Preplanned Studies

Amoebic Dysentery — China, 2005–2019

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Summary

What is already known about this topic?

Amebiasis is caused by infection with *Entamoeba histolytica*. As a severe sequence in amebiasis, amoebic dysentery is tracked by China's National Notifiable Disease Reporting System.

What is added by this report?

From 2005 to 2019, a total of 28,229 cases of amoebic dysentery and 7 resulting deaths were reported in China. The annual incidence rate had significantly decreased from 0.26/100,000 in 2006 to 0.06/100,000 in 2019, and most cases were reported from southern China and in children.

What are the implications for public health practice?

Amoebic dysentery has significantly decreased in China. Continued efforts are expected to further control amoebic dysentery, and southern areas and children should be high priority groups.

Amebiasis is caused by the invasive, tissue-destroying intestinal parasite *Entamoeba histolytica* (*1*). Diverse sequences could be presented in amebiasis, in which amebic dysentery is most important because of its high incidence and severe harm to health (*2*). Amebic dysentery ranks among leading causes of diarrhea globally, and thus amebiasis is an important public health problem especially in developing countries (*3*–*4*). Amoebic dysentery lists among the National Notifiable Disease Reporting System (NNDRS) in China (*5*), and in this study, data from NNDRS on amoebic dysentery between 2005 and 2019 were analyzed to uncover the epidemiological profiles. The incident cases decreased overall from 3,308 in 2005 to 775 in 2019, cases were mainly distributed in southern China, and children were the most affected population. Significant control on amoebic dysentery has been achieved in China, but concerted efforts are needed for further control.

We extracted the cases diagnosed as amoebic dysentery (clinical-diagnosed and confirmed cases) (*6*) during 2005 to 2019 from the NNDRS in China. Incident cases and corresponding incidence rates were presented by year to demonstrate long-term trend, and reported cases were presented by month to show seasonality. Cases were classified at the provincial level to demonstrate high-risk regions and by sex, age, and occupation to show high-risk populations.

In total, 28,229 cases with amoebic dysentery were reported from 2005 to 2019 and resulted in 7 deaths that all occurred before 2011. The incident cases totaled over 3,000 nationally before 2007 and then declined gradually to the lowest total of 775 in 2019 (Figure 1). Correspondingly, the annual incidence rate was 0.26/100,000 population in 2006 and decreased gradually to 0.06/100,000 in 2019. Incident cases had obvious seasonal characteristics as the incidence started increasing from January to a peak in June followed by a gradual decline. Approximately 65.5% (18,504/28,229) cases were reported between May and October. Cases have been reported in all 31 provincial-level administrative divisions (PLADs) in the mainland of China. However, besides Heilongjiang in northeastern China, cases were predominantly distributed in southern China (Figure 2). During the past 15 years, Heilongjiang reported 3,895 cases (13.8%) and were followed by 3,262 cases in Guangxi (11.6%), 3,242 in Yunnan (11.5%), 2,714 in Guangdong (9.6%), 2,396 in Jiangxi (8.5%), 2,163 in Sichuan (7.7%) and 2,129 in Henan (7.5%); these 7 PLADs accounted for 70.1% of cases nationally. Children under 14 years old accounted for 52.6% of total cases (14,838/28,229), and the number of cases decreased with increasing age in children (Figure 3). The highest number of cases was reported in children aged below 1 year (5,737 cases). The number of cases was 16,656 (59.0%) in males and 11,573 (41.0%) in females. The epidemiological profile by age for the different sexes was similar to the overall population. A higher number of cases were reported in males than females in all age groups excluding those between 50 and 59 years old. Among the different categories, unsupervised children (not in care facilities) (11,457 cases, 40.6%) were the major source, followed by farmers (6,730 cases, 23.8%), school children (2,360 cases, 8.4%), and kindergarten children (1,566 cases, 5.5%).

