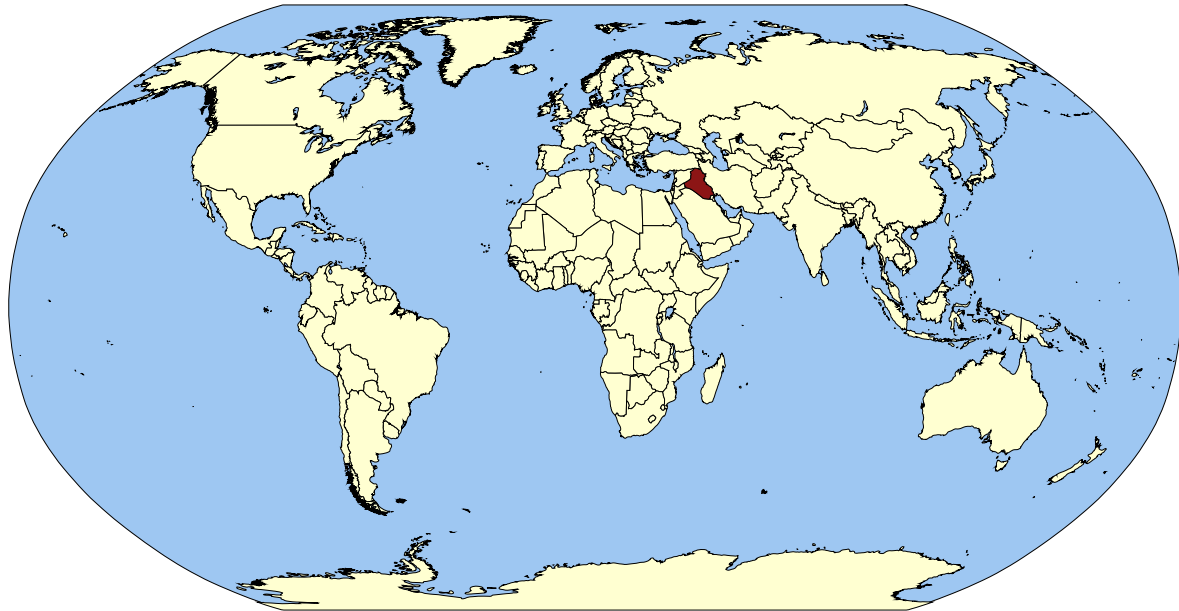


# Iraq

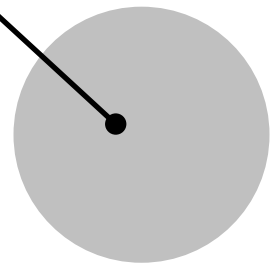


## The History of Schistosomiasis in Iraq

Urinary schistosomiasis, caused by the blood-fluke *Schistosoma haematobium*, was first reported to be a health concern in Iraq in 1899, when Sturrock stated: “the disease is widely spread throughout Mesopotamia, occurring in those living in towns and villages situated on the banks of the rivers Tigris and Euphrates... up to about 900 miles from the mouth of the united rivers” [1]. Little attention was paid to the disease until a small outbreak occurred in British and Indian troops stationed in the region. In 1919, human prevalence and malacological studies were conducted and a prevalence of 20% was estimated in 174 male Arabs tested across 7 districts [1]. Within a few years, *Bulinus truncatus* snails were implicated as the intermediate host vector, and the banks of the Euphrates, particularly in rice field areas, was identified as the highest risk areas. In 1925, it was noted that risk amongst school children was stratified according to religious and cultural affiliations, with young Muslim schoolchildren disproportionately infected with 57% prevalence, Christians 30%, and Jewish boys 27% [1].

## Schistosomiasis in Iraq [15]

No preventative chemotherapy required in Iraq, as of 2013.



## Overview of Iraq [16]

- » Population in 2015: 37,056,169
- » Official Languages: Arabic and Kurdish
- » Capital: Baghdad
- » Parliamentary Democracy
- » Percentage of Population with Access to Improved Drinking Water in 2012: 85.4%
- » Percentage of Population with Access to Improved Sanitation in 2012: 84.7%

