

Supplementary table 1: Search strategy (PubMed)

Search	Query	Records retrieved
#1	("Crohn Disease"[Mesh] OR "Inflammatory Bowel Diseases"[Mesh] OR Crohn Disease[tiab] OR Crohns Disease[tiab] OR Crohn's Disease[tiab] OR Crohn's Enteritis[tiab] OR Crohns Enteritis[tiab] OR Regional Enteritis[tiab] OR Inflammatory Bowel Disease[tiab] OR Granulomatous Enteritis[tiab] OR Ileocolitis[tiab] OR Granulomatous Colitis[tiab] OR Terminal Ileitis[tiab] OR Regional Ileitides[tiab] OR Regional Ileitis[tiab] OR colonoscopy OR small bowel follow through[tiab] OR magnetic resonance enterography[tiab] OR small bowel enterography[tiab] OR barium enema[tiab] OR (transverse fissures AND (colon[tiab] OR bowel[tiab])) OR edema of the bowel[tiab] OR (intra-abdominal abscess[tiab] AND (colon[tiab] OR bowel[tiab])) OR (abdominal CT[tiab] AND ileitis[tiab]) OR stool calprotectin[tiab] OR fecal calprotectin[tiab] OR anti-saccharomyces cerevisiae antibodies[tiab] OR (ulcers[tiab] AND (colon[tiab] OR bowel[tiab])) OR (cobblestone[tiab] AND (colon[tiab] OR bowel[tiab])) OR (skip lesions[tiab] AND (colon[tiab] OR bowel[tiab])) OR (serpiginous[tiab] AND (colon[tiab] OR bowel[tiab])) OR (pseudopolyps[tiab] AND (colon[tiab] OR bowel[tiab])) OR (creeping fat[tiab] AND (colon[tiab] OR bowel[tiab])) OR small bowel stricture[tiab] OR ileal stricture[tiab] OR small bowel obstruction[tiab] OR ostomy[tiab] OR small bowel resection[tiab] OR colectomy[tiab] OR strictureplasty[tiab] OR ileoanal pouch[tiab] OR j pouch[tiab] OR enteric fistula[tiab] OR enterocutaneous fistula[tiab] OR (perianal fissure[tiab] AND (colon[tiab] OR bowel[tiab])) OR (perianal fistula AND (colon[tiab] OR bowel[tiab])) OR (transmural inflammation[tiab] AND (colon[tiab] OR bowel[tiab])) OR (granuloma*[tiab] AND (colon[tiab] OR bowel[tiab])) OR (cryptitis[tiab] AND (colon[tiab] OR bowel[tiab])) OR (crypt abscess[tiab] AND (colon[tiab] OR bowel[tiab])) OR (plasmacytosis[tiab] AND (colon[tiab] OR bowel[tiab])) OR (obliterative muscularization of submucosa[tiab] OR (sulfasalazine[tiab] AND (colon[tiab] OR bowel[tiab])) OR (mesalamine[tiab] AND (colon[tiab] OR bowel[tiab])) OR (budesonide[tiab] AND (colon[tiab] OR bowel[tiab])) OR (anti-TNF[tiab] AND (colon[tiab] OR bowel[tiab])) OR	91,726

