

Table 1. Bradley classification of water-related infectious diseases included in review. Adapted from White et al., 1972 and Cairncross and Feachem, 1993.

Transmission route	Explanation	Examples
Waterborne	Transmitted through ingestion of water with pathogen present	Shigellosis, giardiasis, cyclosporiasis, cryptosporidiosis, campylobacteriosis, cholera, helminth infection, typhoid, infectious hepatitis, enterobiasis
Water-washed	Transmitted person-to-person but mitigated by water availability for hygiene	Trachoma, scabies, tinea
Water-based	Transmitted by agent with life cycle phase in water	Schistosomiasis, guinea worm
Water-related insect vectors	Transmitted by agent that breeds in water or bites near water	Malaria, dengue

Table 2. Search strategy.

Terms used in search strategy
Water AND
(private OR shared OR improved OR unimproved OR piped OR pipe OR house OR houses OR home OR homes OR household OR households OR plot OR yard OR dwelling OR premises OR distance OR quantity) AND
(access OR source OR sources OR supply OR supplies OR connection OR connections) AND
(diarrhea OR diarrheal OR diarrhoea OR diarrhoeal OR trachoma OR stunting OR stunted OR stunt OR underweight OR wasting OR "height for age" OR "weight for age" OR "upper arm circumference" OR "mid-upper arm circumference" OR MUAC OR "child height" OR "children's height" OR "child weight" OR "children's weight" OR "child growth" OR "children's growth" OR anthropometric OR DALY OR DALYs OR "disability adjusted life year" OR "disability adjusted life years" OR respiratory OR dysentery OR scabies OR cholera OR ringworm OR tinea OR typhoid OR cryptosporidiosis OR cryptosporidium OR cyclosporiasis OR cyclospora OR giardiasis OR giardia OR ascariasis OR ascaris OR hookworm OR campylobacteriosis OR campylobacter OR shigella OR shigellosis OR vibrio OR hepatitis OR poliomyelitis OR polio OR poliovirus OR polyomavirus OR otitis OR "swimmer's ear" OR enterobiasis)

Table 3. Description of included study analyses, by health outcome.
Eight studies reported on multiple health outcomes and are represented more than once.

Health outcome	N	Total participants	Study design			
			Cohort	Case-control	Cross-sectional	Longitudinal
Campylobacteriosis	1	859	1	0	0	0
Cholera	1	19,687	0	1	0	0
Cryptosporidiosis	1	230	1	0	0	0
Diarrhea	14	29,252	7	3	1	3
Dysentery	1	19,687	0	1	0	0
Giardiasis	2	1,635	1	0	1	0
Height	4	2,608	3	0	1	0
Helminth infection	6	4,799	2	0	4	0
Hepatitis A	4	20,995	0	1	3	0
Impetigo	1	178	1	0	0	0
Respiratory infection	4	2091	3	1	0	0
Scabies	1	178	1	0	0	0
Shigellosis	4	6,349	3	0	0	1
Skin infection	1	1,032	1	0	0	0
Trachoma	1	15,187	0	0	1	0
Weight	1	229	1	0	0	0
Weight-for-height	1	1,963	0	0	1	0
Total	48	126,959	25	7	12	4

Table 4. Description of included studies, by health outcome.

