Supplementary Information

Revisiting the donor screening protocol of fecal microbiota transplantation (FMT): A systematic review

Supplementary Materials and Methods

Protocol development

This systematic review was carried out according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis PRISMA statement and the published International Platform of Registered Systematic Review and Meta-analysis Protocols (INPLASY) with registration number INPLASY2021120063.

Search strategy

A comprehensive search and systematic literature review were performed using 3 bibliographic databases namely, EMBASE and MEDLINE through PubMed and WEB of SCIENCE for the last decade, using the search terms, ("Faecal microbiota transplantation" OR "FMT" OR "bacteriotherapy" OR "gut microbiota transplantation" OR "fecal transplantation" OR "intestinal microbiota transfer") along with the term "AND" separately with ("Clostridioides difficile" OR "C. difficile"), and ("Inflammatory bowel disease" OR "IBD" OR "Crohn's disease" OR "Ulcerative colitis" OR "UC"). The same search term was used in all databases to retrieve the data for this review. Additionally, we have reviewed all international consensus documents and local guidelines published in English, on the topic of interest.

Eligibility criteria

The PICOS (Population, Intervention, Comparator, Outcomes, and Study Design) approach was used to guide the determination of the eligibility criteria.

Population: The current study intended to review three major adult population (> 18 years) categories (1) laboratory-confirmed diagnosis of *C. difficile* colitis (severe or complicated CDI), (2) ≥2 laboratory-confirmed relapses of *C. difficile* colitis after receipt of initial specific antimicrobial treatment, (3) Ulcerative colitis and inflammatory bowel disease was diagnosed based on clinical, endoscopic, and histological criteria

Interventions: Single or multiple FMT in patients/populations with the above underline medical conditions were included. All FMT administration routes were considered including; colonoscopy, oral gavage, naso-duodenal tube, and enema. The fresh, frozen or encapsulated samples that were used in FMT along with related or unrelated donors were also included where adequate information was disseminated in the donor screening procedure.

Comparator: Since this is a qualitative analysis and the primary objective is to analyze donor screening procedures, the presence of a comparator is not applicable.

Outcomes: Primary outcome of this review is to rationalize rigorous donor screening procedures suitable for the Western-pacific region including assessing the optimal strategy to detect ESBL-producing bacteria due to their high prevalence rates in the region, including other MDROs.

Study design: The review included all types of observational (retrospective and prospective) and clinical (randomized control, interventional, cohorts, case reports, and case series studies) studies on FMT against aforementioned (*C. difficile*, UC, and IBD) gut-related diseases.

Excluding criteria: We excluded reviews, editorials, and letters to the editor or commentaries that did not provide precise and sufficient information for the donor screening analysis. Furthermore, the FMT applications for pediatric patients were also excluded due to the inability to compare the outcomes with the adult's stable gut microbiota. Non-English articles and FMT applications other than *C. difficile*, ulcerative colitis, and Inflammatory bowel disease were also excluded, as our research group already published a systematic review and meta-analysis for the application of FMT in AMR remission and lack of evidence for other applications of FMT. Additionally, we refrain from including the relevant articles already reviewed by Lai et al [Lai CY, Sung J, Cheng F, et al. Systematic review with Meta-analysis: Review of donor features, procedures and outcomes in 168 clinical studies of Faecal Microbiota Transplantation. Aliment Pharmaco & Therapeu 2019;49:354–63. doi:10.1111/apt.15116], as this manuscript is an update and extension of the dynamically evolving donor screening procedures.

Assessment of risk of bias for the included studies

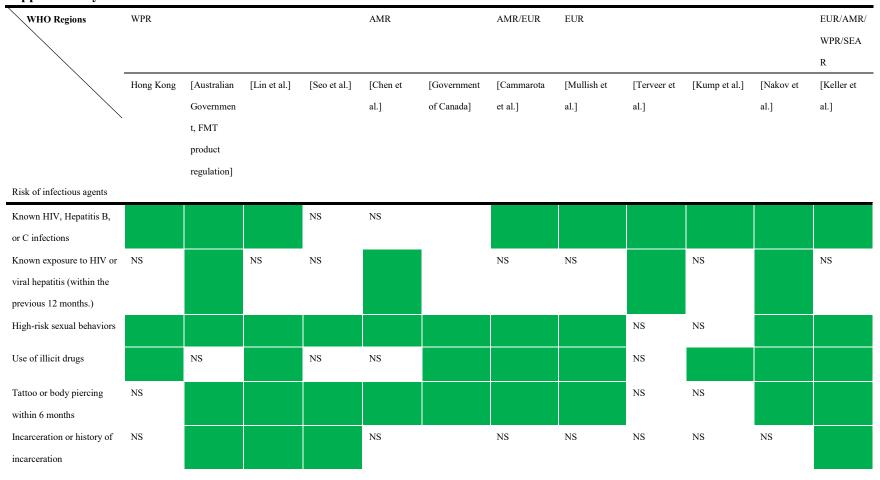
Two reviewers (RN, and PD) independently assessed the eligibility of all articles and this was performed using the https://www.covidence.org online platform. The article selection process included two stages. At stage 1, the, titles and abstracts were reviewed by one research staff (PD) and one supervisor (RN). At this stage, two reviewers met to discuss the uncertainties of the citations. Thereafter, the full-text articles were reviewed to judge the entitlement by two reviewers at stage 1 (PD and RN) and by a senior supervisor MI. Each study was read in full by each reviewer and assessed for inclusion. Full texts that did not fulfill the priori-defined inclusion criteria were excluded. Disagreements regarding inclusion in the final review were resolved through discussion with senior reviewer MI.

The quality of the randomized control trials, case series, cohorts, and case studies was assessed using the JBI critical appraisal checklist which looks at 13, 10, 11, and 8 critical aspects, respectively for the possibility of bias in its design, conduct, and analysis [Critical appraisal tools. JBI. https://jbi.global/critical-appraisal-tools (accessed 12 Nov2022)]. The studies with the selection "No" (Red color boxes) for at least 3 questions in the appraisal form were considered to pose a lack of integrity in the study design, hence excluded from data abstraction and reviewing. Decisions regarding study eligibility and quality were made by two reviewers, and any disagreements were resolved by discussion.

