

## Supplementary Information

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**Supplementary Table 1-A. PubMed search strategy.**

#	String
1	"Virtual health"[tiab]
2	Telehealth[tiab]
3	Telemedicine[mh]
4	telemedicine[tiab]
5	"mobile health"[tiab]
6	mHealth[tiab]
7	"m-health"[tiab]
8	eHealth[tiab]
9	"e-health"[tiab]
9	"virtual care"[tiab]
10	1 OR 2OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 9
11	"clinical study"[pt]
12	"clinical studies as topic"[mh]
13	"clinical study"[tiab]
14	"observational study"[pt]
15	"observational studies as topic"[mh]
16	"observational study"[tiab]
17	"clinical trial"[pt]
18	"clinical trials as topic"[mh]
19	"clinical trial"[tiab]
20	"comparative study"[pt]
21	"comparative study"[tiab]
22	"controlled clinical trial"[pt]
23	"controlled clinical trials as topic"[mh]
24	"controlled clinical trial"[tiab]
25	"randomized controlled trial"[pt]
26	"randomized controlled trials as topic"[mh]
27	"randomized controlled trial"[tiab] OR RCT[tiab] OR "randomised controlled trial"[tiab]
28	"cohort studies"[mh]
29	"cohort study"[tiab]
30	"retrospective studies"[mh]
31	"retrospective study"[tiab]
32	"cross-sectional studies"[mh]
33	"cross-sectional study"[tiab]
34	"qualitative research"[mh]
35	"evaluation study"[pt]
36	"evaluation studies as topic"[mh]
37	"focus groups"[mh]
38	interview[pt]
39	"interviews as topic"[mh]
40	"qualitative"[tiab]
41	"evaluation study"[tiab]
42	"focus group"[tiab]
43	Interview[tiab]
44	Interviews[tiab]

#	String
45	11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR 44
46	Review[pt]
47	"systematic review"[pt]
48	"Meta-Analysis as Topic"[Mesh]
49	46 OR 47 OR 48
50	(10 AND 45) NOT 49

### Supplementary Table 1-B. CINAHL and PsycINFO.

S15	(S11 AND S12) NOT S13	Limiters - Published Date: 20200301-20210731
S14	S11 AND S12	
S13	reviews OR "systematic review." OR metaanalysis" OR "meta analysis" OR "meta-analysis"	
S12	"clinical study" OR "observational study" OR "clinical trial" OR "comparative study" OR "controlled clinical Trial" OR "randomized controlled trial" OR "cohort study" OR "retrospective study" OR "cross-sectional study" OR "cross sectional study" OR "qualitative research" OR "evaluation study" OR "focus group" OR "focus groups" OR interview OR "randomised controlled trial"	
S11	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10	
S10	(MM "Telehealth+")	
S9	MM "Telemedicine" OR MM "Online Therapy" OR MM "Teleconferencing" OR MM "Teleconsultation" OR MM "Telepsychiatry" OR MM "Telepsychology" OR MM "Telerehabilitation"	
S8	TI "e-Health" OR AB "e-Health"	
S7	TI eHealth OR AB eHealth	
S6	TI "m-Health" OR AB "m-Health"	
S5	TI mHealth OR AB mHealth	
S4	TI "mobile health" OR AB "mobile health"	
S3	TI telemedicine OR AB telemedicine	
S2	TI telehealth OR AB telehealth	
S1	TI "Virtual health" OR AB "Virtual health"	

### Supplementary Table 1-C. Cochrane Central Register of Controlled Trials.

ID	Search
#1	("virtual health"):ti,ab,kw (Word variations have been searched)
#2	(telehealth):ti,ab,kw (Word variations have been searched)
#3	MeSH descriptor: [Telemedicine] explode all trees
#4	(telemedicine):ti,ab,kw (Word variations have been searched)
#5	("mobile health"):ti,ab,kw
#6	("m-health"):ti,ab,kw
#7	(mhealth):ti,ab,kw
#8	(ehealth):ti,ab,kw
#9	("e-health"):ti,ab,kw

ID	Search
#10	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9
* Date limited, no	

**Supplementary Table 2-A. Characteristics of Studies Investigating the Effectiveness of Telehealth vs. In-person Care During COVID-19.**

Author, year	Intervention	Study Design	Study Period	Country	Single or Multiple Sites	Geographic Location
Adams, 2023(1)	Not stated	Retrospective cohort	General COVID era	United States	Single Site	Not reported
Adepoju, 2022(2)	Not stated	Retrospective cohort	General COVID era	United States	Single Site	Not reported
Afonso Nogueira, 2021(3)	Telephone only	Prospective Cohort	Compares pre-COVID to COVID era	Portugal	Single Site	Not reported
Aiken, 2021(4)	Telephone plus video	Cross-sectional	Compares pre-COVID to COVID era	United Kingdom	Multiple site	Not reported
Arias, 2022(5)	Telephone plus video	Retrospective cohort	Compares pre-COVID to COVID era	United States	Single site	Urban
Barequet, 2021(6)	Telephone plus video	Retrospective cohort	General COVID era	Israel	Single site	Urban
Baughman, 2021(7)	Not stated	Retrospective cohort	Later COVID era (June 2020 and later)	United States	Not reported	Not reported
Borgen, 2021(8)	Telephone plus video	Prospective Cohort	Early COVID era (March-June 2020)	United States	Multiple site	Not reported
Boshara, 2022(9)	Not stated	Cross-sectional	General COVID era	United States	Multiple site	Urban
Bryson, 2023(10)	Not stated	Longitudinal cohort	General COVID era	United States	Multiple site	Urban
Carlberg, 2020(11)	Telephone plus video	Retrospective cohort	Early COVID era (March-June 2020)	United States	Multiple site	Not reported
Casariago-Vales, 2021(12)	Telephone plus video	Retrospective cohort	Later COVID era (June 2020 and later)	Spain	Multiple site	Not reported
Chen, 2023(13)	Telephone plus video	Cross-sectional	General COVID era	United States	Single site	Urban
Clark, 2022(14)	Telephone plus video	Retrospective cohort	Compares pre-COVID to post-COVID	Canada	Single site	Not reported
Cobo-Calvo, 2022(15)	Not stated	Retrospective cohort	Compares pre-COVID to COVID era	Spain	Single site	Urban
Cunningham, 2022(16)	Telephone plus video	Retrospective cohort	Compares pre-COVID to COVID era	United States	Multiple site	Urban
Cvietusa, 2022(17)	Telephone plus video	Retrospective cohort	Compares pre-COVID to COVID era	United States	Not reported	Not reported
D'Anna, 2021(18)	Telephone only	Retrospective cohort	Compares pre-COVID to COVID era	United Kingdom	Single site	Urban
Duryea, 2021(19)	Telephone only	Retrospective cohort	Compares pre-COVID to COVID era	United States	Single site	Not reported
Fortier, 2022(20)	Telephone plus video	Prospective cohort	Compares pre-COVID to COVID era	United States	Multiple site	Urban
Fredwall, 2021(21)	Telephone plus video	Prospective cohort	Early COVID era (March-June 2020)	United States	Single site	Not reported
Frost, 2022(22)	Telephone plus video	Cross-sectional	General COVID era	United States	Not reported	Not reported
Gaetani, 2021(23)	Telephone plus video	Prospective Cohort	Compares pre-COVID to COVID era	Italy	Single site	Not reported
Gainer, 2023(24)	Telephone plus video	Retrospective cohort	Later COVID era (June 2020 and later)	United States	Single site	Not reported