Health outcome	Reference	Study design	Location and setting	Participant age	Water source	Referent water source	Rigor Score
Campylobacteriosis	Molbak et al., 1988	Cohort	Liberia (urban & rural)	6-59 months	Private tap	Other	3
Cholera	Wang et al., 1989	Case-control	China (rural)	All ages	Piped	Surface water	2
Cryptosporidiosis	Checkley et al., 2004	Cohort	Peru (peri-urban)	0-3 years	Piped	Cistern truck, standpipe, or neighbor's source	7
Diarrhea	Aluisio et al., 2015	Cohort	Afghanistan (urban)	1-11 months	Piped to home or well in home	Well outside of home	7
Diarrhea	Bailey and Archer, 2004	Longitudinal	South Africa (rural)	All ages	Yard tap	Communal source, river, rain tank, protected or unprotected spring	4
Diarrhea	Brown et al., 2013	Longitudinal	Vietnam (rural)	All ages	Piped	Other	6
Diarrhea	Bukenya and Nwokolo, 1991	Cohort	Papua New Guinea (urban)	0-5 years	Standpipe in compound	Public supply	6
Diarrhea	Checkley et al., 2004	Cohort	Peru (peri-urban)	0-3 years	Piped	Cistern truck, standpipe, or neighbor's source	7
Diarrhea	Devoto et al., 2011	Longitudinal	Morocco (urban)	All ages	Piped	Public tap, neighbor's tap, or other	7
Diarrhea	Dos Santos et al., 2015	Cross-sectional	Burkina Faso (peri-urban)	0-10 years	Water on premises	Water sources 5-30 minutes away	7
Diarrhea	Fuchs and Victora, 2002	Case-control	Brazil (unspecified)	0-2 years	On plot (indoor or outdoor)	Public running water source or public well/river	6
Diarrhea	Knight et al., 1992	Case-control	Malaysia (rural)	4-59 months	In compound	Outside compound	6
Diarrhea	Molbak et al., 1997	Cohort	Guinea-Bissau (peri-urban)	0-4 years	Private protected* or unprotected source	Public protected or unprotected source	6
Diarrhea	Rajasekaran et al., 1977	Cohort	India (rural)	0-5 years	Piped	Well, standpipe	2
Diarrhea	Ryder et al.,	Cohort	Panama (rural)	0-5 years	Household tap	Stream	5

	1985								
Diarrhea	van der Hoek et al., 2001	Cohort	Pakistan (rural)	0-5 years	Piped or private tubewell	Standpipe or village reservoir	7		
Diarrhea	Wang et al., 1989	Case-control	China (rural)	All ages	Piped	Surface water	2		
Dysentery	Wang et al., 1989	Case-control	China (rural)	All ages	Piped	Surface water	2		
Giardiasis	Checkley et al., 2004	Cohort	Peru (peri-urban)	0-3 years	Piped	Cistern truck, standpipe, or neighbor's source	7		
Giardiasis	Mason et al., 1986	Cross-sectional	Zimbabwe (urban & rural)	6-18 years	Piped	Other (communal sources, unprotected wells, spring)	3		
Height	Checkley et al., 2004	Cohort	Peru (peri-urban)	0-3 years	Piped	Cistern truck, standpipe, or neighbor's source	7		
Height	Henry, 1981	Cohort	St. Lucia (rural)	0-2 years	Piped	Standpipe	4		
Height	Mukalay et al., 2010	Cross-sectional	DR Congo (peri-urban)	0-5 years	On plot	Off premises	4		
Height	van der Hoek et al., 2002	Cohort	Pakistan (rural)	0-5 years	Piped or private tubewell	Standpipe or village reservoir	7		
Helminth infection	Henry, 1981	Cohort	St. Lucia (rural)	0-2 years	Piped	Standpipe	4		
Helminth infection	Mason et al., 1986	Cross-sectional	Zimbabwe (urban & rural)	6-18 years	Piped	Other (communal sources, unprotected wells, spring)	3		
Helminth infection	Nasr et al., 2013	Cross-sectional	Malaysia (rural)	0-15 years	Piped	Other	7		
Helminth infection	Rajasekaran et al., 1977	Cohort	India (rural)	0-5 years	Piped	Well, standpipe	2		
Helminth infection	Steinmann et al., 2010	Cross-sectional	Kyrgyzstan (urban & rural)	6-15 years	Household tap	Other	6		
Helminth infection	Traub et al., 2004	Cross-sectional	India (rural)	All ages	Piped	Communal open-ring well	7		
Hepatitis A	Masuet-Aumatell, et al. 2013	Cross-sectional	Bolivia (urban, rural, & peri-urban)	5-16 years	Household tap	Tanker water	5		
Hepatitis A	Salama et al.,	Cross-	Egypt (urban &	3-18 years	Piped indoors	Public water source	5		