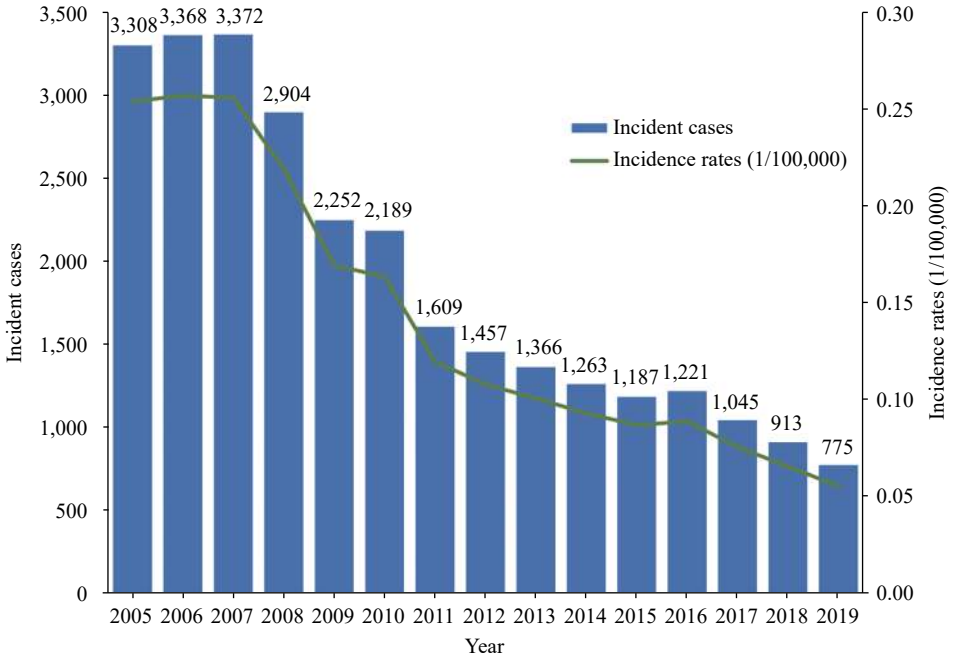

FIGURE 1. The incident cases and incidence rates attributed to amoebic dysentery in China from 2005 to 2019.

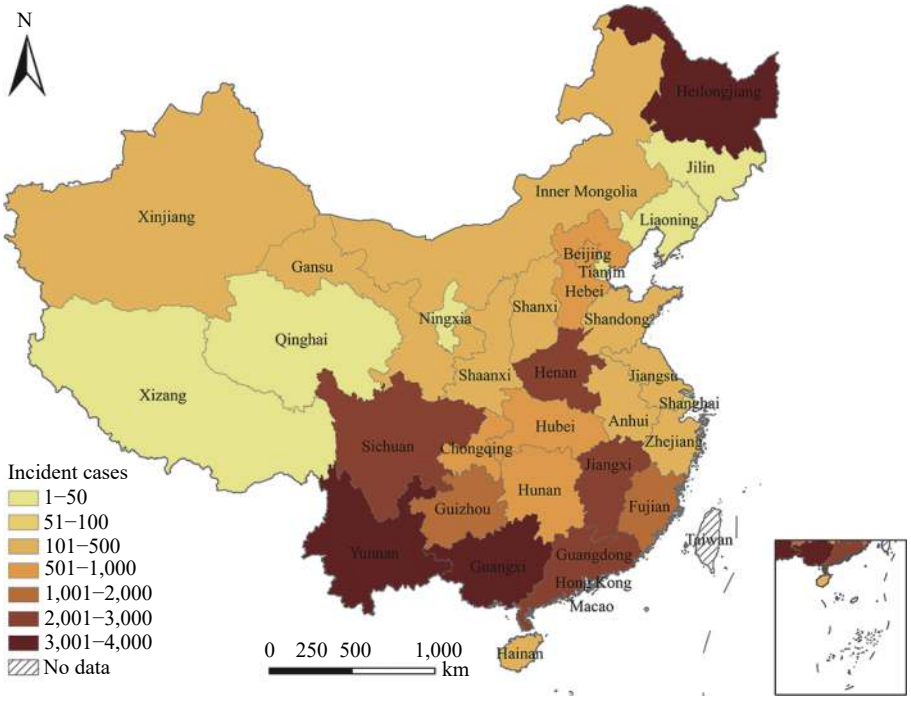

FIGURE 2. The distribution of incident cases of amoebic dysentery by provincial-level administrative divisions in China from 2005 to 2019.

DISCUSSION

Based on the NNDRS, cases of amoebic dysentery had reportedly significantly decreased in China during the past 15 years from 3,308 in 2005 to 775 in 2019. Overall, 65.5% of cases were reported between May and October, and a high imbalance was demonstrated in areas and populations.