Author, year	Intervention	Study Design	Study Period	Country	Single or Multiple Sites	Geographic Location
Gao, 2022(25)	Not stated	Cross-sectional	Early COVID era (March-June 2020)	United States	Single site	Urban Suburban, Rural
Garmendia, 2021(26)	Telephone plus video	Prospective cohort	Compares pre-COVID to COVID era	Spain	Multiple site	Not reported
Griebeler, 2022(27)	Not stated	Randomized Clinical Trial	Later COVID era (June 2020 and later)	United States	Single site	Not reported
Hatef, 2022(28)	Telephone plus video	Prospective cohort	Compares pre-COVID to COVID era	United States	Claims data	Urban and rural
Hughes, 2022(29)	Not stated	Retrospective cohort	Early COVID era (March-June 2020)	United States	Single site	Not reported
Jazayeri, 2022(30)	Telephone plus video	Prospective cohort	General COVID era	United States	Single site	Not reported
Kablinger, 2022(31)	Telephone plus video	Retrospective cohort	Compares pre-COVID to COVID era	United States	Single site	Not reported
Kerestes, 2021(32)	Telephone plus video	Retrospective cohort	General COVID era	United States	Single site	Not reported
Khosla, 2022(33)	Telephone only	Retrospective cohort	Compares pre-COVID to COVID era	United States	Single site	Urban
Klain, 2021(34)	Telephone only	Retrospective cohort	Compares pre-COVID to COVID era	Italy	Single site	Urban
Kolb, 2021(35)	Telephone plus video	Retrospective cohort	Early COVID era (March-June 2020)	United States	Single site	Not reported
Korycinski, 2022(36)	Telephone only	Retrospective cohort	Early COVID era (March-June 2020)	United States	Single site	Not reported
Levinson, 2021(37)	Telephone plus video	Retrospective cohort	Compares pre-COVID to COVID era	United States	Not reported	Not reported
Li, 2021(38)	Telephone plus video	Retrospective cohort	Early COVID era (March-June 2020)	United Kingdom	Single site	Not reported
Lindhagen, 2022(39)	Not stated	Retrospective cohort	Compares pre-COVID to COVID era	Sweden	Single site	Urban
Liou, 2022(40)	Not stated	Retrospective cohort	Compares pre-COVID to COVID era	United States	Single site	Not reported
Liu, 2021(41)	Not stated	Prospective Cohort	Early COVID era (March-June 2020)	Australia	Single site	Urban
Mair, 2021(42)	Not stated	Retrospective cohort	Compares pre-COVID to COVID era	New Zealand	Single site	Urban
Mathews, 2022(43)	Not stated	Retrospective cohort	Compares pre-COVID to COVID era	United States	Single site	Not reported
McCoy, 2022(44)	Not stated	Cross-sectional	Compares pre-COVID to COVID era	United States	Single site	Urban
McNamara, 2021(45)	Not stated	Retrospective cohort	Compares pre-COVID to COVID era	United States	Multiple site	Urban
Metcalfe, 2023(46)	Telephone only	Retrospective cohort	Later COVID era (June 2020 and later)	United Kingdom	Single	Not reported
Minsky, 2021(47)	Telephone plus video	Prospective cohort	Compares pre-COVID to COVID era	Israel	Single site	Not reported
Mossack, 2022(48)	Not stated	Randomized Clinical Trial	Later COVID era (June 2020 and later)	United States	Single site	Not reported

Author, year	Intervention	Study Design	Study Period	Country	Single or Multiple Sites	Geographic Location
Offiah, 2022(49)	Telephone plus video	Retrospective cohort	Compares pre-COVID to COVID era	Ireland	Multiple site	Not reported
Ostberg, 2022(50)	Telephone plus video	Cross-sectional	General COVID era	United States	Multiple site	Suburban
Parise, 2021(51)	Telephone plus video	Prospective cohort	Early COVID era (March-June 2020)	Italy	Multiple site	Not reported
Phillips, 2021(52)	Not stated	Retrospective cohort	Early COVID era (March-June 2020)	United States	Single site	Not reported
Piga, 2022(53)	Telephone plus video	Prospective cohort	Early COVID era (March-June 2020)	Italy	Single site	Not reported
Pinsker, 2021(54)	Telephone plus video	Retrospective cohort	Early COVID era (March-June 2020)	United States	Single site	Not reported
Prato, 2022(55)	Telephone plus video	Randomized Clinical Trial	Later COVID era (June 2020 and later)	Italy	Single site	Not reported
Reddy, 2021(56)	Telephone plus video	Retrospective cohort	Early COVID era (March-June 2020)	United States	Single site	Not reported
Rene, 2022(57)	Not stated	Retrospective cohort	Early COVID era (March-June 2020)	United States	Single site	Not reported
Ripp, 2022(58)	Not stated	Retrospective cohort	Compares pre-COVID to COVID era	United States	Single site	Not reported
Rowe, 2021(59)	Telephone plus video	Retrospective cohort	General COVID era	Australia	Single site	Not reported
Ryskina, 2021(60)	Telephone plus video	Retrospective cohort	Early COVID era (March-June 2020)	United States	Multiple site	Urban and Suburban
Severino, 2022(61)	Telephone only	Prospective cohort	General COVID era	Italy	Single site	Not reported
Sevilis, 2022(62)	Telephone plus video	Retrospective cohort	Compares pre-COVID to COVID era	United States	Multiple site	Not reported
Shah, 2022(63)	Not stated	Retrospective cohort	General COVID era	United States	Single site	Urban
Sharma, 2020(64)	Telephone only	Retrospective cohort	Compares pre-COVID to COVID era	United Kingdom	Not reported	Not reported
Sohail, 2023(65)	Telephone plus video	Retrospective cohort	General COVID era	United States	Single site	Not reported
Sun, 2022(66)	Not stated	Retrospective cohort	General COVID era	United States	Single site	Urban
Szigety, 2022(67)	Not stated	Retrospective cohort	Compares pre-COVID to COVID era	United States	Single site	Not reported
Tarn, 2021(68)	Telephone plus video	Cross-sectional	Early COVID era (March-June 2020)	United States	Single site	Not reported
Tchang, 2022(69)	Telephone plus video	Retrospective cohort	Compares pre-COVID to COVID era	United States	Single site	Urban
Wabe, 2022(70)	Telephone plus video	Retrospective cohort	General COVID era	Australia	Multiple site	Urban, rural
Walker, 2023(71)	Not stated	Retrospective cohort	General COVID era	United States	Single site	Not reported
Watson, 2021(72)	Telephone only	Cross-sectional	Compares pre-COVID to COVID era	Australia	Single site	Not reported
Ye, 2022(73)	Telephone plus video	Retrospective cohort	General COVID era	United States	Single site	Urban

Author, year	Intervention	Study Design	Study Period	Country	Single or Multiple Sites	Geographic Location
Zayde, 2021(74)	Telephone plus video	Prospective cohort	Compares pre-COVID to COVID era	United States	Single site	Urban
Zhao, 2021(75)	Telephone plus video	Retrospective cohort	Compares pre-COVID to COVID era	United States	Single site	Not reported
Zhu, 2021(76)	Not stated	Retrospective cohort	Early COVID era (March-June 2020)	Australia	Multiple site	Urban
Zimmerman, 2021(77)	Telephone plus video	Prospective cohort	General COVID era	United States	Single site	Not reported

**Supplementary Table 2-B. Participant Characteristics of Studies Investigating the Effectiveness of Telehealth vs. In-person Care During COVID-19.**