	2007	sectional	peri-urban)				
Hepatitis A	Silva et al., 2005	Cross-sectional	Sri Lanka (unspecified)	0-18 years	Private source	Shared source	4
Hepatitis A	Wang et al., 1989	Case-control	China (rural)	All ages	Piped	Surface water	2
Impetigo	Ryder et al., 1985	Cohort	Panama (rural)	0-5 years	Household tap	Stream	5
Respiratory infection	Bulkow et al., 2012	Case-control	United States (rural)	0-3 years	Running water	Other	7
Respiratory infection	Ryder et al., 1985	Cohort	Panama (rural)	0-5 years	Household tap	Stream	5
Respiratory infection	Singleton et al., 2003	Cohort	United States (rural)	5-8 years	Running water	Other	5
Respiratory infection	Thomas et al., 2016	Cohort	United States (rural)	All ages	Piped	Collected from treatment center	7
Scabies	Ryder et al., 1985	Cohort	Panama (rural)	0-5 years	Household tap	Stream	5
Shigellosis	Hollister et al., 1955	Cohort	United States (rural)	0-10 years	Indoor faucet	Communal outdoor faucet	3
Shigellosis	Rajasekaran et al., 1977	Cohort	India (rural)	0-5 years	Piped	Well, standpipe	2
Shigellosis	Stewart et al., 1955	Cohort	United States (rural)	0-10 years	Outdoor pipe or dug well in center of yard or on premises	Outdoor pipe or dug well far from center of yard or off premises	2
Shigellosis	Watt et al., 1953	Cohort	United States (rural)	0-10 years	Indoor plumbing or yard tap	Communal outdoor faucet	5
Skin infection	Thomas et al., 2016	Cohort	United States (rural)	All ages	Piped	Collected from treatment center	7
Trachoma	Schemann et al., 2002	Cross-sectional	Mali (unspecified)	1-9 years	Well in yard	Other	7
Weight	Henry, 1981	Cohort	St. Lucia (rural)	0-2 years	Piped	Standpipe	4
Weight-for-height	Mukalay et al., 2010	Cross-sectional	DR Congo (peri-urban)	0-5 years	On plot	Off premises	4

*Protected source defined as tap, hand pump, or shallow well with intact apron

Table 5. Rigor assessment results. Studies meeting rigor criteria denoted by “1” or “2” for weighted criteria and studies not meeting criteria denoted by “0.”

Reference	Setting clearly described	Time frame clearly described	Participant selection randomized or systematic	Data collection methods clearly described	Funding or conflict of interest statement	Regression or multivariate analysis (weighted)	Rigor score
Aluisio et al., 2015	1	1	1	1	1	2	7
Bailey and Archer, 2004	0	1	1	1	1	0	4
Brown et al., 2013	1	0	1	1	1	2	6
Bukenya and Nwokolo, 1991	1	1	1	0	1	2	6
Bulkow et al., 2012	1	1	1	1	1	2	7
Checkley et al., 2004	1	1	1	1	1	2	7
Devoto et al., 2011	1	1	1	1	1	2	7
Dos Santos et al., 2015	1	1	1	1	1	2	7
Fuchs and Victora, 2002	0	1	1	1	1	2	6
Henry, 1981	1	0	1	1	1	0	4
Hollister et al., 1955	1	1	1	0	0	0	3
Knight et al., 1992	1	1	1	1	0	2	6
Mason et al., 1986	1	0	0	1	1	0	3
Masuet-Aumatell, et al. 2013	1	1	1	1	1	0	5
Molbak et al., 1997	1	1	0	0	1	0	3
Molbak et al., 1988	1	1	1	0	1	2	6