	(infliximab[tiab] AND (colon[tiab] OR bowel[tiab])) OR (remicade[tiab] AND (colon[tiab] OR bowel[tiab])) OR (humira[tiab] AND (colon[tiab] OR bowel[tiab])) OR (immunomodulator AND (colon[tiab] OR bowel[tiab])) OR (methotrexate[tiab] AND (colon[tiab] OR bowel[tiab])) OR (asathiopurine[tiab] AND (colon[tiab] OR bowel[tiab])) OR (mercaptopurine[tiab] AND (colon[tiab] OR bowel[tiab]))	
#2	("Developing Countries"[mesh] OR developing countr*[tiab] OR developing nation*[tiab] OR less developed countr*[tiab] OR less developed nation*[tiab] OR third world nation*[tiab] OR third world countr*[tiab] OR under developed nation*[tiab] OR underdeveloped nation*[tiab] OR under developed countr*[tiab] OR underdeveloped nation*[tiab] OR low income countr*[tiab] OR low income nation*[tiab] OR poor countr*[tiab] OR poor nation*[tiab] OR lmic[tiab] OR lmic[tiab] OR Afghanistan*[tiab] OR Angola*[tiab] OR Armenia*[tiab] OR Bangladesh*[tiab] OR Benin[tiab] OR Bhutan*[tiab] OR Bolivia*[tiab] OR Burkina Faso[tiab] OR Burundi*[tiab] OR Cabo Verd*[tiab] OR Cape Verd*[tiab] OR Cambodia*[tiab] OR Cameroon*[tiab] OR Central African*[tiab] OR Chad*[tiab] OR Comoros[tiab] OR Comores[tiab] OR Comores[tiab] OR Congo[tiab] OR Cote d Ivoire[tiab] OR Ivory Coast[tiab] OR Djibouti[tiab] OR Egypt*[tiab] OR El Salvador*[tiab] OR Eritrea*[tiab] OR Ethiopia*[tiab] OR Gambia*[tiab] OR Gaza[tiab] OR Georgia*[tiab] OR Ghana*[tiab] OR Guatemala*[tiab] OR Guinea*[tiab] OR Haiti*[tiab] OR Hondura*[tiab] OR India[tiab] OR Indian*[tiab] OR Indonesia*[tiab] OR Jordan[tiab] OR Kenya*[tiab] OR Kiribati[tiab] OR democratic people's republic of korea[tiab] OR North Korea[tiab] OR Kosovo[tiab] OR Kosovar*[tiab] OR Kyrgyz*[tiab] OR Kirghizia[tiab] OR Kirghiz[tiab] OR Kirgizstan[tiab] OR Lao[tiab] OR Laos[tiab] OR Laotian*[tiab] OR Lesotho[tiab] OR Liberia*[tiab] OR Madagascar*[tiab] OR Malawi*[tiab] OR Mali[tiab] OR Malian[tiab] OR Marshall Island*[tiab] OR Mauritania*[tiab] OR Mauriti*[tiab] OR Micronesia*[tiab] OR Micronesia*[tiab] OR Moldova*[tiab] OR Mongolia*[tiab] OR Morocc*[tiab] OR Mozambique[tiab] OR Myanmar[tiab] OR Burmese*[tiab] OR Burma[tiab] OR Nepal*[tiab] OR Nicaragua*[tiab] OR Niger*[tiab] OR Pakistan*[tiab] OR Palau[tiab] OR Papua New Guinea[tiab] OR Philippin*[tiab] OR Phillippin*[tiab] OR Philipin*[tiab] OR Phillipin*[tiab] OR Principe[tiab] OR Rwanda*[tiab] OR Ruanda*[tiab] OR Sao	701,191

Tome[tiab] OR Senegal*[tiab] OR Sierra Leone*[tiab] OR
Solomon Island*[tiab] OR Somalia*[tiab] OR South
Sudan*[tiab] OR Sri Lanka[tiab] OR Sudan*[tiab] OR
Swaziland*[tiab] OR Syria*[tiab] OR Tajik*[tiab] OR
Tadzhik*[tiab] OR Tadjik*[tiab] OR Tanzania*[tiab] OR
Timor*[tiab] OR Togo*[tiab] OR Tunisia*[tiab] OR
Uganda*[tiab] OR Ukrain*[tiab] OR Uzbeki*[tiab] OR
Vanuatu*[tiab] OR Vietnam*[tiab] OR Viet nam*[tiab] OR
West Bank[tiab] OR Yemen*[tiab] OR Zambia*[tiab] OR
Zimbabw*[tiab])

#3	#1 AND #2	1,699
	Limited to English language	1,575

Supplementary table 2: Data extraction instrument

Study Number	Title/abstract review	Full text review	SS/RR reviewed	Corresponding author email	Title	Conference abstract?	Authors	Journal	
Article type	Publication date	Country	Facility name	Facility type	Sub-National Region	Regional classification	World Bank country income level classification		
Important background info	Study years	Study objective	Study design	Study sample	Results	Conclusions	Limitations		
IBD LLMIC Burden									
Number of cases	Prevalence	Incidence (risk)	Incidence rate	Odds	Mortality rate	DALY rate	Average disease duration		
Crohn's LLMIC Burden									
Number of cases	Prevalence	Incidence (risk)	Incidence rate	Odds	Mortality rate	DALY rate	Average disease duration		
Clinical features									
Age at diagnosis	Sex	Risk factors	Disease severity	Disease behavior	Disease location	Medication CDA I	Extraintestinal manifestations	Comorbidities	Outcomes
Care pathways					Services Available				
Diagnoses	Disease management	Long-term/follow-up care	Complications	Blood tests	Stool tests	Biopsy/tissue pathology	TB testing		
Services Available									