Author, Year	Comparison Groups			N Patients	Patient Health Concern/Clinical Condition	Target Population	Age	Sex, n (%)
	Study Period	Arm/ Group*	Arm Label*					
Adams, 2023(1)	General COVID era	Full group	Overall	NR	Federally Qualified Health Centers	Socially/racially disadvantaged (all ages)	Mean: 27.1	Female: 51,906 (60.8)
Adepoju, 2022(2)	General COVID era	Full group	Overall	278,171	Federally Qualified Health Centers	Socially/racially disadvantaged (all ages)	Mean: 27.1	Female: 51,906 (60.8)
Afonso Nogueira, 2021(3)	Compares pre-COVID to COVID era	Arm 1	Individuals with heart failure attending outpatient cardiology appointments (Pre-COVID)	160	Cardiology	NR	Mean: NR	NR
		Full group	Individuals with heart failure attending outpatient cardiology appointments	196	Cardiology	NR	Mean: 71.4	Male: (68)
Aiken, 2021(4)	Compares pre-COVID to COVID era	Arm 1	Individuals receiving medical abortion following in-person visit	22,158	Pregnancy	Pregnant Women	Mean: 27.8	Female: (100)
		Arm 2	Individuals receiving medical abortion following telemedicine/hybrid visit	29,984	Pregnancy	Pregnant Women	Mean: 28.5	Female: (100)
Arias, 2022(5)	Compares pre-COVID to COVID era	Arm 1	Pre-telehealth implementation	780	Postpartum visits	Adults (18-65)	Median: 30.07	Female: 780 (100)
		Arm 2	Post-telehealth implementation	799	Postpartum visits	Adults (18-65)	Median: 30.35	Female: 799 (100)
Barequet, 2021(6)	General COVID era	NR	NR	NR	NR	NR	NR	NR
Baughman, 2021(7)	Later COVID era (June 2020 and later)	Full group	Overall	63,722	Diabetes	Adult and Elderly	Mean: 62	Female: 27667 (51.5)



Author, Year	Comparison Groups			N Patients	Patient Health Concern/Clinical Condition	Target Population	Age	Sex, n (%)
	Study Period	Arm/ Group*	Arm Label*					
Borgen, 2021(8)	Early COVID era (March-June 2020)	Arm 1	Individuals with new COVID-19 not receiving telehealth care management	593	COVID-19	Adult and Elderly (19-93)	Mean: 57.74	Male: (54)
		Arm 2	Individuals with new COVID-19 receiving telehealth care management	193	COVID-19	Adult and Elderly (19-93)	Mean: 57.44	Male: (61)
Boshara, 2022(9)	General COVID era	Full group	Overall	347	HIV	Adults (18-65)	Mean: 44.2	Male: 217 (62.5)
Bryson, 2023(10)	General COVID era	Full group	Patients receiving care in an adolescent medicine clinic	426	Adolescent medicine	Between 13-26 years old	Mean: 18.7	NR
Carlberg, 2020(11)	Early COVID era (March-June 2020)	Arm 1	Patients receiving telehealth and in-person evaluation in the ED	149	COVID-19	NR	Mean: 39.3	NR
		Arm 2	Patients receiving telehealth only evaluation in the ED	153	COVID-19	NR	Mean: 34.4	NR
Casariego-Vales, 2021(12)	Later COVID era (June 2020 and later)	Full group	Diagnosed with COVID in Galicia/ASLAM	4,384	COVID-19 Infection	Adults 18+	Mean: NR Median: NR Range: NR	NR
		Arm 1	Primary Care Monitoring	3,197	COVID-19 Infection	Adults 18+	Mean: NR Median: NR Range: NR	Female: (53.6)
		Arm 2	TELEA Telehealth Monitoring	1,187	COVID-19 Infection	Adults 18+	Mean: 65.6 Range: 15-99	Female: (53.4)
Chen, 2023(13)	General COVID era	Full group	Overall	NR	Primary care appointment	Adults 18+	NR	Female: (57.6)
Clark, 2022(14)	Compares pre-COVID to post-COVID	Full group	Overall	503	Gestational diabetes mellitus	NR	NR	NR
Cobo-Calvo, 2022(15)	Compares pre-COVID to COVID era	Full group	Full group	28,230 visits	Multiple sclerosis	Not reported	Mean: NR	NR
Cunningham, 2022(16)	Compares pre-COVID to COVID era	Arm 1	Pre-pandemic (in-person)	72	Opioid use disorder	Adult and Elderly	Mean: 45.4	Female: 23 (31.9)
		Arm 2	Pandemic (telemedicine)	35	Opioid use disorder	Adult and Elderly	Mean: 46.9	Female: 12 (34.3)
Cvietusa, 2022(17)	Compares pre-COVID to COVID era	Arm 1	No asthma care	2,977	Asthma	Adult and Elderly	Mean: NR	Female: 1730 (35.2)
		Arm 2	In-person only	1,792	Asthma	Adult and Elderly	Mean: NR	Female: 1139 (23.2)
		Arm 3	Mixed (in-person and virtual)	1,084	Asthma	Adult and Elderly	Mean: NR	Female: 758 (15.4)

Author, Year	Comparison Groups			N Patients	Patient Health Concern/Clinical Condition	Target Population	Age	Sex, n (%)
	Study Period	Arm/ Group*	Arm Label*					
		Arm 4	Virtual care only	1,952	Asthma	Adult and Elderly	Mean: NR	Female: 1293 (26.3)
D'Anna, 2021(18)	Compares pre-COVID to COVID era	Arm 1	In-person (2019)	180	Stroke patients	Adult and Elderly	Median: 68.5	Male: 121 (67.22)
		Arm 2	Telephone (2020)	136	Stroke patients	Adult and Elderly	Median: 65	Male: 99 (72.79)
Duryea, 2021(19)	Compares pre-COVID to COVID era	Arm 1	Pregnant individuals who received in-person pre-natal care	6,559	Pregnancy	Pregnant Women	Mean: 27.8	Female: (100)
		Arm 2	Pregnant individuals who received audio telehealth and in-person prenatal care	6,048	Pregnancy	Pregnant Women	Mean: 27.7	Female: (100)
Fortier, 2022(20)	Compares pre-COVID to COVID era	Arm 1	in-person (usual care)	29	U.S. Veterans mental health treatment	Adults (18-65)	Mean: 39.9	Male: 25 (86.2)
		Arm 2	Telehealth (virtual care)	45	U.S. Veterans mental health treatment	Adults (18-65)	Mean: 41.8	Male: 36 (80.0)
Fredwall, 2021(21)	Early COVID era (March-June 2020)	Arm 1	Patients seen in-person at Epilepsy Clinic	101	Epilepsy	Children (<18)	Mean: NR Median: NR Range: NR	NR
		Arm 2	Patients seen by telemedicine at Epilepsy Clinic	23	Epilepsy	Children (<18)	Mean: 14	Female: (65)
Frost, 2022(22)	General COVID era	Full group	Overall	17,175	Behavioral Health – Opioid use disorder	18 and above	Mean: NR	Male: 15,835 (92.2%)
Gaetani, 2021(23)	Compares pre-COVID to COVID era	Arm 1	Pre-COVID: Individuals with Hereditary Hemorrhagic Telangiectasia	45	HHT	NR	Mean: 56.7	Female: (53)
		Arm 2	COVID era: Individuals with Hereditary Hemorrhagic Telangiectasia (receiving telehealth)	45	HHT	NR	Mean: 56.7	Female: (53)
Gainer, 2023(24)	Later COVID era (June 2020 and later)	Full group	Overall	544	Substance use disorder – Behavioral health	18 and above	Mean: NR	Female: 247 (45.4%)
Gao, 2022(25)	Early COVID era (March-June 2020)	Full group	Pregnant women receiving care	1876	Pregnancy	All age groups	Mean: NR	NR
Garmendia, 2021(26)	Compares pre-COVID to COVID era	Arm 1	Individuals with Sleep Apnea attending outpatient clinic, pre-covid/in-person	193	Sleep Apnea	NR	Mean: NR	NR