Mukalay et al., 2010	1	1	0	0	0	0	2	4
Nasr et al., 2013	1	1	1	1	1	1	2	7
Rajasekaran et al., 1977	0	1	0	1	0	0	0	2
Ryder et al., 1985	1	1	1	1	1	1	0	5
Salama et al., 2007	1	1	0	1	0	0	2	5
Schemann et al., 2002	1	1	1	1	1	1	2	7
Silva et al., 2005	0	1	0	1	0	0	2	4
Singleton et al., 2003	1	1	1	1	1	1	0	5
Steinmann et al., 2010	1	0	1	1	1	1	2	6
Stewart et al., 1955	1	1	0	0	0	0	0	2
Thomas et al., 2016	1	1	1	1	1	1	2	7
Traub et al., 2004	1	1	1	1	1	1	2	7
van der Hoek et al., 2002	1	1	1	1	1	1	2	7
van der Hoek et al., 2001	1	1	1	1	1	1	2	7
Wang et al., 1989	1	1	0	0	0	0	0	2
Watt et al., 1953	1	1	1	1	1	1	0	5

Figure

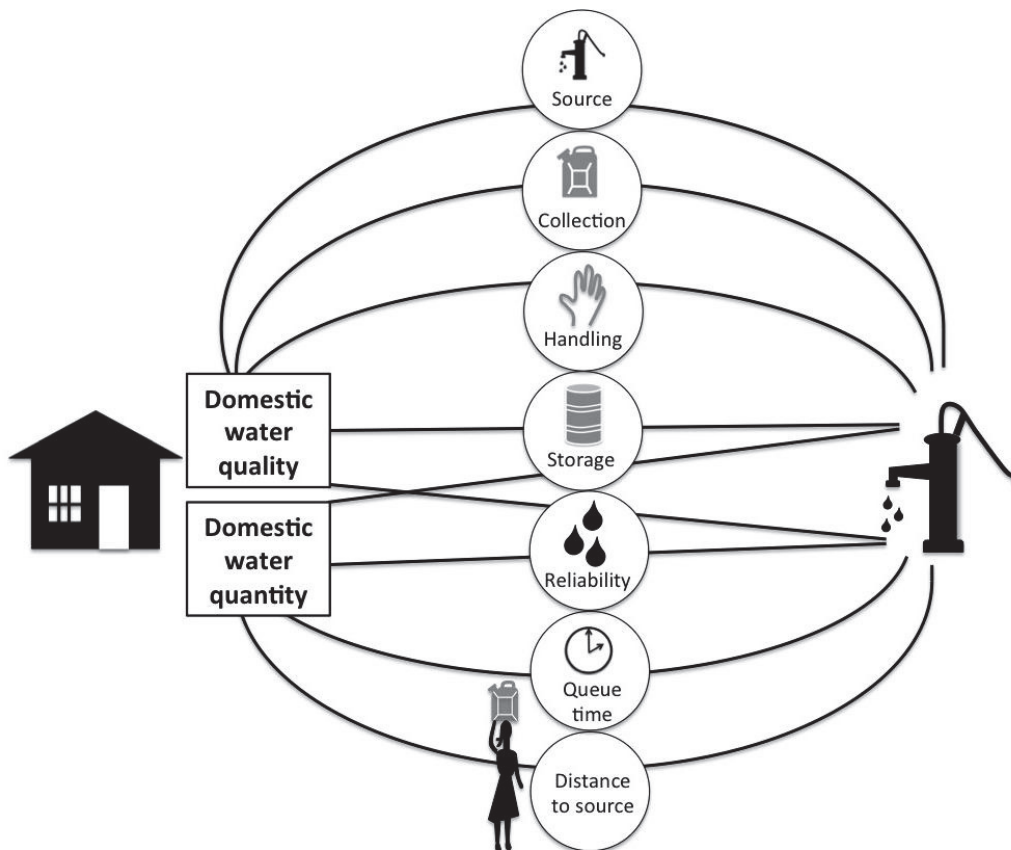


Figure 1. Factors affecting domestic water quality and quantity in off-plot water collection.