Endoscopy	Radiology/imaging	Medications	Surgeries	Equipment	Providers	Financing
Challenges and barriers						
Diagnostic challenges	Management challenges	Other provider challenges	Access barriers to patients	Financial barriers to patients	Other patient barriers	
Patient demographics						
Age at time of study	Residency (urban vs rural)	SES characteristics		Insurance coverage	Out of pocket costs	

Supplementary table 3: Summary of all studies included in review by world region, country, World Bank income level, and year of publication

Region	Number of studies (%¹)	Country	Number of studies (%¹)		
South Asia	129 (59.7)	India	107 (49.5)		
		Sri Lanka	11 (5.1)		
		Pakistan	9 (4.2)		
		Nepal	4 (1.9)		
		Bangladesh	2 (0.9)		
Middle East & North Africa	67 (31.0)	Tunisia	41 (19.0)		
		Egypt	18 (8.3)		
		Morocco	7 (3.2)		
		Syria	1 (0.5)		
sub-Saharan Africa	16 (7.4)	Nigeria	5 (2.3)		
		Sudan	3 (1.4)		
		Ethiopia	2 (0.9)		
		Kenya	2 (0.9)		
		Uganda	1 (0.5)		
		Cameroon	1 (0.5)		
		Ghana	1 (0.5)		
		Malawi	1 (0.5)		
		East Asia & Pacific	5 (2.3)	Indonesia	3 (1.4)
				Philippines	2 (0.9)
Vietnam	1 (0.5)				
Latin America & the Caribbean	1 (0.5)	Bolivia	1 (0.5)		
Income Level		Number of studies (%)			
Low income		8 (3.7)			
Lower middle income		208 (96.3)			
Publication year		Number of studies (%)			
Before 1970		1 (0.5)			
1970-1979		5 (2.3)			
1980-1989		8 (3.7)			
1990-1999		8 (3.7)			
2000-2009		52 (24.1)			
2010-2019		142 (65.7)			

¹Number of studies do not add up to exactly 100% due to 3 multi-country studies that included countries in both South Asia and East Asia & Pacific

†Countries that do not have any published IBD studies, but have published articles that describe diagnostics or findings associated with IBD

Supplementary table 4. Number of studies reporting utilization of Crohn's disease diagnostic and treatment services by region and country

Country/ Region	Diagnostics							Medical							Surgical						
	En- do- sc- op- y	Pa- th- o- log- y	Ra- di- o- log- y	Blo- od- Tes- tin- g	Sto- ol- Tes- tin- g	TB Tes- tin- g	Tria- l of ATT disc- usse- d	Sur- gica- l/ auto- psy- diag- nosi- s	Clin- ical diag- nosi- s	Cor- tico- ster- oid- s	Ami- no- sali- cylat- es	Imm- uno- mod- ulato- rs	Bio- logi- c age- nts	Nutr- ition al thera- py	Co- lec- t- om- y	Ost- om- y	Sm- all bow- el rese- ctio- n	Ileo- ana- l po- uch	Stri- ctur- e- plas- ty	Un- spe- cifie- d sur- ger- y	Ot- her
Overall (N=216)	112	110	109	117	75	45	15	12	2	77	66	54	26	6	26	6	23	-	5	26	38
South Asia (N=129)	74	66	64	58	37	42	13	6	1	49	40	41	22	4	17	5	13	-	4	15	26
India (N=107)	57	50	50	51	32	37	11	5	-	39	36	36	17	4	12	3	11	-	3	13	20
Sri Lanka (N=11)	7	4	4	3	2	2	-	-	-	5	2	2	3	-	2	1	-	-	-	1	1
Pakistan (N=9)	8	7	5	3	2	1	2	-	-	4	2	2	1	-	2	1	1	-	1	-	2
Nepal (N=3)	2	3	3	1	-	-	-	1	-	1	-	1	1	-	1	-	1	-	-	-	2
Bangladesh (N=2)	-	2	2	-	1	2	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1
Middle East & North Africa (N=67)	22	29	32	48	12	1	-	3	-	20	18	11	4	1	7	-	6	-	1	11	4
Tunisia (N=41)	24	15	17	30	2	-	-	2	-	15	13	8	3	-	5	-	5	-	1	10	1
Egypt (N=18)	15	12	12	14	9	1	-	1	-	5	5	3	1	1	2	-	1	-	-	-	2
Morocco (N=7)	5	2	3	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
sub-Saharan Africa (N=16)	11	12	10	11	9	2	2	3	1	7	6	2	-	1	1	1	3	-	-	-	7