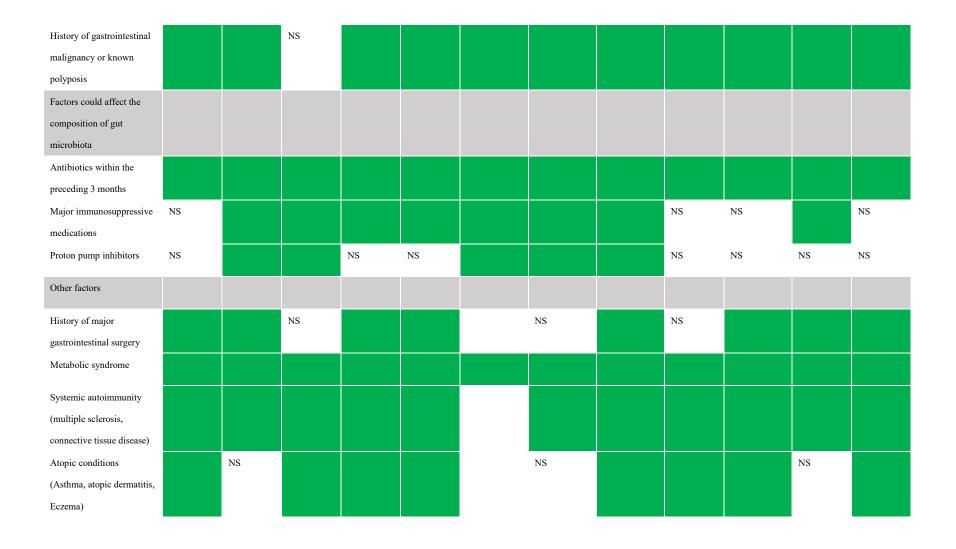
Data extraction

Two researchers (RN and PD) developed an individual data abstraction spreadsheet using Excel version 2016 (Microsoft Corporation, Redmond, Washington, USA) and conducted the data abstraction for the included full-text articles and the consensus documents. After this, the data were independently assessed by the review authors. We gathered the following information: type of study, period, place of conduct, type of donor, donor screening timeline (where applicable), pre-screening questionnaire, and list of blood and stool tests.

Supplementary Table 1



Known current	NS	NS	NS	NS		NS	NS	NS		NS	NS
communicable disease											
Risk factors for variant	NS										
Creutzfeldt-Jakob disease									_		
Travel (within the last 6									NS		
months) to high-risk											
countries with travelers'											
diarrhea											
Recent needle stick				NS	NS			NS	NS		
accident											
Receiving blood	NS			NS	NS			NS	NS		
products/transfusion											
Gastrointestinal co-											
morbidities											
History of inflammatory			NS	NS				NS		NS	
bowel disease											
History of irritable bowel			NS	NS				NS		NS	
syndrome, idiopathic											
chronic constipation, or											
chronic diarrhea											





WHO regions: AMR (Regions of the Americas); SEAR (South-East Asian Region); EUR (European Region); WPR (Western Pacific Region); NS: Not stated

Footnote:

Australian Government, Department of Health and Aged care, Fecal microbiota transplant product regulation. https://www.tga.gov.au/products/biologicals-blood-and-tissues-and-advanced-therapies/biologicals/faecal-microbiota-transplant-products-regulation (accessed 14December 2022)

Lin T-C, Hung Y-P, Ko W-C, et al. Fecal microbiota transplantation for clostridium difficile infection in Taiwan: Establishment and implementation. Journal of Micro, Immunoy and Infec 2019;52:841–50. doi:10.1016/j.jmii.2019.08.009

Seo HS, Chin HS, Kim Y-H, et al. Laboratory aspects of donor screening for fecal microbiota transplantation at a Korean fecal microbiota bank. Anna Labo Med 2021;41:612–. doi:10.3343/alm.2021.41.6.612

Chen J, Zaman A, Ramakrishna B, et al. Stool banking for fecal microbiota transplantation: Methods and operations at a large stool bank. Published Online First: 2020. doi:10.1101/2020.09.03.20187583

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Cammarota G, Ianiro G, Kelly CR, et al. International consensus conference on stool banking for faecal microbiota transplantation in clinical practice. Gut 2019;68:2111–21. doi:10.1136/gutjnl-2019-319548

Mullish BH, Quraishi MN, Segal JP, et al. The use of faecal microbiota transplant as treatment for recurrent or refractory clostridium difficileinfection and other potential indications: Joint British Society of Gastroenterology (BSG) and Healthcare Infection Society (HIS) guidelines. Gut 2018;67:1920–41. doi:10.1136/gutjnl-2018-316818

Terveer EM, van Beurden YH, Goorhuis A, et al. How to: Establish and run a stool bank. Clin Microy and Infec 2017;23:924–30. doi:10.1016/j.cmi.2017.05.015

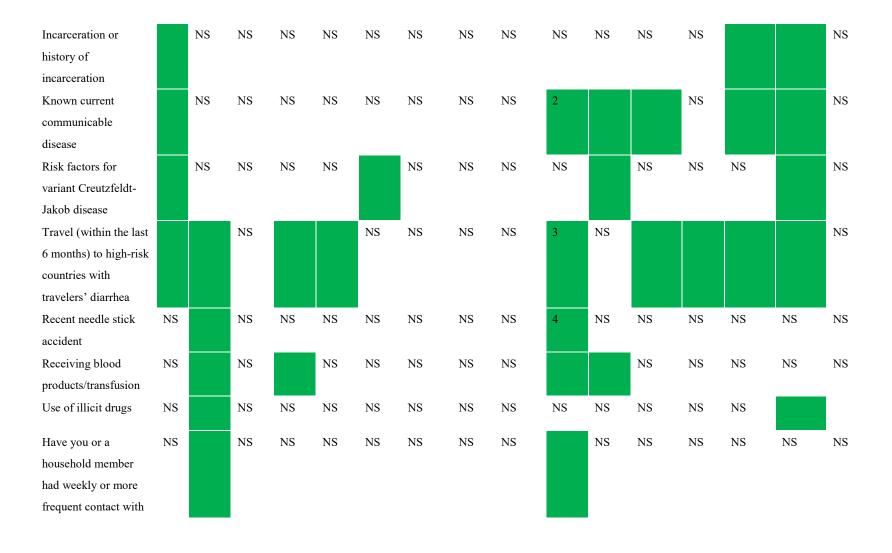
Kump PK, Krause R, Allerberger F, Högenauer C. Faecal microbiota transplantation—the Austrian approach. Clin Micro and Infec 2014; 20:1106–11