Author, Year	Comparison Groups			N Patients	Patient Health Concern/Clinical Condition	Target Population	Age	Sex, n (%)
	Study Period	Arm/ Group*	Arm Label*					
		Arm 2	Individuals with Sleep Apnea attending outpatient clinic, COVID era, telehealth	77	Sleep Apnea	NR	Mean: 56	Male: 75
Griebeler, 2022(27)	Later COVID era (June 2020 and later)	Full group	Overall	70	Overweight/obesity	Adults (18-65)	Mean: 42.2	Female: 63 (90%)
Hatef, 2022(28)	Compares pre-COVID to COVID era	Full group	Overall	40,739,915	Blue Health Blue Shield Claims data	All age groups	Range: 0-50+	Female: 20480768 (50.3)
Hughes, 2022(29)	Early COVID era (March-June 2020)	Full group	Overall	NR	Acute decompensated heart failure (follow up after hospitalization)	18 and above	Mean: NR	Male: 87
Jazayeri, 2022(30)	General COVID era	Full group	Overall	1,769	Patients with abdominal pain in gastroenterology clinic	Children (0-22)	Mean: 11.6	Male: 671 (59.3%)
Kablinger, 2022(31)	Compares pre-COVID to COVID era	Full group	Full group	2145	Psychiatric patients	Adult and Elderly	Range: 18-87	Female: 1485 (69.23)
Kerestes, 2021(32)	General COVID era	Arm 1	Patients who received abortion services in-person	110	Family Planning	Pregnancy	Mean: 28.1	Female: (100)
		Arm 2	Patients who received abortion services via telehealth	224	Family Planning	Pregnancy	Mean: 27.3	Female: (100)
Khosla, 2022(33)	Compares pre-COVID to COVID era	Arm 1	Pre-pandemic	215	Hypertensive disorder of pregnancy	Adults (18-65)	Mean: 29	Female: 215 (100)
		Arm 2	Post-pandemic	258	Hypertensive disorder of pregnancy	Adults (18-65)	Mean: 30	Female: 258 (100)
Klain, 2021(34)	Compares pre-COVID to COVID era	Arm 1	2019 visit (corresponding period to first visit during COVID-19)	75	Differentiated thyroid cancer	Adults (18-65)	Mean: 46	Male: 21 (28)
		Arm 2	2020 first telemedicine visit during COVID-19	54	Differentiated thyroid cancer	Adults (18-65)	Mean: 45	Male: 13 (24)
		Arm 3	2019 visit (corresponding period to follow-up visit during COVID-19)	450	Differentiated thyroid cancer	Adults (18-65)	Mean: 50	Male: 83 (18)
		Arm 4	2020 telemedicine follow-up visit during COVID-19	391	Differentiated thyroid cancer	Adults (18-65)	Mean: 51	Male: 91 (23)

Author, Year	Comparison Groups			N Patients	Patient Health Concern/Clinical Condition	Target Population	Age	Sex, n (%)
	Study Period	Arm/ Group*	Arm Label*					
Kolb, 2021(35)	Early COVID era (March-June 2020)	Arm 1	Patients receiving in-person outpatient care at ENT clinic (Recurrent Acute Otitis Media Cohort)	50	Otolaryngology	Children (<18)	Mean: 24.4 (months)	Male: (62)
		Arm 2	Patients receiving telehealth outpatient care at ENT clinic, (Recurrent Acute Otitis Media Cohort)	50	Otolaryngology	Children (<18)	Mean: 17 (months)	Male: (60)
		Arm 1	Patients receiving in-person outpatient care at ENT clinic, (Sleep-Disorder Breathing Cohort)	64	Otolaryngology	Children (<18)	Mean: 5.29 (years)	Male: (55)
		Arm 2	Patients receiving telehealth outpatient care at ENT clinic, (Sleep-Disorder Breathing Cohort)	64	Otolaryngology	Children (<18)	Mean: 5.47 (years)	Male: (50)
Korycinski, 2022(36)	Early COVID era (March-June 2020)	Full group	Full group	293	COVID-19	Adult and Elderly	Mean: 46.03	Female: 163 (55.6)
Levinson, 2021(37)	Compares pre-COVID to COVID era	Arm 1	In-person	60	Eating disorder	Adults (18-65)	Mean: 25.07	Cisgender women: 51 (85)
		Arm 2	Telehealth (Zoom)	33	Eating disorder	Adults (18-65)	Mean: 24.52	Cisgender women: 29 (87.88)
Li, 2021(38)	Early COVID era (March-June 2020)	Arm 1	Patients triaged in-person for ophthalmologic issue	451	Ophthalmology	NR	Median: 49	Male: (55)
		Arm 2	Patients receiving virtual triage for ophthalmologic issue	404	Ophthalmology	NR	Median: 43	Female: (54)
Lindhagen, 2022(39)	Compares pre-COVID to COVID era	Full group	Full group	894	Inflammatory bowel disease	Adults (18-65)	Mean: 47.6	Female: 422 (47.2)
Liou, 2022(40)	Compares pre-COVID to COVID era	Full group	Patients undergoing eye movement desensitization and reprocessing	Baseline: 267 Follow-up: 232	Mental health	18 and above	Mean: 51.4	Female: 203 (70.5)
Liu, 2021(41)	Early COVID era (March-June 2020)	Full group	Full Group clinic patients at various outpatient facilities	1,376	Gastroenterology/Rheumatology	NR	Mean: 55.06	Female: (52.3)
		Arm 1	Pre-COVID clinic patients at various outpatient facilities	692	Gastroenterology/Rheumatology	NR	Mean: 55.63	Female: (53.6)