Nigeria (N=5)	3	4	3	4	4	-	-	-	1	4	3	-	-	-	-	-	1	-	-	-	2
Sudan (N=3)	2	2	2	1	1	1	-	1	-	1	1	-	-	-	-	-	-	-	-	-	1
Ethiopia (N=2)	2	2	2	2	1	-	1	1	-	1	1	-	-	-	1	-	1	-	-	-	2
Kenya (N=2)	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Uganda (N=1)	-	1	-	1	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-
Ghana (N=1)	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cameroon (N=1)	1	-	1	1	-	1	-	-	-	-	1	1	-	-	-	1	-	-	-	-	1
Malawi (N=1)	1	1	1	1	1	-	1	-	-	1	-	1	-	1	-	-	-	-	-	-	-
East Asia & Pacific (N=5)	5	3	3	-	-	-	-	-	-	1	2	-	-	-	1	-	1	-	-	-	1
Indonesia (N=3)	3	2	3	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	1
Philippines (N=2)	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Vietnam (N=1)	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-

†Other surgeries include: anastomosis, unspecified anal surgery, and laparotomy

Number of studies do not add up to exactly 100% due to 3 multi-country studies that included countries in both South Asia and East Asia & Pacific

Supplementary table 5: Summary of patient geographic residency, socioeconomic characteristics, insurance coverage, and out of pocket costs by region and country

Region/Country	Study	Geography		Socio-economic conditions			Costs to patients
		Urban	Rural	Lower	Middle	Upper	

South Asia:

India	Bhatt 2009				Mostly middle and upper SES	Mostly middle and upper SES	IBD: cost of medications not a factor - most patients middle and upper SES
	Singh 2010	Patients from cities					
	Balasubramanian 2011	In and around city					
	Pugazhendi 2011	126 (63.0%)	74 (37.0%)		Median SES score (possible range 3 - 28): 22 (IQR 18 - 26)	Median SES score (possible range 3 - 28): 22 (IQR 18 - 26) - higher in those with CD than controls	
	Makharia 2012	Most urban					
	Goel 2013	135 (60.5%)	88 (39.5%)				
	Larsson 2014	More CD patients	More ITB patients	ITB: lower income and education		CD: higher income and education	
	Kamat 2017						15 (60%) private insurance; 10 (40%) uninsured
Tomar 2017				IBD: 98 (31.0%) high school education	IBD: 97 (30.7%) college education		

	Amarapurkar 2018	239 (82.7%)	50 (17.3%)	181 (62.6%) non-graduates; 180 (62.3%) unemployed/unskilled; 242 (83.8%) annual family income <1000000 INR		108 (37.4%) graduates; 109 (37.7%) professional occupation; 47 (16.2%) annual family income >100000 INR	
	Ng 2018 ¹ Kamat 2019	Both	Both				IBD: 14.3% discontinued Adalimumab due to high cost
Sri Lanka	Subasinghe 2010	IBD: 48 (26.1%)	IBD: 136 (73.9%)				
	Ng 2016 ¹ Ng 2018 ¹	Urban Both	Both				
Middle East & North Africa:							
Egypt	Esmat 2014	21 (95.5%)	1 (4.5%)				
Tunisia	Hadrich 2007	20 (51.3%)	19 (48.7%)				
	Ennaifer 2014			IBD: 3 (5%) had no education	IBD: 10 (16.6%) had primary education, 16 (26.6%) had secondary education	IBD: 31 (51.6%) had university education	
	Mrabet 2017			IBD: 37 (34.3%) "bad" SES; 84 (77.8%) illiterate/primary/secondary education; 46 (42.6%) no employment	IBD: 53 (49%) "good" SES; 84 (77.8%) illiterate/primary/secondary education; 62	IBD: 18 (16.7%) "well" SES; 24 (22.2%) university education; 62 (57.4%)	

				(57.4%) employed/ student	employed/ student
	Sahli 2018	IBD: 45 (70.3%)	IBD: 19 (29.7%)		
sub-Saharan Africa:					
Nigeria	Alatise 2012				National Health Insurance Schemes available but does not cover majority of people and does not cover chronic diseases - treatments payed for out of pocket Costs for medications that incurred paid by patients themselves
	Ekwunife 2015				
Ethiopia	Mengesha 1997	6 (85.7%)	1 (14.3%)		
Kenya	Steury 1980		1		
Sudan	Khalifa 2005			4 (33%) low	8 (67%) high/middle
					8 (67%) high/middle
East Asia & Pacific:					
Indonesia	Ng 2016 ¹	Urban			

	Ng 2018 ¹	Both	Both
Philippine	Ng 2018 ¹	Both	Both
s			
Latin America & the Caribbean:			
Bolivia	Rios-Dalenz 1975		Many patients rural