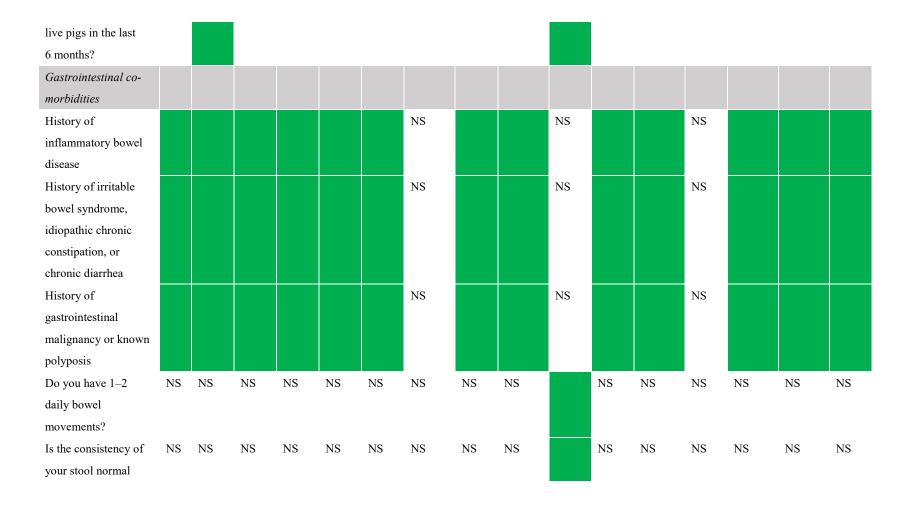
Nakov R, Lyutakov I., Mitkova A, Gerova V, et al. Establishment of the first stool bank in an Eastern European country and the first series of successful fecal microbiota transplantations in Bulgaria. Euro Rev for Med and Pharmacol Sci 2021; 25: 390-396

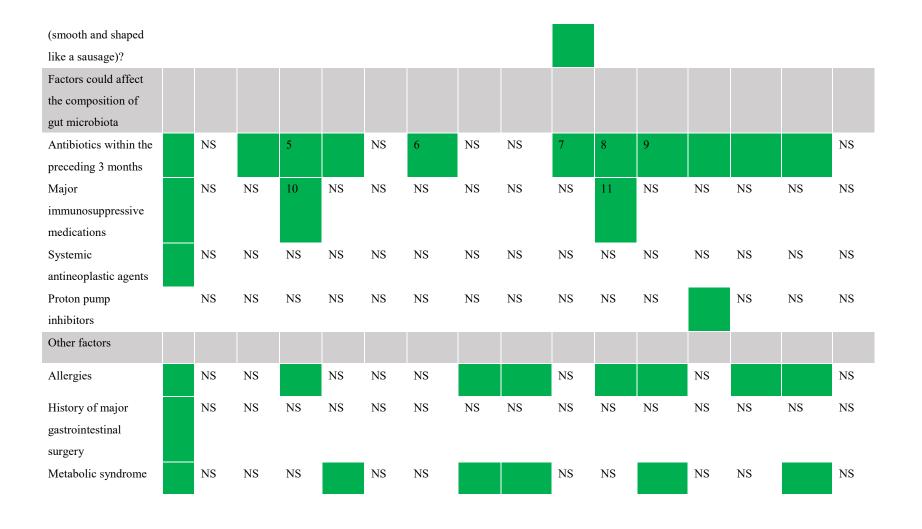
Keller JJ, Ooijevaar RE, Hvas CL, Terveer EM, Lieberknecht SC, Högenauer C, Arkkila P, Sokol H, Gridnyev O, Mégraud F, et al. A standardised model for stool banking for faecal microbiota transplantation: A consensus report from a multidisciplinary UEG Working Group. Uni Europ Gastroentero J 2021; 9:229–47.

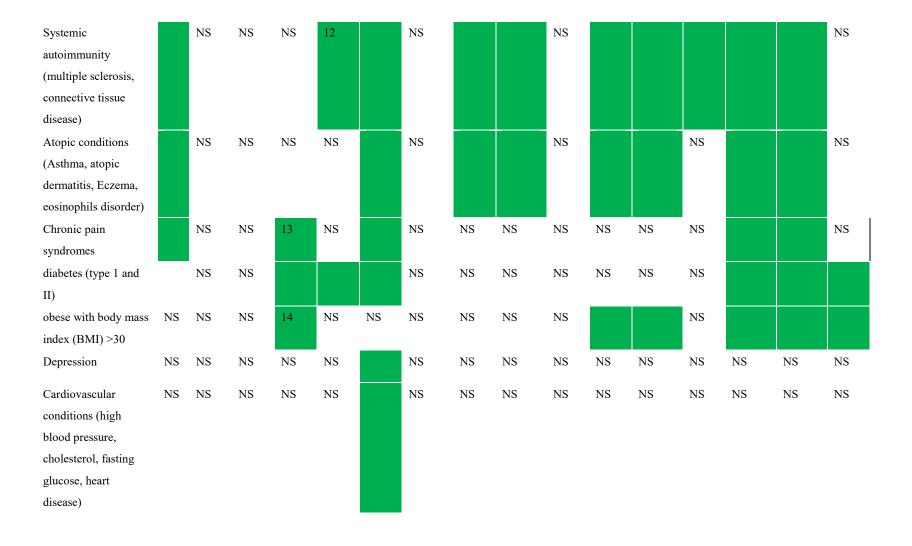
Supplementary Table 2

WHO regions	Region of America			European Region										Other reg	gions	
References	[Stal	[Jiang	[Lynch	[Hvas	[Kachlí	[McCu	[Nowak	[Reiga	[Reigada	[Rode	[Sokol	[Terveer	[Březin	[Costello	[Azimira	[Lee et
	ey et	et al.]	et al.]	et al.]	ková et	ne et	et al.]	das et	et al.]	et al.]	et al.]	et al.]	a et al]	et al.]	d et al.]	al.]
	al.]				al.]	al.]		al.]								
Risk of infectious																
agents																
Known HIV,		NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	NS	NS	NS
Hepatitis B, or C																
infections																
Known exposure to		NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS	NS	NS	NS
HIV or viral hepatitis																
(within the previous																
12 months.)																
High-risk sexual			NS				NS	NS	NS	1	NS	NS	NS			
behaviors																
Use of illicit drugs		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS			NS
			NG	NG		NG	NG	NG	NG		NG	NG	NG	NG		
Tattoo or body			NS	NS		NS	NS	NS	NS		NS	NS	NS	NS		
piercing within 6																
months																