Author, Year	Comparison Groups			N Patients	Patient Health Concern/Clinical Condition	Target Population	Age	Sex, n (%)
	Study Period	Arm/ Group*	Arm Label*					
		Arm 2	COVID era clinic patients at various outpatient facilities	684	Gastroenterology/Rheumatology	NR	Mean: 54.47	Female: (51)
Mair, 2021(42)	Compares pre-COVID to COVID era	Arm 1	Pre-COVID (2019)	210	Rheumatology patients	NR	Mean: 54.6	Female: 142 (67.6)
		Arm 2	Telehealth	340	Rheumatology patients	NR	Mean: 55.6	Female: 244 (71.8)
Mathews, 2022(43)	Compares pre-COVID to COVID era	Full group	NR	NR	Pain management by nurse practitioners	Adults (22-90)	NR	NR
McCoy, 2022(44)	Compares pre-COVID to COVID era	Arm 1	In-person before telemedicine	113	Pediatric otolaryngology patients	Children (<18)	Mean: 4.99	Female: 43 (38.1)
		Arm 2	Telemedicine	59	Pediatric otolaryngology patients	Children (<18)	Mean: 6.15	Female: 30 (50.8)
		Arm 3	In-person during telemedicine	4	Pediatric otolaryngology patients	Children (<18)	Mean: 8.78	Female: 3 (75)
McNamara, 2021(45)	Compares pre-COVID to COVID era	Full group	Full group	537	Primary care, pharmacy visit	Adult and Elderly	Mean: 62.52	Female: 273 (50.8)
Metcalfe, 2023(46)	Later COVID era (June 2020 and later)	Full group	Overall	150	Otology referral	18 and above	Mean: 55	Female: 71 (47)
Minsky, 2021(47)	Compares pre-COVID to COVID era	Full group	Overall	279	Overweight	NR	Mean: 53	Female: (69)
Mossack, 2022(48)	Later COVID era (June 2020 and later)	Full group	Overall	48	Overactive bladder	18 and above	Mean: 51	Female: (100)
Offiah, 2022(49)	Compares pre-COVID to COVID era	Arm 1	Traditional clinic	1,220	Cardiology patients	Adult and Elderly	Mean: 61	Female: 548 (44.9)
		Arm 2	Virtual clinic	496	Cardiology patients	Adult and Elderly	Mean: 60	Female: 208 (41.9)
Ostberg, 2022(50)	General COVID era	Arm 2	Telehealth (Zoom)	455	Patients with chest pain	Adults (18-65)	Median: 44	Male: 228 (50.1)
Parise, 2021(51)	Early COVID era (March-June 2020)	Arm 1	Not included in telemedicine study	43	Type-1 diabetes	Adults (18-65)	Mean: 37	Male: 21 (49)
		Arm 2	Included in telemedicine study	166	Type-1 diabetes	Adults (18-65)	Mean: 40	Male: 80 (48.2)

Author, Year	Comparison Groups			N Patients	Patient Health Concern/Clinical Condition	Target Population	Age	Sex, n (%)
	Study Period	Arm/Group*	Arm Label*					
Phillips, 2021(52)	Early COVID era (March-June 2020)	Arm 1	Individuals presenting to initial in-person visit at respiratory assessment center	741	Pulmonary	NR	Median: 43.5	Female: (63.6)
		Arm 2	Individuals presenting to initial telehealth visit at respiratory assessment center	564	Pulmonary	NR	Median: 42.05	Female: (66.8)
Piga, 2022(53)	Early COVID era (March-June 2020)	Full group	Patients with inflammatory rheumatologic diseases	106	Rheumatology	NR	Median: 45.4	Male: 47 (44.3)
Pinsker, 2021(54)	Early COVID era (March-June 2020)	Arm 1	Individuals with diabetes receiving in-person insulin pump training	NR	Diabetes	Other (define)	Mean: NR Median: NR Range: NR	NR
		Arm 2	Individuals with diabetes receiving virtual insulin pump training	8,984	Diabetes	Other (define)	Mean: NR Median: NR Range: NR	NR
Prato, 2022(55)	Later COVID era (June 2020 and later)	Full group	Overall	40	Tourette syndrome	Children (<18)	Mean: 13.5	Male: 36 (90)
Reddy, 2021(56)	Early COVID era (March-June 2020)	Full group	Overall	1,744	Cancer patients	Adult and Elderly	Median: 60	Female: 924 (53)
Rene, 2022(57)	Early COVID era (March-June 2020)	Full group	Overall	338	Depression/Anxiety	18 and above	Mean: 50.6	Male: 45 (28.7)
Ripp, 2022(58)	Compares pre-COVID to COVID era	Arm 1	In-person (2019)	1,077	Developmental-behavioral pediatrics	Children (<18)	Mean: 9.4	Female: 270 (25.1)
		Arm 2	Telehealth (2020)	354	Developmental-behavioral pediatrics	Children (<18)	Mean: 9.3	Female: 91 (25.7)
Rowe, 2021(59)	Early COVID era (March-June 2020)	Arm 1	Telephone Cardiology Outpatient Visits	1,118	Cardiology	NR	Median: 67 Range: 54-76	Male: (56.4)
		Arm 2	Video Cardiology Outpatient Visits	327	Cardiology	NR	Median: 61 Range: 46-71	Male: (65.1)
Ryskina, 2021(60)	Compares pre-COVID to COVID era General COVID era	Arm 1	Patients having in-person primary care appointment	6,792	Primary Care	Elders (65+)	Mean: 74.8	Female: (60.8)
		Arm 2	Patients having telehealth primary care appointment	10,311	Primary Care	Elders (65+)	Mean: 75.1	Female: (60.5)
Severino, 2022(61)	General COVID era	Full group	Overall	184	Heart failure patients	18 and above	Mean:70.5	Female: 31 (34)
Sevilis, 2022(62)	Early COVID era (March-June 2020)	Arm 1	Pre-COVID	15,226	Stroke patients	Adult and Elderly	Mean: 67	Female: 8082 (53.1)
		Arm 2	COVID	11,105	Stroke patients	Adult and Elderly	Mean: 66.7	Female: 5802 (52.2)

Author, Year	Comparison Groups			N Patients	Patient Health Concern/Clinical Condition	Target Population	Age	Sex, n (%)
	Study Period	Arm/ Group*	Arm Label*					
Shah, 2022(63)	General COVID era	Full group	Overall	16,987	Patients with ED visits	Adult (18-65)	Mean: 53	NR
Sharma, 2020(64)	Compares pre-COVID to early COVID era (March-June 2020)	Arm 1	IBD Services before COVID (2019)	1,036	Irritable Bowel Disease (IBD)	NR	Median: 36 Range: 22-76	Female: (46)
		Arm 2	IBD Services after COVID (2020)	334	Irritable Bowel Disease (IBD)	NR	Median: 29 Range: 17-91	Female: (36)
Sohail, 2023(65)	General COVID era	Full group	Overall	NR	HIV primary care appointment	NR	Mean: NR	Male: (69.7)
Sun, 2022(66)	General COVID era	Full group	Overall	NR	Adults with diabetes	18 and above	Mean: NR	Female: 703 (49.37)
Szigety, 2022(67)	Compares pre-COVID to early COVID era (March-June 2020)	Full group	Full group	4,327	Genetic conditions	Children (<18)	Mean: 87.9	Female: 2258 (46.2)
Tarn, 2021(68)	Compares pre-COVID to early COVID era (March-June 2020)	Arm 1	Patients receiving in-person outpatient care at primary care clinic	52	Primary Care	NR	Mean: 26.4 Range: 1-72	Female: (42.3)
		Arm 2	Patients receiving telephone outpatient care at primary care clinic	55	Primary Care	NR	Mean: 40.7 Range: 1-89	Female: (70.9)
		Arm 3	Patients receiving telehealth(video) outpatient care at primary care clinic	89	Primary Care	NR	Mean: 40.3 Range: 4-73	Female: (64)
Tchang, 2022(69)	Compares pre-COVID to COVID era	Arm 1	In-person	69	Overweight/Obese patients	Adults (18-65)	Median: 56	Female: 50 (72)
		Arm 2	Hybrid	85	Overweight/Obese patients	Adults (18-65)	Median: 49	Female: 64 (75)
		Arm 3	Video	91	Overweight/Obese patients	Adults (18-65)	Median: 49	Female: 71 (78)
Wabe, 2022(70)	Compares pre-COVID to COVID era	Arm 1	Face to face	8,303,233	General practice	Adult and Elderly	Mean: NR	Female: 4684918 (56.4)
		Arm 2	Telehealth	5,304,983	General practice	Adult and Elderly	Mean: NR	Female: 3324348 (62.7)
Walker, 2023(71)	General COVID era	Full group	Overall	31,654	NR	NR	Mean: NR	NR
Watson, 2021(72)	General COVID era	Arm 1	Pre-telephone clinic (face to face)	814	Cancer patients	Adult and Elderly	Mean: 62.52	NR