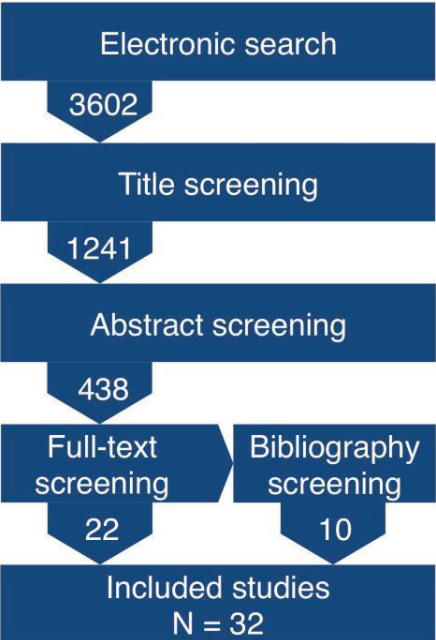


Figure 2. Literature screening and results. Number of search results after removal of duplicates shown.

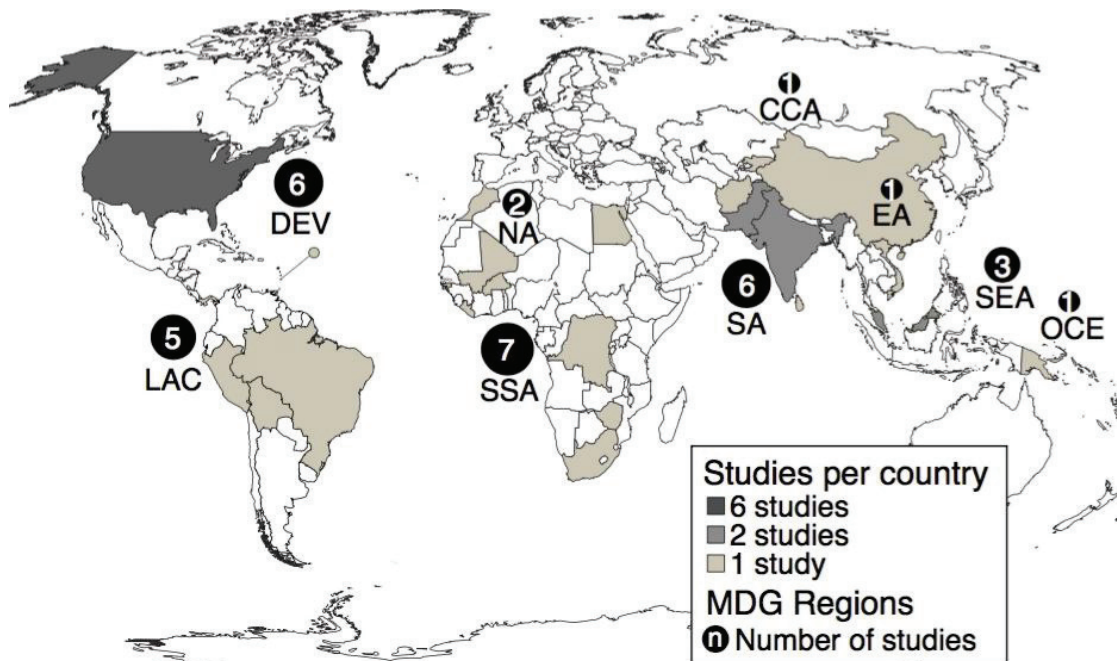


Figure 3. Geographical distribution of included studies.
 List of acronyms: MDG-Millennium Development Goal; DEV-Developed regions; LAC-Latin America and the Caribbean; SSA-Sub-Saharan Africa; NA-Northern Africa; SA-Southern Asia; CCA-Caucasus and Central Asia; EA-Eastern Asia; SEA-Southeastern Asia; OCE-Oceania.