Actively smoke	NS		NS													
Eating disorders	NS	NS	NS	NS	NS		NS									
(anorexia and																
bulimia)																
Schizophrenia or	NS	NS	NS	NS	NS		NS									
delusion disorder																
Have you been	NS			NS	NS	NS	NS	NS								
pregnant? (Date of																
birth/abortion)																
Hemorrhoid disease	NS		NS	NS	NS	NS	NS									
History of typhoid	NS		NS	NS	NS	NS	NS									
fever infection																
Vegetarian or specific	NS		NS	NS	NS	NS	NS									
diet																
Autism	NS		NS		NS	NS										

¹Have you ever had sexual contact with another man? (Question only for men); ²Infectious disease including MRSA or close contact with MRSA infected patient; ³Have you travel outside to Denmark, Scandinavia, and Germany?; ⁴shared a syringe or needle with others?; ⁵Antibacterials, antifungals or antivirals; ⁶Antibiotic within preceding 2 months; ⁷Antibiotics within the preceding 3 months; ⁸ Including viral infection (7 days before screening) /HSV and/or papillomavirus anal lesions; ⁹Antibiotics within the preceding <6 months; ¹⁰Any kind of medication including non-steroidal anti-inflammatory drugs; ¹¹Antifungal drugs too; ¹²Systemic rheumatic diseases; ¹³Any sort of chronic disease; ¹⁴BMI >28 Kg/m²;

Footnote:

Staley C, Halaweish H, Graiziger C, Hamilton MJ, Kabage AJ, Galdys AL, Vaughn BP, Vantanasiri K, Suryanarayanan R, Sadowsky MJ, et al. Lower endoscopic delivery of freeze-dried intestinal microbiota results in more rapid and efficient engraftment than oral administration. *Scient Repo* 2021; 11

Jiang Z-D, Jenq RR, Ajami NJ, et al. Safety and preliminary efficacy of orally administered lyophilized fecal microbiota product compared with frozen product given by enema for recurrent clostridium difficile infection: A randomized clinical trial. PLOS ONE 2018;13. doi:10.1371/journal.pone.0205064

Lynch SM, Mu J, Grady JJ, Stevens RG, Devers TJ. Fecal microbiota transplantation for clostridium difficile infection: A one-center experience. Digestive Dis 2019; 37:467–72.

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McCune VL, Quraishi MN, Manzoor S, et al. Results from the first English stool bank using faecal microbiota transplant as a medicinal product for the treatment of Clostridioides difficile infection. EClin Med2020;20:100301. doi:10.1016/j.eclinm.2020.100301

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Sokol H, Landman C, Seksik P, et al. Fecal microbiota transplantation to maintain remission in crohn's disease: A pilot randomized controlled study. Microbiome 2020;8. doi:10.1186/s40168-020-0792-5

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Lee S, Drennan K, Simons G, Hepple A, Karlsson K, Lowman W, Gaylard PC, McNamara L, Fabian J. The 'ins and outs' of faecal microbiota transplant for recurrent clostridium difficile diarrhoea at wits donald gordon medical centre, Johannesburg, South Africa. South Afr Medl Jl 2018; 108:403

Supplementary Table 3. National consensus (Laboratory tests)

EUR	EUR/AMR AMR	EUR/AMR/WPR WPR WPR	
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								/SEAR				
	[Mullish	[Terveer et	[Kump et	[Nakov et	[Cammarota	[Chen et	[Government	[Keller et al.]	Hong	[Australian	[Lin et al.]	[Seo et
	et al.]	al.]	al.]	al.]	et al.]	al.]	of Canada]		Kong	Government,		al.]
										FMT		
										product]		
Blood Tests												
Testing for viruses												
Hepatitis A	1	1	1	1		1	NS	1	1		1	1
Hepatitis B	2, 2a	2, 2a	2a	2a		2a, 2b		2	2, 2a	2c	2, 2a, 2b	2
Hepatitis C	3	3	3	3		3		3	3	3a	3	3
Hepatitis E	4	4	NS	4		NS	NS		4	NS	NS	NS
HIV I and II												
Human T-cell	NS		NS	NS	NS			NS				NS
lymphoma virus												
Cytomegalovirus	5*	5a	*		NS	NS	NS		NS	NS	5a	
(CMV)												
Epstein-Barr virus	*		NS		NS	NS	NS	NS	NS	NS		
Testing for bacteria												
Treponema pallidum						6					6	6
Test for parasites												
Entamoeba histolytica,		NS	NS	NS	NS		NS	NS	NS	NS		NS
Toxoplasma gondii	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS

Strongyloides			NS	NS			NS	NS	NS		NS	NS
stercoralis												
Other testes												
Complete blood count		NS	NS				NS					
C-reactive proteins		NS	NS		NS	NS	NS					
Erythrocyte		NS	NS		NS	NS	NS	NS		NS		
sedimentation rate												
Renal function test		NS	NS			NS	NS			NS		
Liver function test		NS	NS				NS					
Stool tests												
Testing for viruses												
Rotavirus												
Norovirus	7	7	7			7		7	7		7	7
Adenovirus	NS		NS					NS	NS	NS		
Astrovirus	NS		NS		NS							
Sapovirus	NS		NS									
Enterovirus	NS		NS		NS							
Parechovirus	NS		NS		NS							
Testing for bacteria												
Salmonella spp	8	8, 8a	8	8	8	8	8	8	8	8	8	8a
Shigella spp	9	9, 9a	9	9	9	9	9	9	9	9	9	9a
Yersinia spp						NS			NS	NS		
						•			-			