## Irrigation and Disease

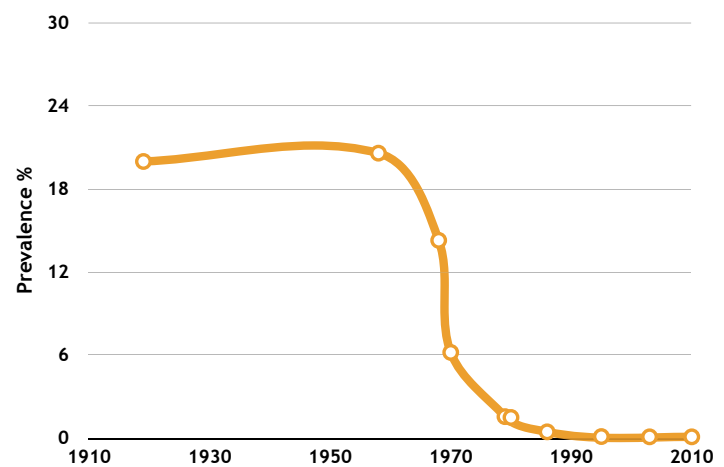
During the 20th century, irrigation expansion was known to increase schistosomiasis transmission; studies showed that prevalence increased from 2% to 75% in one area after perennial irrigation was introduced. Case studies near the Greater Masayyeb Project in Iraq revealed, too, that mismanagement of irrigation schemes likely result in the exacerbation of disease [2]. Currently, schistosomiasis transmission persists at very low levels in Iraq following government based control programs heavily focused on snail control, especially in the branches of irrigation canals.

## Control Strategies in Iraq

The first national control effort launched by the Endemic Diseases Control Centre began in 1953, based on extensive testing and treating infected schoolchildren and applying molluscicides to snail habitats, after which a low prevalence was reported [3]. Mollusciciding of snail habitats with sodium pentachlorate in highly endemic areas in Iraq, since at least 1964, was extensive, with support from the World Health Organization [4]. In one experimental site south of Baghdad, prevalence amongst school children reduced from 90% in 1960 to 5.3% in 1973 following annual mollusciciding in canals and treatment with Ambilhar and later Etranol. In pre-school children in the same area and over the same time period, prevalence dropped from 67% to 0%. By 1972 all snails in targeted habitats were eradicated [4]. Snail control is understood as having been particularly effective in Iraq, where in 1958 nearly 42% of streams (of over 1400 investigated) were infested with *Bulinus* snails, and by 1980 only 1.5% of streams (of 5,270 investigated) were found with *Bulinus* snails [5].

## Chemotherapy Treatments

In the 1920s, reported cases amongst those that sought treatment were treated intravenously with the antimony tartrate [1]. Later in the century, when Iraq began mollusciciding snail habitats, the Endemic Diseases Control Centre in Iraq focused much attention on chemotherapy of primary schoolchildren. Activities employing this strategy began in 1965 [6]. A 1987 study noted that Iraq's extensive control program focused mainly on schoolchildren, and young girls who are not enrolled in school may have been an important reservoir of infection [3]. There is evidence of prevalence rates in Iraq falling from nearly 0.06% to nearly 0.02% during the period of 1990-1994, attributed to medical treatment and improved sanitation, though the extent and details of any active control measures are unclear [7].



## Disease Prevalence in Iraq

The proportion of infected individuals to the total population in Iraq has decreased over the past century. Rates experienced a sharp decline in the mid-twentieth century due to effective snail control. Although prevalence rates today are minimal, schistosomiasis has yet to be completely eliminated.

## Chemotherapy Treatments

Prevalence of schistosomiasis is now very low in Iraq, but the World Health Organization recognized that an updated understanding of prevalence and distribution is crucial [8]. After the first estimate of 20% prevalence in 1919, the number remained at 20.6% in 1958 estimates determined by testing nearly 40,000 schoolchildren [5]. In 1968, Wright reported that of a total population of 7,004,000, 5 million (71.4%) Iraqis were exposed to schistosomiasis and 1 million (14.3%) were infected [9]. By 1970, prevalence rates dramatically reduced, likely as the result of intensive snail control, to 6.2%, and again to 1.5% by 1980 [5]. In 1977, 43.6% were reported to be exposed to the disease and a few years earlier - in 1974 - 34,578 people were treated in hospitals for the disease [10]. By 1986, prevalence estimates had dropped to 0.46%, and the population at risk 26.3% [11]. In 1995, the at-risk proportion of the population was estimated to still be 26.3%, but the infected proportion further declined to 0.12 [12]. In 2003 and 2010, prevalence was still estimated at 0.1% [13]. *S. haematobium* is currently understood to still be endemic along the entire Euphrates and Tigris and all tributaries, irrigation canals, marsh areas, and urban areas, with isolated transmission sites in the northern province of Mosul [14].

Iraq successfully decreased schistosomiasis rates through the use of extensive snail control. As of 2010, schistosomiasis was still not eliminated, with prevalence rates at 0.1%. However, as of 2013, the WHO reported that no one in Iraq required treatment for schistosomiasis.

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