Dracunculiasis Eradication

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Lifecycle of Dracunculus medinensis

1. Humans
2. Released larva
3. Emerging worm
4. First-stage larva
5. Water flea
6. Copepods
7. Third-stage larva

1st stage larvae

Humans

Copepods
1980

CDC suggests that eradication of dracunculiasis, a disease only transmitted via drinking water, would be the ideal indicator of the success of the United Nations 1980-1990 International Drinking Water Supply and Sanitation Decade
1982 Workshop on Opportunities for Control of Dracunculiasis

- Geographic distribution of dracunculiasis confined to countries in sub-Saharan Africa, India, Pakistan and possibly Yemen
- Elimination of dracunculiasis from USSR in 1920s and from Iran in 1970s without recurrence of the disease in humans after many years
- No animal reservoir
- No human carrier state beyond the one year incubation period
1982
Workshop on Opportunities for Control of Dracunculiasis

- No human immunity against infection
- No available medication against the disease
- Transmission of the disease markedly seasonal
- Unique clinical presentation
1982
Workshop on Opportunities for Control of Dracunculiasis

- Control methods included health education & community mobilization
- Provision of safe sources of drinking water
- Application of the insecticide Abate (temephos) to unsafe sources of drinking water
1984

CDC Designated the WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis
1986
First African Regional Workshop on Eradication convened in Niamey, Niger

• Estimate of 3.2 million cases annually in Africa and 120 million people at risk of the disease in endemic areas

• Global burden of dracunculiasis estimated to be 3.5 million cases annually
# Dracunculiasis Eradication Campaign

## Program Start-Ups

<table>
<thead>
<tr>
<th>Year interventions started</th>
<th>Country</th>
<th>Active Programs (cumulative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>India</td>
<td>1</td>
</tr>
<tr>
<td>1988</td>
<td>Pakistan</td>
<td>2</td>
</tr>
<tr>
<td>1989</td>
<td>Nigeria, Ghana</td>
<td>4</td>
</tr>
<tr>
<td>1991</td>
<td>Cameroon</td>
<td>5</td>
</tr>
<tr>
<td>1992</td>
<td>Togo, Burkina Faso, Senegal, Uganda</td>
<td>9</td>
</tr>
<tr>
<td>1993</td>
<td>Benin, Mauritania, Niger, Mali, Cote d’Ivoire</td>
<td>14</td>
</tr>
<tr>
<td>1994</td>
<td>Sudan, Kenya, Chad, Ethiopia</td>
<td>18</td>
</tr>
<tr>
<td>1995</td>
<td>Yemen</td>
<td>19</td>
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</tbody>
</table>
Interventions Against Dracunculiasis

- Village-based surveillance and monthly reporting of cases
- Case Containment
- Health education and community mobilization
  - Education of people about the origin of the disease
  - Empowering villagers to take action against the disease
    - Keeping persons with emergent worms from contaminating sources of drinking water
    - Use cloth filters to protect yourself and family for dracunculiasis
- Vector control with Abate
- Advocacy for provision / rehabilitation of sources of drinking water and monitoring progress
Number of Cases of Dracunculiasis: 1989 - 2001

- Sudan
- All other countries
Number of Villages with Endemic Dracunculiasis: 1989 - 2001

- All other countries
- Sudan

1989: 23,735
1992: 2,201
1999: 180
2000: 6,040
Dracunculiasis Eradication Campaign
Status of Eradication Efforts: 2001

Currently Endemic Countries
Formerly Endemic Countries
1998 Last Indigenous case reported

1994
1997 1998
1997
1996
1993
1997
1994
1993

Sudan: 49,471
Nigeria: 5,355
Ghana: 4,738
Togo: 1,340
Burkina Faso: 1,021
Mali: 708
Niger: 405
Cote d'Ivoire: 223
Benin: 156
Mauritania: 94
Uganda: 51
Cent. Afr. Rep.: 34
Ethiopia: 10
Distribution of 63,710 Cases of Dracunculiasis in 2001*

* provisional
## Coalition of Organizations and Agencies Supporting the Global Campaign to Eradicate Dracunculiasis

<table>
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<th><strong>Lead Organizations</strong></th>
<th><strong>Bilateral Donors</strong></th>
<th><strong>Industry</strong></th>
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<td>The Carter Center</td>
<td>United States</td>
<td>E.I. DuPont de Nemours</td>
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<tr>
<td>Centers for Disease</td>
<td>Japan</td>
<td>Precision Fabrics Group</td>
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<tr>
<td>Control &amp; Prevention</td>
<td>Netherlands</td>
<td>American Cyanamid</td>
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<td></td>
<td>Norway</td>
<td>BASF</td>
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<td>United Arab Emirates</td>
<td>Johnson &amp; Johnson</td>
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<thead>
<tr>
<th><strong>UN Organizations</strong></th>
<th><strong>Supporting Organizations</strong></th>
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<tbody>
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<td>US Peace Corps</td>
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<td>WHO</td>
<td>Keidanren</td>
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<td>UNDP</td>
<td>The Hilton Foundation</td>
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<tr>
<td>The World Bank</td>
<td>Health &amp; Development International</td>
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<tr>
<td></td>
<td>The Bill and Melinda Gates Foundation</td>
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