Author, Year	Comparison Groups			N Patients	Patient Health Concern/Clinical Condition	Target Population	Age	Sex, n (%)
	Study Period	Arm/Group*	Arm Label*					
		Arm 2	Post-introduction (telephone)	910	Cancer patients	Adult and Elderly	Mean: 62.77	NR
Ye, 2022(73)	General COVID era	Arm 1	In-person	20,745	High blood pressure	Adult and Elderly	Mean: 66.7	Female: 10256 (49.4)
		Arm 2	1 telemedicine visit	6,878	High blood pressure	Adult and Elderly	Mean: 65.7	Female: 3553 (51.7)
		Arm 3	2 or more telemedicine visits	5,104	High blood pressure	Adult and Elderly	Mean: 65.4	Female: 3236 (63.4)
Zayde, 2021(74)	Compares pre-COVID to COVID era	Full group	Full group	12 dyads	Caregivers and children (general mental health)	Children and adult caregivers	Mean: Caregiver age: 44.17 Child age: 11.08	Female (for children): 3 (25)
Zhao, 2021(75)	Compares pre-COVID to COVID era	Arm 1	Individuals with heart failure attending in-person outpatient appointments	39	Heart Failure	NR	Mean: 71	Female: (25.6)
		Arm 2	Individuals with heart failure attending telehealth appointments	43	Heart Failure	NR	Mean: 70.4	Female: (27.9)
Zhu, 2021(76)	Early COVID era (March-June 2020)	Arm 1	2019 cohort (face to face)	1,443	Rheumatology patients	Adults (18-65)	Median: 55	Female: 902 (70.1)
		Arm 2	2020 cohort (telehealth)	1,597	Rheumatology patients	Adults (18-65)	Median: 54	Female: 1042 (69.8)
Zimmerman, 2021(77)	Early COVID era (March-June 2020)	Arm 1	In-person	207	General	Adults (18-65)	Mean: 38.16	Male: 62 (30)
		Arm 2	Telehealth	207	General	Adults (18-65)	Mean: 35.88	Male: 55 (26.6)

ED=emergency department; ENT= ear, nose, and throat; F2F=face to face; N=sample size; NR=not reported; RIC=referred to clinic

\* Study Arm/Group is defined in the column called Arm Label. Comparisons include in-person (arm 1) vs. telehealth (arm 2) visits and services provided in pre-COVID-19 era (assuming those services were predominantly in-person, arm 1) to telehealth in the COVID-19 era (arm 2). Some studies reported participants characteristics only for full population, others reported them for comparison groups.

### Supplementary Table 2-C. Provider/ Health System Characteristics of Studies Investigating the Effectiveness of Telehealth vs. In-person Care During COVID-19.

Author, year	Healthcare System	Specialty/Clinical Focus/Health System Setting
Adams, 2023(1)	Large/Regionally representative	Federally Qualified Health Centers
Adepoju, 2022(2)	Large/Regionally representative	Federally Qualified Health Centers
Afonso Nogueira, 2021(3)	Representative of a single large facility or organization	Heart failure clinic in hospital
Aiken, 2021(4)	NR	Abortion providers
Arias, 2022(5)	Representative of a single large facility or organization	Postpartum care
Barequet, 2021(6)	NR	NR
Baughman, 2021(7)	Large/Regionally representative	Primary care (wide, full-range care)
Borgen, 2021(8)	NR	Home-care services
Boshara, 2022(9)	Large/Regionally representative	HIV



<b>Author, year</b>	<b>Healthcare System</b>	<b>Specialty/Clinical Focus/Health System Setting</b>
Bryson, 2023(10)	Limited study, small facility	Adolescent medicine
Carlberg, 2020(11)	Limited study, small facility	Tertiary care, Level I trauma center
Casariago-Vales, 2021(12)	Regional healthcare network	At home monitoring
Chen, 2023(13)	Large/Regionally representative	Primary care (wide, full-range care)
Clark, 2022(14)	Limited study, small facility	Pregnancy clinic
Cobo-Calvo, 2022(15)	Limited study, small facility	MS/Autoimmune disorder center
Cunningham, 2022(16)	Representative of a single large facility or organization	Rehab/PT/OT/etc.
Cvietusa, 2022(17)	Large/Regionally representative	Primary care (wide, full-range care)
D'Anna, 2021(18)	Representative of a single large facility or organization	Primary care (wide, full-range care)
Duryea, 2021(19)	NR	Antenatal and postpartum care clinic
Fortier, 2022(20)	Large/Regionally representative	Mental health
Fredwall, 2021(21)	NR	Epilepsy clinic
Frost, 2022(22)	Nationally representative	Behavioral health
Gaetani, 2021(23)	NR	Hereditary hemorrhagic telangiectasia center
Gainer, 2023(24)	Limited study, small facility	Behavioral health
Gao, 2022(25)	Large/Regionally representative	OBGYN
Garmendia, 2021(26)	NR	Sleep unit
Griebeler, 2022(27)	Large/Regionally representative	Endocrinology and Metabolism Institute
Hatef, 2022(28)	Nationally representative	Not reported
Hughes, 2022(29)	Limited study, small facility	Acute decompensated heart failure
Jazayeri, 2022(30)	Limited study, small facility	Gastroenterology clinic
Kablinger, 2022(31)	Limited study, small facility	Mental health
Kerestes, 2021(32)	NR	Family planning clinic
Khosla, 2022(33)	Limited study, small facility	Primary care (wide, full-range care)
Klain, 2021(34)	NR	Radiometabolic Unit
Kolb, 2021(35)	NR	NR
Korycinski, 2022(36)	Limited study, small facility	Primary care (wide, full-range care)
Levinson, 2021(37)	Limited study, small facility	Eating disorder
Li, 2021(38)	NR	Eye hospital
Lindhagen, 2022(39)	Representative of a single large facility or organization	Gastroenterology department
Liou, 2022(40)	Limited study, small facility	Mental health
Liu, 2021(41)	NR	NR
Mair, 2021(42)	NR	Rheumatology clinic