Supplementary table 6: Summary of diagnostic, management, access, and financial challenges and barriers to CD patients and providers in LLMICs

Diagnostic Challenges	Country (Number of studies)	Total Number of studies
Difficulty differentiating between CD and ITB	India (23), Nigeria (3), Sri Lanka (1), Bangladesh (1), Nepal (1), Ethiopia (2), Kenya (1), Pakistan (1), Uganda (1), Sudan (2)	36
Low disease index of suspicion/clinical awareness due to perceived rarity of CD leads to underdiagnosis	Nigeria (5), India (4), Egypt (2), Sri Lanka (1), Ghana (1), Bolivia (1), Ethiopia (1), Sri Lanka (2)	17
Difficulty differentiating between CD and other infectious diseases	Egypt (5), India (6), Nigeria (1), Sri Lanka (1), Kenya (1), Tunisia (1), Pakistan (1)	16
Lack of quality diagnostic facilities and investigational modalities	India (4), Nigeria (1), Egypt (3), Bangladesh (1), Nepal (1), Cameroon (1), Kenya (1), Indonesia (2)	14
Lack of reliable TB testing modalities	India (1), Sri Lanka (1)	2
Difficulty differentiating between CD and UC	India (3), Nepal (1), Nigeria (1), Tunisia (1), Pakistan (1)	7
Diagnosis of CD made on histological exam of resected colon	India (2), Tunisia (1)	3
Management Challenges		
Use of biologics is limited due to cost	India (3)	3
High risk of TB infection reactivation in patients treated with biologics	India (1)	1
Access Barriers		
Lack of access to high quality health care services	India (1), Nepal (1), Bangladesh (1)	3
Lack of access to CD medications	Nigeria (1)	1

Lack of education/knowledge about disease	India (1), Tunisia (1), Sri Lanka (1)	3
Financial Barriers		
Patients unable to afford biologics	India (3)	3
Patients unable to afford treatment in general (medications and surgeries)	India (3), Egypt (2), Sri Lanka (1), Pakistan (1), Ghana (1), Nigeria (1)	9
Lack of insurance coverage	India (3), Nigeria (1)	4
High cost of diagnostic testing	India (2), Sri Lanka (1), Egypt (1)	4

Supplementary table 7 Facilities in LLMICs with published cases of Crohn's disease included in the review

Region	Country	Facility Name	Facility Type	Publications (First author, Year)
South Asia	India (N=252)	All India Institute of Medical Sciences (AIIMS)	Tertiary care hospital	Benjamin, 2008
				Das, 2008 ¹
				Khadgawat, 2008
				Singh, 2010
				Verma, 2010
				Benjamin, 2011
				Gupta, 2012
				Meena, 2013 ¹
				Harsh, 2016
				Kedia, 2016
Padhan, 2016				
Arora, 2017				
Sonika, 2017				
Tomar, 2017				
Agarwal, 2018				
Das, 2018				
Kamat, 2019				
		Amrita Institute of Medical Sciences & Research	Tertiary care hospital	Sathiyasekaran , 2014 ¹ Khan, 2017
		Apollo Children's Hospital	Tertiary care hospital	Sathiyasekaran , 2014 ¹
		Asian Institute of Gastroenterolog y	Specialty referral hospital	Reddy, 2004 Sasikala, 2009 Mahurkar, 2010 Banerjee, 2018 Wang, 2018 Ray, 2010
		B.R. Singh Hospital	Tertiary care hospital	
		Batra Hospital	Tertiary care hospital	Sheikh, 2017
		Bombay Hospital &	Tertiary care hospital	Amarapurkar, 2008

Medical Research Center		Amarapurkar, 2018 ¹
BYL Nair Hospital/TM College Hospital Calcutta National Medical College Century Hospital Cloithram Hospital Christian Medical College & Hospital	Tertiary university hospital Tertiary university hospital Tertiary care hospital Tertiary care hospital Tertiary university hospital	Sonavane, 2018 Amarapurkar, 2018 ¹ Chirantan, 2013 Harikumar, 2008 Jain, 2012 Danda, 2005 Pugazhendi, 2008 Avinash, 2009 Joseph, 2009 Ramadass, 2010 Dutta, 2011 Pugazhendi, 2011 Patra, 2012 Pugazhendi, 2012 Goel, 2013 Goel, 2013a Kabeerdoss, 2013 Baskaran, 2014 Baskaran, 2014a Singh, 2015 Pugazhendi, 2017
Coimbatore Medical College	Tertiary university hospital	Larsson, 2014 ¹
Dayanand Medical College & Hospital	Tertiary university hospital	Sood, 2001 Sood, 2002 Naithani, 2005 Juyal, 2007

