http://www.who.int/hac/techguidance/ems/flood_cds/en/

Water-borne diseases

Flooding is associated with an increased risk of infection, however this risk is low unless there is significant population displacement and/or water sources are compromised. Of the 14 major floods which occurred globally between 1970 and 1994, only one led to a major diarrhoeal disease outbreak - in Sudan, 1980. This was probably because the flood was complicated by population displacement. Floods in Mozambique in January-March 2000 led to an increase in the incidence of diarrhoea and in 1998, floods in West Bengal led to a large cholera epidemic (01,El Tor, Ogawa).

The major risk factor for outbreaks associated with flooding is the contamination of drinking-water facilities, and even when this happens, as in Iowa and Missouri in 1993, the risk of outbreaks can be minimized if the risk is well recognized and disaster-response addresses the provision of clean water as a priority. In Tajikistan in 1992, the flooding of sewage treatment plants led to the contamination of river water. Despite this risk factor, no significant increase in incidence of diarrhoeal diseases was reported. A typhoon in Truk District, Trust Territories of the Pacific in 1971 disrupted catchment water sources and forced people to use many different sources of groundwater that were heavily contaminated with pig faeces. As a result, there was an outbreak of balantidiasis, an intestinal protozoan. A cyclone and flooding in Mauritius in 1980 led to an outbreak of typhoid fever.

There is an increased risk of infection of water-borne diseases contracted through direct contact with polluted waters, such as wound infections, dermatitis, conjunctivitis, and ear, nose and throat infections. However, these diseases are not epidemic-prone.

The only epidemic-prone infection which can be transmitted directly from contaminated water is leptospirosis, a zoonotic bacterial disease. Transmission occurs through contact of the skin and mucous membranes with

water, damp soil or vegetation (such as sugarcane) or mud contaminated with rodent urine. The occurrence of flooding after heavy rainfall facilitates the spread of the organism due to the proliferation of rodents which shed large amounts of Leptospira in their urine. Outbreaks of leptospirosis occurred in Brazil (1983, 1988 and 1996), in Nicaragua (1995), Krasnodar region, Russian Federation (1997), Santa Fe, USA (1998) Orissa, India (1999) and Thailand (2000). It is likely that environmental changes increased the vector (rodent) population which facilitated transmission.

Contaminated drinking and washing water and poor sanitation

Flooding impairs clean water sources with pollutants and devastates sanitary toilets. Direct and indirect contact with the contaminants – whether through direct food intakes, vector insects such as flies, unclean hands, or dirty plates and utensils – result in waterborne illnesses and life-threatening infection diseases. The pollutants also saturate into the ground water and/or can infiltrate into sanitary sewer lines through the ground. In addition, wastewater treatment plants, if flooded and malfunctioned, can be overloaded with polluted runoff waters and sewage beyond their disposal capacity, resulting into backflows of raw sewage to homes and low lying grounds. Private wells can be also contaminated or damaged severely by floodwaters, while private sewage disposal systems also become a cause of infection and illnesses when they are broken or overflowed (CDC Fact Sheets 10 September 2004 and 10 September 2005). In this manner, unclean drinking and washing water and sanitation, coupled with lack of adequate sewage treatment, can lead to disease outbreaks, e.g. life-threatening cholera, typhoid, dysentery and some forms of hepatitis as

experienced in the floods in Bangladesh and New Orleans. Indeed, many lives were claimed by the infectious diseases broken out during and after the wave surges of the Indian Ocean Tsunamis and resultant floods that devastated regions along the coasts in Southeast and South Asian countries (Government of Western Australia; Indonesia Relief 2005; Rose 2005; WHO). The key to preventing a health catastrophe is therefore a basic hygiene: i.e. clean and safe water and toilets.

https://www.ssi.dk/~/media/Indhold/DK%20-%20dansk/Smitteberedskab/Infektionshygiejne/Vandskade/Health%20risks%20and%20hazards%20caused%20by%20floods.ashx