Campylobacter spp	10	10, 10a	10	10	10	10	10	10	10	10	10	10a
Vibrio species	NS	NS	NS	NS						NS		
C. difficile	11	11					NS		11			NS
H. pylori	12	12	NS						12			12a
Aeromonas spp.,	NS		NS	NS	NS			NS	NS	NS	NS	
E.coli 0157 (Shiga	NS	NS	NS	NS	NS			NS		NS	NS	NS
toxin-producing E.												
coli (STEC)												
Verotoxin-			NS						NS	NS	NS	NS
producing/Shiga toxin-												
producing <i>E. coli</i>												
MDR Bacteria												
ESBL producing			NS								NS	
Enterobacteriaceae												
VRE	**	**	NS									
CPE		**	NS									
(CRE/KPC/NDM,OXA												
48)												
MRSA	**	**	NS			NS					NS	
MDR A. baumanni	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS
aminoglycoside and	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
quinolone resistant												

Enterobacterales

Testing for parasites												
Cyclospora	13	NS	NS		NS		NS		13	NS	NS	NS
Isospora		NS	NS				NS	14		NS	NS	NS
Giardia spp	15	15b***	15			15a	NS		15			15b
Cryptosporidium spp		16***					NS				NS	16
Strongyloides	NS	***	NS	NS	NS	NS	NS	17	NS	NS	NS	17
Microsporidium spp,		***	NS				NS	NS		NS	NS	NS
Entamoeba histolytica	NS		NS		NS	NS	NS					
Llight microscopy for				NS				NS		NS		NS
ova, cysts												
Other tests												
Feacal occult blood	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	
testing					_							
Calprotectin	NS	NS	NS		NS	NS	NS	NS	NS	NS	NS	NS

¹IgM immunoassay; ²Hepatitis B surface antigen test; ^{2a}Hepatitis B core antibody test; ^{2b}Hepatitis B antibody; ^{2c}Nucleic acid amplification test; ³Anti hepatitis C immunoassay; ^{3a}Nucleic acid amplification test; ⁴IgM immunoassay; ⁵CMV IgG and IgM; ^{5a}CMV IgM only; ⁶Rapid plasma regain test; ⁷PCR; ⁸Culture; ^{8a}Salmonella PCR; ⁹Culture; ^{9a} Shigella PCR; ¹⁰Culture; ^{10a}Campylobacter PCR; ¹¹PCR; ¹²Stool antigen test, ^{12a}nested PCR; ^{13,14}Acid fast staining; ¹⁵Fecal Giardia antigen; ^{15a}Enzyme immunoassay; ^{15b} PCR; ¹⁶PCR; ¹⁷Strongyloides ELISA.

^{*}Immunocompromised only

^{**} optional, based on risk assessment

*** if travel history to Middle and South America, Africa, or Asia

**** recommended for indication of IBD

WHO regions: AMR (Regions of the Americas); SEAR (South-East Asian Region); EUR (European Region); WPR (Western Pacific Region)

Footnote:

Australian Government, Department of Health and Aged care, Fecal microbiota transplant product regulation. https://www.tga.gov.au/products/biologicals-blood-and-tissues-and-advanced-therapies/biologicals/faecal-microbiota-transplant-products-regulation (accessed 14December 2022)

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Chen J, Zaman A, Ramakrishna B, et al. Stool banking for fecal microbiota transplantation: Methods and operations at a large stool bank. Published Online First: 2020. doi:10.1101/2020.09.03.20187583

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Supplementary Table 4: WHO region of the Americas

	[Aas et al.]	[Jiang et al.]	[Lynch et al.]	[Walton et al.]	[Staley et al.]	[Dubberke et al.]	[Espinoza et al.]	[González et al.]
Time period	1994	NS	2012-2017	NS	2018-2019	2014-2015	NS	NS
	-2002							
Type of Study	CS	RCT	CS	CS	CS	RCT	CSt	RCT
Country	USA	USA	USA	USA	USA	Canada	Chile	Mexico
Donor	R and UR	NS	NS	NS	NS	NS	NS	NS
GI disorder	C. difficile	NS	NS	NS	NS	C. difficile	NS	NS
Blood Tests								
Testing for								
viruses								
Hepatitis A	1	1, 1a					1	NS
Hepatitis B	2, 2a	2, 2a					2, 2a	NS

Hepatitis C	3	3a			NS		3a	NS
HIV I and II	4	4a					4a	NS
Cytomegalovirus	NS	6	NS	NS	NS	NS	6	NS
(CMV)								
Epstein-Barr	NS	7	NS	NS	NS	NS	7	NS
virus								
Human T-cell	NS	8	NS	NS	NS	NS	8	NS
lymphoma virus								
antibody								
(HTLV)								
Testing for								
bacteria								
Treponema				NS		NS	NS	NS
pallidum								
(Syphilis)								
Testing for								
parasites	NG		210	1.0	170	270	170	210
Entamoeba	NS	17	NS	NS	NS	NS	NS	NS
histolytica	210	10	3.10			270	2.70	2.50
Strongyloides	NS	18	NS	NS	NS	NS	NS	NS
stercoralis								
Other testes								

Complete blood	NS	NS	NS	NS	NS	NS	NS	
count								
Liver enzymes	NS	NS	NS	NS	NS	NS	NS	
stool tests								
Testing for								
viruses								
Norovirus	NS	NS	NS	NS	NS		NS	NS
Adenovirus	NS	NS	NS	NS	NS		NS	NS
Rotavirus	NS	NS	NS	NS	NS		NS	NS
Testing for								
bacteria								
Salmonella spp	NS		NS				NS	NS
Shigella spp	NS		NS				NS	NS
Yersinia spp	NS		NS				NS	NS
Campylobacter	NS		NS				NS	NS
spp								
C. difficile	NS	9, 9a						NS
Helicobacter	NS		NS	NS		NS		NS
pyroli								
Vibrio species	NS	NS	NS		NS		NS	NS
E. coli 0157	NS	NS	NS		NS	NS	NS	NS
(Shiga like toxin								