Deccan College of Medical Sciences	Tertiary university hospital	Sivaram, 2010
Deenanath Mangeshkar Hospital	Tertiary care hospital	Sathiyasekaran, 2014 ¹
Dr. Mehta's Hospital	Tertiary care hospital	Sathiyasekaran, 2014 ¹
Duncan Hospital	Tertiary care hospital	Howells, 1984
GB Pant Institute of Postgraduate Medical Education & Research (GIPMER)	Tertiary university hospital	Singh, 2015a
Gleneagles Global Hospital, Hyderabad	Tertiary care hospital	Samal, 2004
Government Medical College, Srinagar	Tertiary university hospital	Akhter, 2015
Guru Teg Bahadur (GTB) Hospital/University College of Medical Sciences	Tertiary university hospital	Rathi, 2011
Hinduja National Hospital	Tertiary care hospital	Samant, 2015
Institute of Postgraduate Medicine and Research (IPGME&R)/Seth Sukhlal Karnani Memorial (SSKM) Hospital/PG Hospital	Tertiary university hospital	Ray, 2001 Das, 2008 ¹

Jagjivan Ram Western Railway Hospital	Tertiary care hospital	Amarapurkar, 2004 Baijal, 2015 Amarapurkar, 2018 ¹
Jawaharlal Institute of Post- Graduate Medical Education & Research (JIPMER)	Tertiary university hospital	Das, 1983
Jeevandeep Hospital	Tertiary university hospital	Amarapurkar, 2018 ¹
Kanchi Kamakoti CHILDS Trust Hospital (KKCTH)	Tertiary care hospital	Sathiyasekaran , 2005 Ganesh, 2006 Sathiyasekaran , 2014 ¹
Kasturba Medical College & Hospital	Tertiary university hospital	Pai, 2000 Narayanaredd y, 2013 Kamat, 2017
King Edward Memorial (KEM) Hospital/Seth GS Medical College	Tertiary university hospital	Agrawal, 1974 Suratkal, 1987
Lake City Endoscopy Centre	Standalone endoscopy unit	Amarapurkar, 2018 ¹
Lifeline Multi- Specialty Hospital	Tertiary care hospital	Kantawala, 2012
Lokmanya Tilak Municipal (LTM) Medical College & Hospital (Sion Hospital)	Tertiary university hospital	Patel, 2011 Pandey, 2016 Amarapurkar, 2018 ¹

Madurai Medical College	Tertiary university hospital	Larsson, 2014 ¹
Maharaja Yeshwant (MY) Hospital/Mahatma Gandhi Memorial (MGM) Medical College	Tertiary university hospital	Jain, 2003
Medanta Medicity Hospital	Tertiary care hospital	Sathiyasekaran, 2014 ¹
Milestone Hospital	Tertiary care hospital	Amarapurkar, 2018 ¹
MP Shah Medical College (Irwin group)	Tertiary university hospital	Bandyopadhyay, 2015
Nil Ratan Sircar Medical College & Hospital	Tertiary university hospital	Bandyopadhyay, 2006
PD Hinduja National Hospital and Medical Research Centre	Tertiary care hospital	Shah, 2003 Bhatt, 2009 Desai, 2011 Madnani, 2011 Kalaria, 2015
PSG Institute of Medical Sciences and Research	Tertiary university hospital	Balasubramanian, 2011
Postgraduate Institute of Medical Education & Research (PGIMER)	Tertiary university hospital	Bambery, 1991 Goenka, 1993 Sharma, 2000 Chowdhary, 2002 Kochhar, 2011 Rana, 2013
PVS Institute of Digestive Diseases	Specialty referral hospital	Prakash, 2008
Sanjay Gandhi Postgraduate Institute of Medical	Tertiary university hospital	Thakur, 2003 Mittal, 2006 Ghoshal, 2007 Mittal, 2007