<b>Author, year</b>	<b>Healthcare System</b>	<b>Specialty/Clinical Focus/Health System Setting</b>
Mathews, 2022(43)	Representative of a single large facility or organization	Pain management in the context of general medical care
McCoy, 2022(44)	Representative of a single large facility or organization	Otolaryngology
McNamara, 2021(45)	Representative of a single large facility or organization	Pharmacy visit
Metcalfe, 2023(46)	Limited study, small facility	Otorhinolaryngology
Minsky, 2021(47)	NR	Weight management clinic
Mossack, 2022(48)	Limited study, small facility	Urology
Offiah, 2022(49)	Large/Regionally representative	General cardiology clinics in hospital
Ostberg, 2022(50)	NR	Primary care (wide, full-range care)
Parise, 2021(51)	Representative of a single large facility or organization	Diabetes care center
Phillips, 2021(52)	NR	Primary care run respiratory assessment center
Piga, 2022(53)	Representative of a single large facility or organization	Rheumatology clinic
Pinsker, 2021(54)	NR	Diabetic center
Prato, 2022(55)	Limited study, small facility	Pediatric neurology clinic
Reddy, 2021(56)	Limited study, small facility	Cancer care
Rene, 2022(57)	Large/Regionally representative	Primary care (wide, full-range care)
Ripp, 2022(58)	Representative of a single large facility or organization	Mental health
Rowe, 2021(59)	NR	Cardiology clinic
Ryskina, 2021(60)	Regional healthcare network	Primary care clinic
Severino, 2022(61)	Limited study, small facility	NR
Sevilis, 2022(62)	Nationally representative	Stroke care
Shah, 2022(63)	Large/Regionally representative	ED Visits
Sharma, 2020(64)	NR	NR
Sohail, 2023(65)	Large/Regionally representative	Primary care (wide, full-range care)
Sun, 2022(66)	Representative of a single large facility or organization	Primary care (wide, full-range care)
Szigety, 2022(67)	Limited study, small facility	Clinical genetics
Tarn, 2021(68)	NR	NR
Tchang, 2022(69)	Limited study, small facility	Wellness/Health education
Wabe, 2022(70)	Large/Regionally representative	Primary care (wide, full-range care)
Walker, 2023(71)	Nationally representative	NR
Watson, 2021(72)	Representative of a single large facility or organization	Cancer care
Ye, 2022(73)	Representative of a single large facility or organization	Primary care (wide, full-range care)
Zayde, 2021(74)	Limited study, small facility	Mental health
Zhao, 2021(75)	Representative of a single large facility or organization	Multidisciplinary clinic in hospital

Author, year	Healthcare System	Specialty/Clinical Focus/Health System Setting
Zhu, 2021(76)	Representative of a single large facility or organization	Rheumatology
Zimmerman, 2021(77)	Representative of a single large facility or organization	Hospital
ED= Emergency Department; N=sample size; NR=not reported		

**Supplementary Table 3. Summary of Evidence for the Effects of Telehealth Versus In-person Care by Outcome Categories and Clinical Areas.\***

Outcome Categories		Clinical Areas						
		Care for General Medical Conditions, Adults	Care for General Medical Conditions, Child	Care for General Medical Conditions, All Ages	Care for Specific Conditions, COVID-19	Care for Specific Conditions, Pregnancy/ Prenatal/ Gynecological care	Care for Specific Conditions, Other Conditions	Care for General Behavioral/ Mental Health
<b>Healthcare utilization (n=38 studies)<sup>b</sup></b>	Emergency Department visits	Low P (1)	Low = (1)	Moderate P/T (2)	Low P (3)	Low P (1)	Low T (6)	No evidence
	Hospitalization	Moderate = (3)	No evidence	Moderate P/T (2)	Low P (2)	Low P (2)	Low T (11)	No evidence
	Readmission	No evidence	No evidence	No evidence	Low = (2)	Low = (1)	Low T (1)	No evidence
<b>Clinical outcomes (n=34 studies)<sup>b</sup></b>	Mortality	No evidence	No evidence	No evidence	No evidence	Low = (2)	Low T (4)	No evidence
	Patient-reported outcomes	No evidence	No evidence	No evidence	No evidence	Low P (2)	Low T (1)	Low T (5)
	Condition-specific clinical outcomes	Low = (1)	No evidence	No evidence	No evidence	Low P (4)	Low P (8)	Low T (2)
	Adverse events	Low T (1)	No evidence	No evidence	No evidence	Low T (3)	Low T (2)	Low = (1)
<b>Process outcomes (n=61 studies)<sup>†</sup></b>	Missed visits	Low P (2)	No evidence	Low T (1)	No evidence	Low T (3)	Low T (6)	Low P (2)
	Case resolution/ Duplication of services	No evidence	Low = (1)	Moderate P/T (2)	Insufficient ? \ (1)	Insufficient ? \ (1)	Low T (9)	No evidence
	Change in therapy/ Medication	Moderate P (2)	No evidence	No evidence	No evidence	No evidence	Low P (9)	No evidence
	Therapy/ Medication adherence	Low T (3)	No evidence	No evidence	No evidence	No evidence	Low P (5)	Low T (5)
	Up-to-date labs and paraclinical assessment	No evidence	Low P (1)	No evidence	No evidence	Low = (1)	Low P (7)	No evidence

**Insufficient, orange:** insufficient evidence; **Moderate, green:** moderate strength of evidence; **Low, blue:** low strength of evidence.  
<sup>\*</sup> Intervention T: favors telehealth; P: favors in-person; P/T: acute care patients favor in-person and chronic care patients favor telehealth; = little to no difference between in-person vs. telehealth; ?\: insufficient evidence to make a conclusion. Numbers in parentheses present the number of studies for each cell.  
<sup>†</sup> The total is more than 63 included studies as some studies reported multiple outcomes.

**Supplementary Table 4-A. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Healthcare Utilization, Emergency Department Visits.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n(%)	Comparison	Adjusted
Shah, 2022(63)	1a	Arm 1 – In-person ED visits (11,818) Arm 2 – Telehealth ED visits (5,169)	ED return visits	30 days	Arm 1 – Events: 1,865 (0.16) Arm 2 – Events: 937 (0.18)	Ref: Arm 1 Odds ratio: 1.23 (95% CI: 1.09 to 1.39), p=0.001	Sociodemographic and clinical factors, time from ED discharge to follow-up
Jazayeri, 2022(30)	1b	Arm 1 – In-person (1,131) Arm 2 – Telehealth (638)	ED visits	3 months	NR (NR)	Ref: Arm 1 t-test between means: Arm 1: 0.037 (SD 0.246) t-test between means: Arm 2: 0.017 (SD 0.142), p=0.61	No
Hatef, 2022(28)	1c	Arm 1 – First encounter in-person (493,716) Arm 2 – First encounter telemedicine (113,857)	Acute ambulatory care, ED follow-up	14 days	NR (NR)	Ref: Arm 1 Odds ratio: 1.11 (95% CI: 1.06 to 1.16), p=NR	Type of acute and chronic ambulatory care sensitive conditions treated during the episode.
		Arm 1 – First encounter in-person (410,743) Arm 2 – First encounter telemedicine (94,481)	Chronic ambulatory care, ED follow-up	14 days	NR (NR)	Ref: Arm 1 Odds ratio: 0.96 (95% CI: 0.92 to 1.01), p=NR	Type of acute and chronic ambulatory care sensitive conditions treated during the episode.
Phillips, 2021(52)	1c	Arm 1 – Individuals presenting to initial in-person visit at Respiratory Assessment center (741) Arm 2 – Individuals presenting to initial telehealth visit at Respiratory Assessment Center (564)	ED visit	14 Days	Arm 1 – Events: 29 (3.9) Arm 2 – Events: 28 (5)	Ref: Arm 1 Chi-squared: NR, p=0.357	No
Borgen, 2021(8)	2a	Arm 1 – Individuals with new COVID-19 not receiving telehealth care management discharged from the hospital (593) Arm 2 – Individuals with new COVID-19 receiving telehealth care management (192)	Hospital re-encounters (ED or Observation Unit)	30 days	Arm 1 – 167 (28.2) Arm 2 – 24 (12.5)	Ref: Arm 1, Chi-squared test of independence: 19.3, p<0.001	No
Casariago-Vales, 2021(12)	2a	Arm 1 – Primary Care Monitoring (3197) Arm 2 – TELEA Telehealth Monitoring (1187)	ED follow-up within study period	68 days	Arm 1 – Events: 227 (7.1) Arm 2 – Events: 307 (25.9)	Ref: Arm 1, Assumed t-test/man Whitney: NR, p<.0001	No
Korycinski, 2022 (36)	2a	Arm 1 – Control (154) Arm 2 – Telephone based intervention (139)	ED visit	30 days	Arm 1 – 24 (15.6) Arm 2 – 13 (10.1)	Ref: Arm 1, p=0.117	No
Kerestes, 2021(32)	2b	Arm 1 – In person (94) Arm 2 – Telemedicine + med pick up (124) Arm 2 – Telemedicine + Mailed Medicine (69)	ED visit	252 days	Arm 1 – 2 (2.1) Arm 2 – 5 (4) Arm 3 – 4 (5.8)	NR	No