¹IgM immunoassay; ^{1a}Total antibody; ²Hepatitis B surface antigen test; ^{2a}Hepatitis B core antigen test; ³Anti hepatitis C immunoassay; ^{3a}Nucleic acid amplification test; ⁴IgM immunoassay; ^{4a}IgG immunoassay; ⁶HTCV I and II antibodies; ⁷CMV IgG and IgM; ⁸Viral capsid antigen (VCA IgM); ⁹Presence of toxins and antigens; ^{9a}Culture and PCR NS: Not stated; CS: Case series: RCT: Randomized control trial; Cst: Case studies

Footnote:

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,	[Barberio et al.]	[Hvas et al.]	[Jitsumur a et al.]	[Kachlíková et al]	[Wierzbicka et al.]	[McCune et al.]	[Nowak et al.]	Reigadas et al.]	Reigadas et al.]	Rode et al.]	[Rossen et al.]	[Sokol et al.]	[Terrveer et al.]	[Brezina et al.]	Su
Time period	2016- 2019	2016- 2018		2017-2019	2018-2019		2013- 2017	NS	2014- 2017	NS	NS	2014- 2017	2016- 2019		pplen
Type of study	POS	RCT	RCT	POS	CT	CT	CoS	CS	CT	CT	RCT	RCT	OS	RCT	1entai
Country	Italy	Denma rk	UK	Solvakia	Poland	UK	Swede n	Spain	Spain	Denma rk	Nether land	France	Netherla nd	Czeck	Supplementary Table 5: WHO European region
Donor	UR		UR	UR	UR	NS	R	NS	NS	NS	R-	UR	UR	UR	5: V
GI disorder	Cd	Cd	UC	Cd	UC	NS	NS	NS	NS	NS	UC	CD	Cd	UC	VHO
Blood Tests															Euro
Testing for															pean
Hepatitis A		NS			1		NS			1			1a		regic
Hepatitis B					2, 2a					2, 2a, 2b			2, 2a		Ĕ
Hepatitis C					3	3				3, 3a			3		
Hepatitis E			NS	NS	NS	4	NS	NS	NS	NS	NS	NS	NS	NS	
HIV I and II						5				5a					
Human T-cell lymphoma virus antibody (HTLV)		NS		NS	NS	6	NS			Z	Z			NS	
Cytomegal ovirus (CMV)							NS	NS							

•	[Barberio et al.]]	[Hvas et al.]	[Jitsumur a et al.]	[Kachlíková et al]	[Wierzbick a et al.]	[McCune et al.]	[Nowak et al.]	[Reigadas et al.]	[Reigadas et al.]	Rode et al.]	[Rossen et al.]	Sokol et al.]	[Terrveer e	t [Brezina et al.]
Epstein-Barr virus						NS	NS	NS		NS	NS	NS		
Testing for bacteria														
NS		NS	NS			NS	NS	NS	NS	NS	NS	NS	NS	NS
Trenonema nallidum		NS								7. 7a				_
Test for parasites				0	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
E. histolytica				8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
T. gondii		NS	NS		NS	NS	NS	NS	NS	NS	NS		NS	NS
T. canis		NS	NS	9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
cati and suis		NS	NS	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
S. stercoralis		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
T. spiralis		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS
Other testes														
Complete blood count				NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-reactive proteins				NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

	[Barber io et al.]	[Hvas et al.]	[Jitsum ura et al.]	[Kachlík ová et al]	[Wierzb icka et al.]	[McCu ne et al.]	[Now ak et al.]	[Reig adas et al.]	[Reigad as et al.]	Rode et al.]	[Ross en et al.]	Sokol et al.]	[Terrveer et al.]	[Brezina et al.]
Erythrocyte sedimentation rate (ESR)		NS		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Albumin		NS		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Renal function test				NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Liver function test				NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Stool tests														
Testing for viruses														
Rotavirus		NS	NS	NS	NS	NS	NS							NS
Norovirus		NS		NS	NS	11	NS						*	NS
Adenovirus			NS	NS	NS	NS	NS						12**	NS
Astrovirus		NS	NS	NS	NS	NS	NS	NS	NS					NS
Sapovirus		NS	NS	NS	NS	NS	NS	NS	NS					NS
Enterovirus			NS	NS	NS	NS	NS	NS	NS	NS	NS			NS
Poliovirus		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS
Aichi virus		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS



[Brezina et al.]		[Barber io et al.]	[Hvas et al.]	[Jitsu mura et al.]	[Kachlí ková et al]	[Wierzb icka et al.]	[McC une et al.]	Nowk et al.]	[Reig adas et al.]	[Reigad as et al.]	Rode et al.]	[Ross en et al.]		[Terrveer et al.]
	Enterotoxigenic E. coli (ETEC)	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	NS
NS	Enteroinvasive <i>E. coli</i> (EIEC)			NS	NS	NS	NS	NS	NS	NS		NS	NS	NS
NS		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG		NG	NG
NS	Attaching and Effacing <i>E.</i> coli (A/EEC)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS
NS	Verotoxin-producing E. coli	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS
NS	MDR Bacteria													
NS	ESBL producing enterobacteraecae (Enrichment			NS	NS		18	NS				NS		
NS	culture)				ı									
NS	VRE				NS							NS		
NS	CPE (CRE/KPC/NDM,OXA 48)		#	##	NS	###	19	#				NS		
	MRSA	NS	NS		NS		NS	NS			NS	NS	NS	
NG	MDR A. baumanni	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS
NS NS	aminoglycoside and quinolone resistant Enterobacterales	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	

¹IgM immunoassay; ¹aTotal antibody; ²Hepatitis B surface antigen test; ²aHepatitis B core antigen test; ²bNucleic acid amplification test; ³Anti hepatitis C immunoassay; ³aNucleic acid amplification test; ⁴IgM immunoassay; ⁵4th generation immunoassay; ⁵aNucleic acid amplification test; ⁶HTCV I and II antibodies; ⁷Wassemann's reaction; ⁷aRapid plasma regain test; ^{8,9,10}antibody test; ¹PCR; ¹²Adenovirus 40/41/52