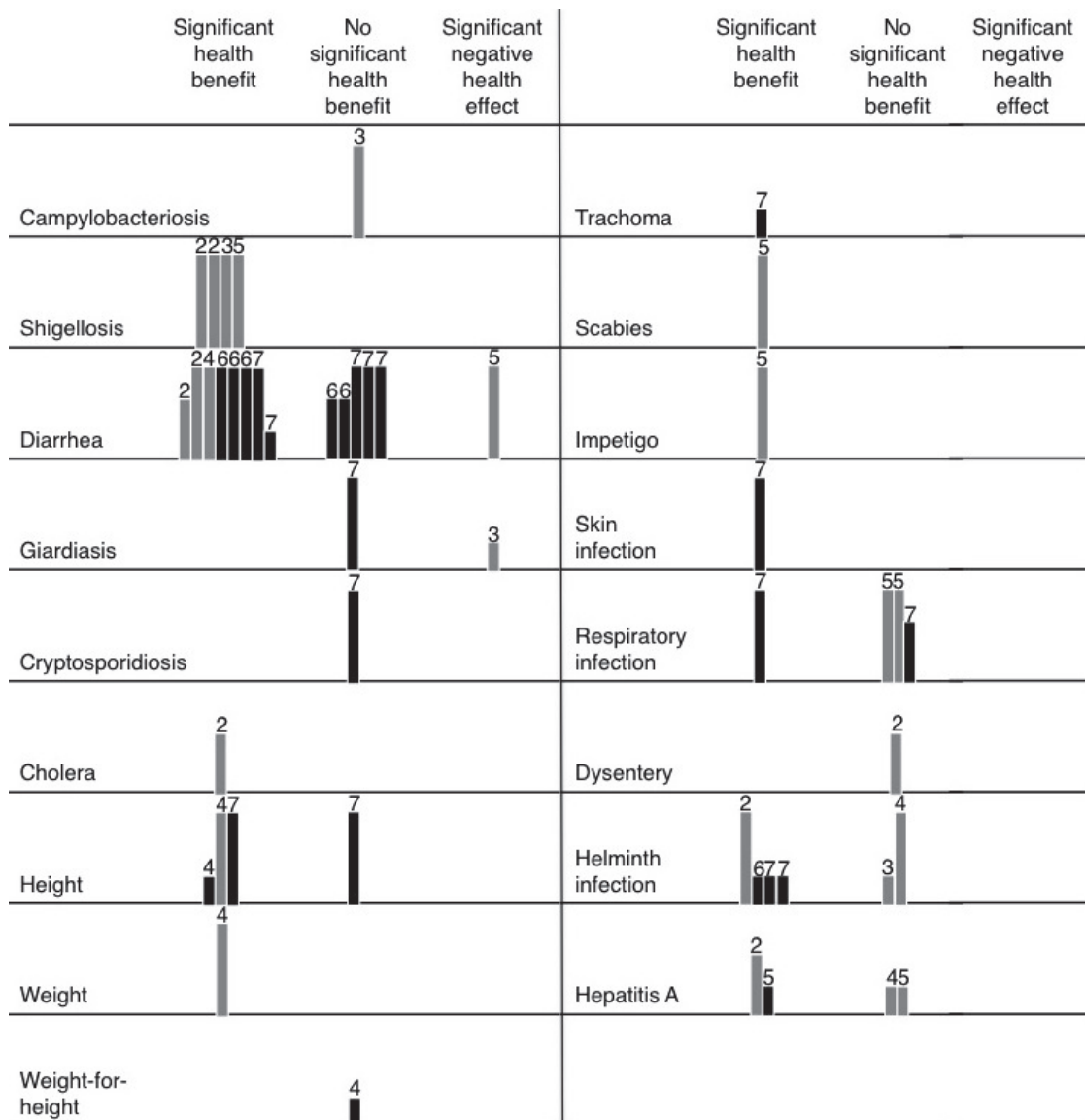


Figure 4. Literature findings on health benefits of on-plot water supplies, by health outcome.

Each study finding is represented by a bar; seven studies reported on multiple health outcomes and are represented more than once. The bar height indicates strength of study design evidence: short bars are cross-sectional; medium-height bars are case-control; and tall bars are longitudinal or cohort studies. The numbers above the bars indicate the study's assessed rigor score (maximum seven). Grey bars represent studies using bivariate, Chi-squared, or t-test in analysis; black bars represent studies with multivariate or logistic analysis. Significant health benefit reported at $p \leq 0.05$ level.