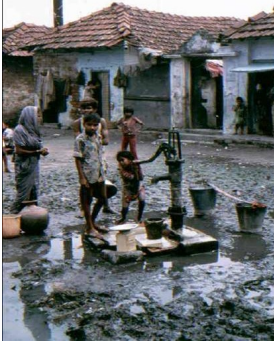
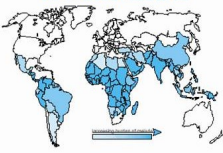
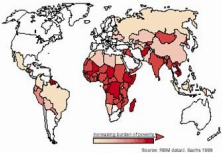
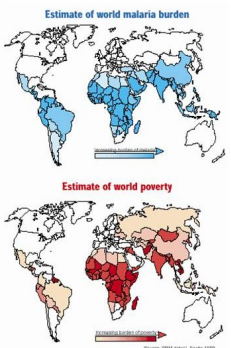
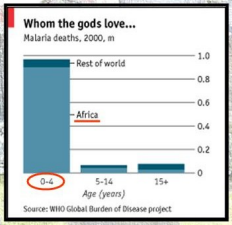
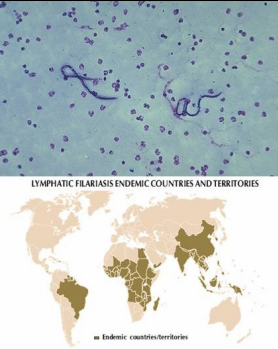


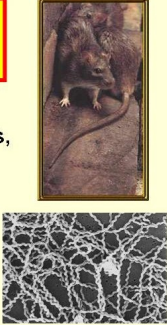



WATER- AND EXCRETA-RELATED COMMUNICABLE DISEASES

Part 5 of 5

<p>1.</p>	<p style="text-align: center;">Unitary environmental classification of water- and excreta-related communicable diseases</p> <p style="text-align: center;">Seven categories:</p> <ol style="list-style-type: none"> 1. Faeco-oral waterborne & water-washed diseases 2. Non-faeco-oral water-washed diseases 3. Geohelminthiasis 4. Taeniasis 5. Water-based diseases 6. Insect-vector diseases 7. Rodent-vector diseases 	<p>We are now going to look at Category 6 of our environmental classification of water- and excreta-related diseases, and category 6 comprises the insect-vector diseases.</p>
<p>2.</p>	<p style="text-align: center;">6. Insect-vector diseases</p> <ul style="list-style-type: none"> <input type="checkbox"/> Vector breeds in water <ul style="list-style-type: none"> • for example: malaria, filariasis <input type="checkbox"/> Vector bites near water <ul style="list-style-type: none"> • for example: African trypanosomiasis <p><input type="checkbox"/> Some vectors do both ! – eg, blackflies (<i>Simulium damnosum</i>), the vector of onchocerciasis (river blindness)</p> 	<p>Vectors can breed in water, for example those which transmit malaria or filariasis, or they can bite preferentially near water, for example African trypanosomiasis or sleeping sickness; and, of course, some vectors do both. The blackfly, <i>Simulium damnosum</i>, which transmits river blindness, onchocerciasis, breeds in and bites near water.</p>
<p>3.</p>	<p style="text-align: center;">Mosquito Breeding</p>  <ul style="list-style-type: none"> • “clean water” breeders: anopheline mosquitoes, which transmit malaria, yellow fever, dengue, etc. • “dirty water” breeders: culicine mosquitoes, which transmit filariasis 	<p>With mosquitoes, we have two groups very broadly: the clean-water and the dirty-water breeders. The clean-water breeders are the anopheline mosquitoes, and they transmit malaria, yellow fever, dengue fever and so on. The dirty-water breeders are the culicines, and they transmit filariasis.</p>
<p>4.</p>	<p style="text-align: center;">Estimate of world malaria burden</p>  <p style="text-align: center;">Estimate of world poverty</p> 	<p>Malaria is currently a disease associated with poverty. These two maps show an almost exact coincidence of the burden of malaria and the burden of poverty – concentrated, as you would expect, in developing countries.</p>