The significant decrease of amoebic dysentery was consistent with decreases in intestinal protozoan

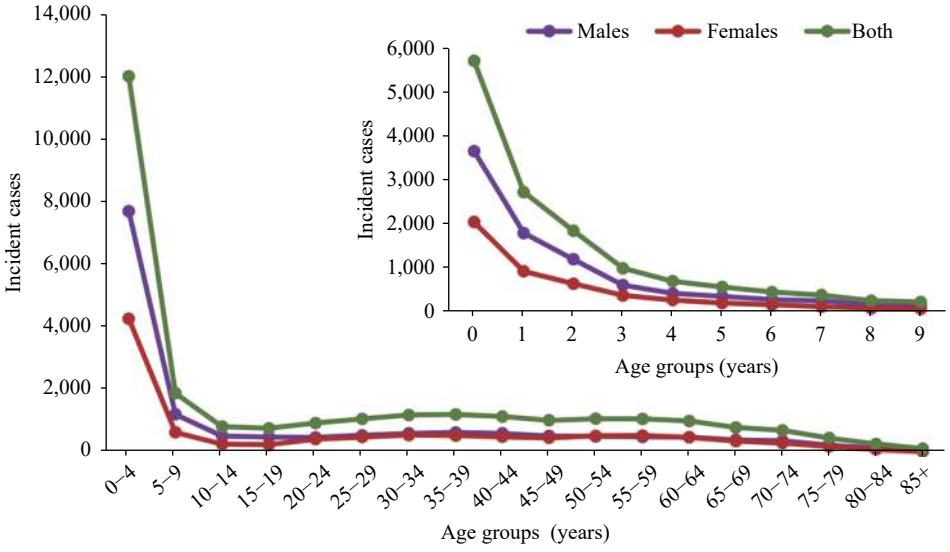

FIGURE 3. The incident cases of amoebic dysentery by sexes and age groups in China from 2005 to 2019.

infection in China in 2 national surveys (*3*–*4*). The national prevalence of intestinal protozoa was 10.3% in 1988–1992, in which *E. histolytica* infection was 0.95%. Although the separate prevalence of *E. histolytica* was not provided, the total prevalence of intestinal protozoa was only 0.99% during 2014 to 2016, which indicated the significant decrease of amebiasis in China. Social development, provision of safety water, and establishment of sanitation are relevant to the endemicity of amebiasis (*1*). Thus, the decrease of amoebic dysentery was consistent with the significant improvement of above conditions in China (*7*). Seven deaths were caused by amoebic dysentery and all occurred before 2011, which was consistent with the overall decrease in reported cases. Additionally, advances in medicine, e.g. timely diagnosis and treatment, should also contribute. Significant seasonality was demonstrated in amoebic dysentery with most cases reported in summer and autumn, which was consistent with previous reports (*8*–*9*) as high temperatures promote the survival of *E. histolytica* and raw water (i.e. not boiled) is more often consumed.

Analysis at the provincial level showed major regional variation. Most cases were reported from southern China, especially southwestern regions, which was also consistent with the higher temperatures in southern China. Furthermore, the supply of safe water and sanitation in southwestern China lags behind other areas (*7*). However, a high number of cases was reported in Heilongjiang in northeastern China while cases were relatively lower in adjacent PLADs, which requires further investigation to explore the epidemiological factors. Based on a national survey in 1988–1992, the prevalence of intestinal protozoan infection including amebiasis was high in middle-aged populations and relatively low in children (*3*). However, it was found that the prevalence of intestinal protozoa was higher in children during 2014 to 2016 (*4*), which was consistent to the finding in this study. Children are possibly less resistant to *E. histolytica* infection and more likely to present morbidity after infection, and vigilant childcare from parents might contribute to higher rates of doctor visits and diagnosis.

This study has one limitation. Because of relative neglect and challenge in diagnosis, the reported cases of amoebic dysentery in NNDRS were probably underestimated. Thus, the epidemiological burden of amoebic dysentery as well as amebiasis should be higher than that indicated by the reported cases in this study. However, the reported cases in NNDRS still demonstrate the epidemiological profiles. Although cases of amoebic dysentery decreased significantly in China during the past 15 years, it still causes a high burden in some areas and populations. Further action is needed to promote the control of *E. histolytica* infection including the persistent improvement on the provision of safe water and sanitation in less developed areas.

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