	[Barberio et al.]	[Hvas et al.]	[Jitsum ura et al.]	[Kach líková et al]	[Wier zbick a et al.]	[McCu ne et al.]	[Nowak et al.]	[Reigad as et al.]	[Reigad as et al.]	Rode et al.]	[Rossen et al.]	Sokol et al.]	[Terrveer et al.]
Testing for parasites													
Cyclospora			NS	NS	NS	NS	NS	NS	NS	NS	NS		
Isospora	S	SN	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS
Giardia spp			20		NS	20a	NS	NS	NS				
Cryptosporidium spp	NS	NS	21		NS	21a	NS	NS	NS				
Strongyloides	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	22		
Cystoisospora belli	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Microsporidium spp,	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Entamoeba histolytica	NS		NS		NS	NS	NS	NS	NS		23		
Protozoa and helminths	NS	NS			NS	NS	NS	NS	NS	NS	NS	NS	NS
Other tests													
Fecal occult blood testing	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calprotectin	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
light microscopy for the presence of ova. cysts and			NS	NS			NS			NS		NS	

multiplex PCR; ^{13,14,15}Culture; ¹⁶Presence of toxins and antigens; ^{16a}Culture and PCR; ¹⁷Stool antigen test; ¹⁸Enrichment culture; ¹⁹Selective chromogenic culture; ²⁰Fecal Giardia antigen; ^{20a}Enzyme immunoassay; ²¹Antigen and/or acid fast staining; ^{21a}Enzyme immunoassay; ²²Strongyloides ELISA; ²³Antibody test ^{#CRE} alone; ^{##}NDM alone; ^{###}NDM, KPC and OXA48 all three genes; POS:Prospective observational cohort study; CoS: Cohort study; CT: Clinical Trial

Footnote:

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Supplementary Table 6: WHO Western-Pacific region

	Western	Pacific reg	gion							African	Eastern
										region	Mediterranean
											region
	[Cui et	[Bamba	[Chauhan	[Costello et	[Yau et	[Zhang et	[He et	[Lui et al.]	[Ren et	[Lee et al]	[Azimirad et al.]
	al.]	et al.]	et al.]	al.]	al.]	al.]	al.]		al.]		
Time period	2012-	2013-	2014-	2013-	2017-	2012-	2012-	2013-	NS	2018-	2012-2016
	2014	2017	2019	2016	2019	2014	2014	2018		2019	
Type of Study	os	CS	CS	RCT	CoS	CS	CS	RS	CoS	CS	CS
Country	China	Japan	Austral	Australia	Hong	China	China	Hong	China	South	Iran
			ia		Kong			Kong		Africa	
Donor	R	R-UR	R	UR	UR	UR	UR	NS	UR	R	
GI disorder	UC	Cd	Cd	UC	NS	Cd	UC	Cd	UC		
Blood Tests											
Testing for viruses											
Hepatitis A			1			1a	1a	1a			
Hepatitis B			2, 2a,	2c		2, 2a, 2b	2, 2a,	2, 2a			
			2b				2b				
Hepatitis C			3	3a		3	3	3		NS	
Hepatitis E	NS	NS	NS	NS		NS	NS	4		NS	NS

HIV I and II			5								
Human T-cell	NS	NS	6			NS	NS		NS	NS	NS
lymphoma virus											
antibody											
Cytomegalovirus	NS	NS	7		NS	NS	NS	NS		NS	NS
(CMV)											
Epstein-Barr virus	NS	NS	8		NS	NS	NS	NS		NS	NS
Rotavirus	NS		NS	NS							
Testing for bacteria											
Helicobacter pylori		NS	9			NS	NS	NS	NS	NS	NS
Treponema pallidum		NS	10	NS				NS	NS	NS	NS
(Syphilis)											
Testing for parasites											
Entamoeba histolytica	NS	NS	NS		NS	NS	NS		NS	NS	NS
Dirofilaria immitis	NS		NS								
Toxocara canis	NS		NS								
Ascaris suum	NS		NS								
Anisakis	NS		NS								
Gnathostoma	NS		NS								
Strongyloides stercoralis	NS		11		NS						

Paragonimus	NS		NS								
westetrmanii	NS		NS								
Paragonimus miyazakii	NS		NS								
Fasciola spp.,	NS		NS								
Sparganosis mansoni,	NS		NS								
Cysticercus cellulosae	NS		NS								
Other tests											
Complete blood count		NS	NS						NS		NS
Fasting lipid and blood	NS	NS	NS			NS	NS	NS	NS	NS	NS
sugar levels											
C-reactive protein		NS	NS						NS		NS
(CRP)											
Erythrocyte		NS	NS						NS		NS
sedimentation rate											
(ESR)											
Renal function test	NS	NS	NS		NS						
Liver function test	NS	NS	NS		NS						
Stool tests											
Testing for viruses											
Norovirus	NS		NS	NS	NS						

Rotavirus	NS		NS	NS	NS						
Testing for bacteria											
Salmonella spp	NS		NS	NS	NS	NS	NS		NS		NS
Shigella spp	NS		NS	NS	NS	NS	NS		NS		NS
Yersinia spp	NS	NS		NS							
Campylobacter spp	NS		NS	NS	NS	NS	NS		NS		NS
Vibrio species	NS		NS	NS	NS	NS	NS		NS	NS	NS
C. difficile	NS		12		NS	NS	NS	12a	NS	NS	
E. coli 0157 (Shiga like	NS				NS	NS	NS		NS	NS	
toxin-producing E. coli)											
MDR Bacteria											
VRE	NS			NS		NS	NS		NS	NS	NS
CPE	NS			NS		NS	NS	NS	NS	NS	NS
CRE	NS	NS	NS	NS		NS	NS		NS	NS	NS
MRSA	NS	NS	NS	NS		NS	NS		NS	NS	NS
MDR Acinetobacter	NS	NS	NS	NS		NS	NS		NS	NS	NS
H. pyroli	NS	NS	NS	NS		NS	NS	13	NS	NS	NS
Testing for parasites											
Clonorchis sinensis	NS	NS	NS	NS		NS	NS		NS	NS	NS
Cryptosporidium	NS	NS	NS			NS	NS		NS	NS	NS
parvum											