<p>5.</p>	 <p>MALARIA</p> <ul style="list-style-type: none"> • accounts for 1 in 5 of all childhood deaths in Africa; • causes low birth weight, anaemia, epilepsy, and learning difficulties; and • is both preventable and treatable. 	<p>Malaria accounts for one in five of all childhood deaths in Africa. It causes low birth weight, anaemia, epilepsy and learning difficulties, but it is both preventable and treatable.</p>
<p>6.</p>	 <p>Malaria kills mainly African children under 5</p>	<p>This chart shows that malaria mainly kills African children under the age of five. The other part of the world where malaria kills children is Papua New Guinea, but it is mainly African children who are killed by malaria.</p>
<p>7.</p>	 <p>Bancroftian Filariasis</p> <ul style="list-style-type: none"> • caused by <i>Wuchereria bancrofti</i> worms • adults live in & block lymph vessels, eventually leading to → → 	<p>Bancroft filariasis is spread in most, but not all, parts of the developing world by culicine mosquitoes, the dirty-water breeders. It is caused by the helminth <i>Wuchereria bancrofti</i>. The adult worms live in and eventually block the lymph vessels,</p>
<p>8.</p>	 <p>The clinical extreme of filariasis: Elephantiasis</p>	<p>and over time this leads to the clinical extreme of the disease which is known as elephantiasis: gross swelling and deformity of the genitals and/or the lower legs and feet.</p>
<p>9.</p>	 <p>And any excreta-related disease spread by flies & cockroaches</p>	<p>Included in this category of water and excreta-related diseases are any of the excreta-related diseases which can be spread by flies or cockroaches.</p>

<p>10.</p>	<p>Unitary environmental classification of water- and excreta-related communicable diseases</p> <p>Seven categories:</p> <ol style="list-style-type: none"> 1. Faeco-oral waterborne & water-washed diseases 2. Non-faeco-oral water-washed diseases 3. Geohelminthiases 4. Taeniasis 5. Water-based diseases 6. Insect-vector diseases 7. Rodent-vector diseases 	<p>The seventh and final category comprises the rodent-vector diseases.</p>
<p>11.</p>	<p>7. Rodent-vector diseases</p> <p>Any excreta-related disease spread by rodents, particularly rats</p> <p>❑ Main disease spread by rats is LEPTOSPIROSIS caused by the bacterium Leptospira interrogans</p> 	<p>These are any excreta-related disease which can be spread by rodents and especially by rats. The principal disease spread by rats is leptospirosis which is caused by the spiral-shaped bacterium <i>Leptospira interrogans</i>.</p>
<p>12.</p>	<p>Unitary environmental classification of water- and excreta-related communicable diseases</p> <p>Seven categories:</p> <ol style="list-style-type: none"> 1. Faeco-oral waterborne & water-washed diseases 2. Non-faeco-oral water-washed diseases 3. Geohelminthiases 4. Taeniasis 5. Water-based diseases 6. Insect-vector diseases 7. Rodent-vector diseases 	<p>So, in summary, we have the seven categories of water- and excreta-related communicable diseases:</p> <p>Category 1 comprises the faeco-oral waterborne and water-washed diseases. Category 2, the non faeco-oral water-washed diseases. Category 3, the geohelminthiases, the soil-transmitted worm diseases. Category 4, the taeniasis, the tapeworm diseases. Category 5, the water-based diseases, such as schistosomiasis. Category 6 and 7, the insect-vector and rodent-vector diseases.</p>
<p>13.</p>	<p>For further information:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">WATER- AND EXCRETA-RELATED DISEASES: UNITARY ENVIRONMENTAL CLASSIFICATION</p> <p style="text-align: center;">By D. D. Mara¹ and R. G. A. Feachem²</p> <p><small>ABSTRACT: A unitary environmental classification of water- and excreta-related communicable diseases is presented, which comprises seven categories: faeco-oral waterborne and water-washed diseases; non-faeco-oral water-washed (skin and eye) diseases; geohelminthiases; taeniasis; water-based diseases (bacterial and fungal, as well as helminthic); insect-vector diseases; and rodent-vector diseases. The global burden of some of these diseases in 1990 is reviewed. Water- and excreta-related diseases were responsible for 2,700,000 deaths in that year (5.2% of all deaths) and for the loss of 93,200,000 disability-adjusted life years (6.3% of all DALYs). Almost all these deaths and loss of DALYs occurred in developing countries (99.7 and 99.8%, respectively).</small></p> </div> <p style="text-align: center;"><small>J. of Environmental Eng., ASCE, 125 (4), 334-339; 1999</small></p>	<p>Further information on all these diseases are given in this paper which I wrote with Richard Feachem a few years ago, <i>Water and Excreta-related Diseases: A Unitary Environmental Classification</i> and it is included on this CD.</p>
<p>14.</p>	<p>Acknowledgement:</p> <p>❑ Professor David Bradley, London School of Hygiene & Tropical Medicine, who developed the Environmental Classification of Water-related Diseases in East Africa in the late 1960s (<i>Drawers of Water</i>, Chicago University Press, 1972).</p> <ul style="list-style-type: none"> • This introduced the hugely important distinction between 'waterborne' & 'water-washed' disease 	<p>Finally, I would like to acknowledge the huge contribution made to this area by Professor David Bradley of the London School of Hygiene and Tropical Medicine. When he was working in East Africa in the late 1960s, he developed the environmental classification of water-related diseases, and this introduced for the first time the hugely important distinction between waterborne and water-washed disease transmission and arguably this is the most important contribution to the understanding of water-related disease made in the 20th century.</p>
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