	Sciences (SGPIMS)		Das, 2008 ¹ Ghoshal, 2008 Ahirwar, 2012 Chauhan, 2018
	Sawai Man Singh (SMS) Medical College & Hospital	Tertiary university hospital	
	Shree Balaji Medical College & Hospital	Tertiary university hospital	Gouse, 2018
	Sir Gangaram Hospital	Tertiary care hospital	Sathiyasekaran , 2014
	Sree Gokulam Medical College	Tertiary university hospital	Larsson, 2014 ¹
	Thanjavur Medical College Hospital	Tertiary university hospital	Kolandaivelu, 1984
	Topiwala National Medical College	Tertiary university hospital	Amarapurkar, 2018 ¹
	Thoothukudi Medical College	Tertiary university hospital	Larsson, 2014 ¹
	Wockhardt Hospital	Tertiary care hospital	Amarapurkar, 2018 ¹
Pakistan (N=16)	Aga Khan University Hospital	Tertiary university hospital	Abbas, 2004 Aziz, 2017
	Army Medical College	Military university hospital	Ullah, 2001
	Combined Military Hospital Lahore	Tertiary military hospital	Rafi, 2008
	KRL Hospital	Tertiary care hospital	Khushbakht, 2012
	Rawalpindo General Hospital/Rawal pindo Medical College (Benazir Bhutto Hospital)	Tertiary university hospital	Zahid, 1989

Sri Lanka (N=14)	Shifa International Hospital	Tertiary care hospital	Rehman, 2015
	Sindh Institute of Urology & Transplantation (SIUT)	Specialty health institute	Lail, 2016
	Colombo North Teaching Hospital	Tertiary university hospital	Niriella, 2018 ¹
	Colombo South Teaching Hospital	Tertiary university hospital	Weerasekara, 2011
	District Base Hospital Dambulla	Secondary care hospital	Niriella, 2018 ¹
	District Base Hospital Dickoya	Secondary care hospital	Kalubowila, 2018 ¹
	District Base Hospital Gampola	Secondary care hospital	Kalubowila, 2018 ¹
	District Base Hospital Rikillagaskada	Secondary care hospital	Kalubowila, 2018 ¹
	District General Hospital Matale	Secondary care hospital	Kalubowila, 2018 ¹
	District General Hospital Nawalapitiya	Secondary care hospital	Kalubowila, 2018 ¹
	District General Hospital Nuwaraeliya	Secondary care hospital	Kalubowila, 2018 ¹
	Lady Ridgeway Hospital for Children	Tertiary care hospital	Herath, 2011
	National Hospital of Sri Lanka	Tertiary care hospital	Subasinghe, 2010
	Srimawo Bandaranaike Children's Hospital	Tertiary care hospital	Jayarajah, 2016 Niriella, 2018 ¹

		Teaching Hospital Kandy (second National Hospital of Sri Lanka)	Tertiary university hospital	Kalubowila, 2018 ¹ Niriella, 2018 ¹
		Teaching Hospital Karapitiya	Tertiary university hospital	Niriella, 2018 ¹
		Teaching Hospital Peradeniya	Tertiary university hospital	Abeysekera, 2007 Kalubowila, 2018 ¹
		University of Kelaniya Department of Surgery	Tertiary university hospital	Niriella, 2016
	Bangladesh (N=5)	Dacca Medical College	Tertiary university hospital	Nath, 2013 ¹
		Institute of Postgraduate Medicine and Research	Tertiary university hospital	Nath, 2013 ¹
		Sir Salimullah Medical College	Tertiary university hospital	Nath, 2013 ¹
	Nepal (N=5)	BP Koirala Institute of Health Sciences	Tertiary university hospital	Karki, 2009 Pandit, 2018
		Nepal Medical College and Teaching Hospital	Tertiary university hospital	Upadhyay, 2017
Middle East & North Africa (N=85)	Tunisia (N=43)	Charles Nicolle Hospital of Tunis	Tertiary care hospital	Ben Aleya, 2009 ¹ Ben Aleya, 2009a Khazen, 2009 Marrakchi, 2009 Marrakchi, 2009a Sfar, 2010

		Ben Aleya, 2011 ¹
		Gorgi, 2011 ¹
		Boussorra, 2013
Farhat Hached University Teaching Hospital	Tertiary university hospital	Ben Salah, 2013
Habib Thameur Hospital	Tertiary care hospital	Ouakaa- Kchaou, 2013 Ehsen, 2016
Hedi Chaker University Hospital	Tertiary university hospital	Hadrich, 2007 Bouزيد, 2011 Bouزيد. 2011a Bouزيد, 2012 Bouزيد, 2012a Bouزيد, 2013 Bouزيد, 2013a Bouزيد, 2013b Kamoun, 2013 Bouزيد, 2014 Feki, 2017 Ben Jemaa, 2019
La Rabta Hospital	Tertiary university hospital	Zouiten- Mekki, 2005 Zouiten- Mekki, 2007 Ben Aleya, 2009 ¹ Zouiten- Mekki, 2009 Ben Aleya, 2011 ¹ Gorgi, 2011 ¹ Kallel, 2011 Mebazaa, 2012 Melaouhia, 2012 Hadj Taieb, 2013 Makni, 2017 Rym, 2014