Giardia lamblia	NS	NS				NS	NS		NS	NS	NS	¹ total
Entamoeba histolytica	NS	NS	NS			NS	NS		NS	NS	NS	antibody
Microsporidia,	NS	NS	NS	NS		NS	NS		NS	NS	NS	test (IgM
Cyclospora	NS	NS	NS	NS		NS	NS		NS	NS	NS	and
Isospora	NS	NS	NS	NS		NS	NS		NS	NS	NS	IgG); ^{1a} HAV
blastocystis	NS	NS		NS	lgM; ²							
dientamoeba	NS	NS		NS	hepatitis B							
Other tests												surface
fragilis and entamoeba histolytica PCR	NS	NS	NS		NS	antigen; ^{2a} antibody to hepatitis						
light microscopy for the												B core
presence of ova, cysts,												antigen;
and parasites												^{2b} total

antibody test; ^{2c}PCR; ³antibody; ^{3a}PCR; ⁴HAE lgM; ⁵HIV Elisa; ⁶HTLV antibody; ⁷CMV lgM, lgG; ⁸EBV lgM, lgG; ⁹H. pylori serology; ¹⁰Syphilis rapid plasma regain test; ¹¹Strongyloides serology; ¹²toxins A and B by EIA; ^{12a}Glutamate dehydrogenase gene + polymerase chain reaction; ¹³Anti–H. pylori lgG; ⁴⁷antigen; ⁴⁸Fecal Giardia antigen; ⁵¹Acid-fast stain for *Cyclospora*; ⁵²Acid-fast stain for *Isospora*

OS: Observational study; CS: Case series study; RCT: Randomized Control study; CoS: Cohort Study; UC: Ulcerative Colitis; R: Resistance; UR: Un-related; NS: Not Stated

Footnote:

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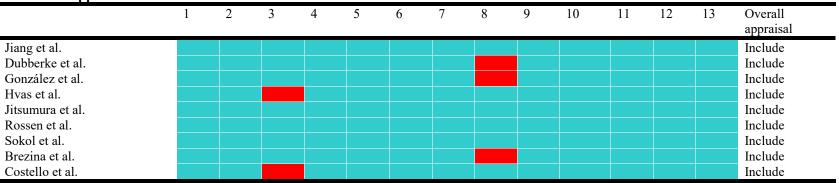
Lui RN, Wong SH, Lau LHS, et al. Faecal microbiota transplantation for treatment of recurrent or refractory Clostridioides difficile infection in Hong Kong. Hong Kong Med Jl Published 2019. doi:10.12809/hkmj197855

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Appendix 1 JBI critical appraisal checklist for randomized clinical trials

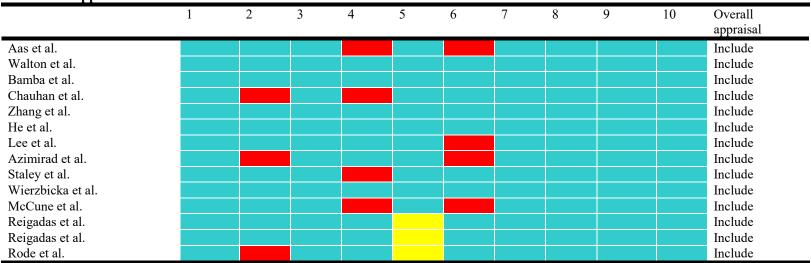


1: Was true randomization used for the assignment of participants to treatment groups?; 2: Was allocation to treatment groups concealed?; 3: Were treatment groups similar at the baseline?; 4: Were participants blind to treatment assignment?; 5: Were those delivering treatment blind to treatment assignment?; 6: Were outcomes assessors blind to treatment assignment?; 7: Were treatment groups treated identically other than the intervention of interest?; 8: Was follow-up complete and if not, were differences between groups in terms of their follow-up adequately described and analyzed?; 9: Were participants analyzed in the groups to which they were randomized?; 10: Were outcomes measured in the same way for treatment groups?; 11: Were outcomes measured in a reliable way?; 12: Was appropriate statistical analysis used?; 13: Was the trial design appropriate, and were any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?

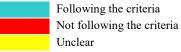
Following the criteria

Not following the criteria





1: Were there clear criteria for inclusion in the case series?; 2: Was the condition measured in a standard, reliable way for all participants included in the case series?; 3: Were valid methods used for identification of the condition for all participants included in the case series?; 4: Did the case series have consecutive inclusion of participants?; 5: Did the case series have complete inclusion of participants?; 6: Was there clear reporting of the demographics of the participants in the study?; 7: Was there clear reporting of clinical information of the participants?; 8: Were the outcomes or follow-up results of cases clearly reported?; 9: Was there clear reporting of the presenting site(s)/clinic(s) demographic information?; 10: Was statistical analysis appropriate?







1: Were the two groups similar and recruited from the same population?; 2: Were the exposures measured similarly to assign people to both exposed and unexposed groups?; 3: Was the exposure measured in a valid and reliable way?; 4: Were confounding factors identified?; 5: Were strategies to deal with confounding factors stated?; 6: Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?; 7: Were the outcomes measured in a valid and reliable way?; 8: Was the follow-up time reported and sufficient to be long enough for outcomes to occur?; 9: Was follow-up complete, and if not, were the reasons to lose to follow-up described and explored?; 10: Were strategies to address incomplete follow-up utilized?; 11: Was appropriate statistical analysis used?

Following the criteria

Not following the criteria

JBI critical appraisal checklist for case studies

	1	2	3	4	5	6	7	8	Overall appraisal
Espinoza et al.									Include

1: Were patient's demographic characteristics clearly described?; 2: Was the patient's history clearly described and presented as a timeline?; 3: Was the current clinical condition of the patient on presentation clearly described?; 4: Were diagnostic tests or assessment methods and the results clearly described?; 5: Was the intervention(s) or treatment procedure(s) clearly described?; 6: Was the post-intervention clinical condition clearly described?; 7: Were adverse events (harms) or unanticipated events identified and described?; 8: Does the case report provide takeaway lessons?

Following the criteria

Not following the criteria