Egypt (N=31)	Mongi Slim University Hospital Sahloul University Teaching Hospital, Sousse Sfax Hospital	Tertiary care hospital	Hefaiiedh, 2015
	University of Tunisia Gastroenterolog y Department Ain Shams University Hospital	Tertiary university hospital	Hammami, 2016 Kraiem, 2016 Mrabet, 2017 Mnif, 2010
	Alexandria Main University Hospital	Tertiary university hospital	Sahil, 2018
	Assiut University Hospital	Tertiary university hospital	Omnia, 1991 Hesham, 2011 Tawhida, 2011 Monib, 2015 Ali, 2009 Afifi, 2012 Elhusseiny, 2018 Salama, 2019
	Cairo University Hospital	Tertiary university hospital	El-Badry, 2010 Fawzy, 2013 Esmat, 2014 Salah, 2016 Elaziz, 2018 Rafat, 2017
	El-Hussein University Hospital (Al- Azhar University) Kafrelsheikh University Hospital Kasr Al-Aini Hospital Sohag University Hospital	Tertiary university hospital	Salama, 2018 ¹ Wahab, 2010 Hussein, 2006 Elbatea, 2011

		Tanta University Hospital	Tertiary university hospital	Salama, 2018 ¹
		Zagazig University Hospital	Tertiary university hospital	Salama, 2018 ¹
	Morocco (N=8)	Avicenne Hospital Rabat	Tertiary university hospital	Hama, 2012
		Centre Hospitalier Universitaire (CHU) Ibn Rochd Hospital (Averroes Hospital)	Tertiary university hospital	Senhaji, 2013 Serbati, 2014 Serbati, 2014a Senhaji, 2015 Senhaji, 2017 Zaid, 2018
	Syria (N=1)	Aleppo University Hospital	Tertiary university hospital	Nasser, 2015
sub-Saharan Africa (N=48)	Nigeria (N=13)	Ahmadu Bello University Teaching Hospital	Tertiary university hospital	Khwaja, 1982 Ukwenya, 2011
		Motayo Hospital Limited	Tertiary care hospital	Adi, 2010
		Nnamdi Azikiwe University Teaching Hospital	Tertiary university hospital	Alatise, 2012 ¹
		Obafemi Awolowo University Teaching Hospital	Tertiary university hospital	Alatise, 2012 ¹
		University College Hospital, Ibadan	Tertiary university hospital	Lewis, 1972 Alatise, 2012 ¹
	Sudan (N=4)	Ibn Sina Specialized Hospital	Specialty referral hospital	Arabi, 2018

		Khartoum Civil Hospital/University of Khartoum	Tertiary university hospital	Masri, 1975
		National Centre for Gastrointestinal & Liver Disease	Specialty referral hospital	Khalifa, 2005
	Ethiopia (N=3)	Armed Forces General Hospital	Military hospital	Kefenie, 1987
		Tikbur Anbessa (Black Lion) Hospital	Tertiary hospital	Mengesha, 1997
	Kenya (N=3)	Kenyatta National Hospital	Tertiary university hospital	Ogutu, 1998
		Tenwek Hospital	Referral mission hospital	Steury, 1979
	Uganda (N=2)	Mbale Hospital	Tertiary care hospital	Kibaya, 1946
	Cameroon (N=1)	St. Elizabeth Catholic General Hospital	Rural mission hospital	Alegbeleye, 2019
	Ghana (N=1)	Korle Bu Teaching Hospital	Tertiary teaching hospital	Nkrumah, 2008
	Malawi (N=1)	Queen Elizabeth Central Hospital	Tertiary care hospital	Manda, 2018
East Asia & Pacific (N=13)	Indonesia (N=6)	Dr. Soetomo Hospital	Tertiary care hospital	Oesman, 1988
	Philippines (N=3)	De La Salle University Medical Center (DLSUMC)	Tertiary university hospital	Mariano, 2013
	Vietnam (N=1)	Hue University Hospital	Tertiary university hospital	Quang, 2017
Latin America & the Caribbean (N=2)	Bolivia (N=1)	Hospital Metodista	Community hospital	Rios-Dalenz, 1975 ¹
		Hospital Obrero	Social security hospital	Rios-Dalenz, 1975 ¹

**¹Study that includes
multiple facilities**

**Countries that do not have any facility-based studies or
do not specify the facility are not included in this table**