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n(%)	Comparison	Adjusted
Afonso Nogueira, 2021(3)	2c	Arm 1 – Individuals with Heart Failure attending outpatient cardiology appointments (Pre-COVID) (160) Arm 2 – Individuals with Heart Failure attending outpatient cardiology appointments (43)	ED visits for heart failure	497 days	Arm 1 -214 (NR) Arm 2 – 52 (NR)	Ref: Arm 1, Chi-squared: NR, p=0.27	No
Cvietusa, 2022(17)	2c	Arm 1 – No asthma care (Baseline: NR, Follow-up: 2,977) Arm 2 – In-person only (Baseline: NR, Follow-up: 1,792) Arm 3 – Mixed (in- person and virtual) (Baseline: NR, Follow-up: 1,084) Arm 4 – Virtual care only (Baseline: NR, Follow-up: 1,952)	ED/urgent care visit	NR	Arm 1 – Continuous data Baseline: NR Follow-up: Mean: 0 (SE 0) Arm 2 – Continuous data Baseline: NR Follow-up: Mean: 0.048 (SE 0.012) Arm 3 – Continuous data Baseline: NR Follow-up: Mean: 0.137 (SE 0.033) Arm 4 – Continuous data Baseline: NR Follow-up: Mean: 0 (SE 0)	Ref: Arm 1, p=<0.001 (for all comparisons)	Age, sex, race, baseline value of outcome, person-year, overdispersion
Gaetani, 2021(23)	2c	Arm 1 – Pre-COVID: Individuals with Hereditary Hemorrhagic Telangiectasia (45) Arm 2 – Post-COVID: Individuals with Hereditary Hemorrhagic Telangiectasia (receiving telehealth) (45)	ED visit or Hospitalization	244 Days	Arm 1 – 11 (24.4) Arm 2 – 9 (20)	Ref: Arm 1 % change from baseline: -0.044, p=not significant	No
Reddy, 2021(56)	2c	Arm 1 – Before virtual care (in-person) (763) Arm 2 – Transition to virtual care (168) Arm 3 – After transition to virtual care (813)	ED visit	4 weeks before transition	Arm 1 – 24 (3.1) Arm 2 – 2 (1.2) Arm 3 – 7 (0.9)	Ref: Arm 1, p=0.0031	No
Walker, 2023(71)	2c	Arm 1 – In-person (20,666) Arm 2 – Telehealth (10,988)	ED visits	NR	Arm 1 – NR (0.42) Arm 2 – NR (0.338)	Ref: Arm 1 Likelihood of ED visit: -0.003 (95% CI: -0.011 to 0.004), p=0.351	Baseline characteristic, facility fixed effect
Watson, 2021(72)	2c	Arm 1 – Pre- telephone clinic (face to face) (814) Arm 2 – Post- introduction (telephone) (910)	Presentations (excluding hospitalization) within 24- hours	24 hours	Arm 1 – 3 (0.37) Arm 2 – 4 (0.44)	Ref: Arm 1, p=1	No
		Arm 1 – Pre- telephone clinic (face to face) (814) Arm 2 – Post- introduction (telephone) (910)	Presentations (excluding hospitalization) within 7 days	7 days	Arm 1 – 3 (0.37) Arm 2 – 7 (0.77)	Ref: Arm 1, p=0.343	No

1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2s=specialized care, COVI-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. CI=confidence interval; ED=emergency department; N=sample size; NR=not reported; OR=odds ratio; p=p-value; Ref=reference.

**Supplementary Table 4-B. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Healthcare Utilization, Hospitalization.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Ryskina, 2021(60)	1a	Arm 1 - Patients having in-person primary care appointment (6792) Arm 2 - Patients having telehealth primary care appointment (10311)	Any Hospitalization	NR	NR	Ref: Arm 1, Odds ratio: 0.72 (95% CI: 0.57 to 0.9), p=0.004	Age, sex, race, ethnicity, and the weighted CCI

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Zimmerman, 2021(77)	1a	Arm 1 - In-person (207) Arm 2 - Telehealth (207)	Transfer to in-patient care	NR	Arm 1 - Events: 7.038 (3.4) Arm 2 - Events: 2.898 (1.4)	p=NS	No
Shah, 2022(63)	1a	Arm 1 - In-person ED visits (11,818) Arm 2 - Telehealth ED visits (5,169)	Hospitalization after ED visit	30 days	Arm 1 - Events: 438 (0.04) Arm 2 - Events: 238 (0.05)	Ref: Arm 1 Odds ratio: 1.31 (95% CI: 1.09 to 1.58), p=0.007	Sociodemographic and clinical factors, time from ED discharge to follow-up
Hatef, 2022(28)	1c	Arm 1 - First encounter in-person (493,716) Arm 2 - First encounter telemedicine (113,857)	Acute ambulatory care, Hospitalization on follow-up	14 days	NR (NR)	Ref: Arm 1 Odds ratio: 1.03 (95% CI: 0.98 to 1.08), p=NR	Type of acute and chronic ambulatory care sensitive conditions treated during the episode.
		Arm 1 - First encounter in-person (410,743) Arm 2 - First encounter telemedicine (94,481)	Chronic ambulatory care, Hospitalization on follow-up	14 days	NR (NR)	Ref: Arm 1 Odds ratio: 0.94 (95% CI: 0.9 to 0.99), p=NR	Type of acute and chronic ambulatory care sensitive conditions treated during the episode.
Phillips, 2021(52)	1c	Arm 1 - Individuals presenting to initial in-person visit at Respiratory Assessment center (741) Arm 2 - Individuals presenting to initial telehealth visit at Respiratory Assessment Center (564)	Hospital admission	14 Days	Arm 1 - 21 (2.8) Arm 2 - 11 (2)	Ref: Arm 1 Chi-squared: NR, p=0.307	No
Casariego-Vales, 2021(12)	2a	Arm 1 - Primary Care Monitoring (3197) Arm 2 - TELEA Telehealth Monitoring (1187)	Hospitalization	68 days	Arm 1 - 65 (2) Arm 2 - 184 (NR)	Ref: Arm 1, Assumed t-test/man Whitney: NR, p≤.0001	No
			Hospitalization after ED visit	68 days	Arm 1 - 65 (28.6) Arm 2 - 184 (NR)	Ref: Arm 1, Assumed t-test/man Whitney: NR, p≤.0001	No
Korycinski, 2022 (36)	2a	Arm 1 - Control (154) Arm 2 - Telephone based intervention (139)	Hospital admission	30 days	Arm 1 - 10 (6.5) Arm 2 - 6 (4.3)	Ref: Arm 1, Hazard ratio: 0.578 (95% CI: 0.29 to 1.13), p=0.452	No
Arias, 2022(5)	2b	Arm 1 - Pre-telehealth Implementation (780) Arm 2 - Post-telehealth Implementation (799)	Intensive care nursery	NR	Arm 1 - 102 (13.1) Arm 2 - 115 (14.4)	Ref: Arm 1 p=0.45	No
Duryea, 2021(19)	2b	Arm 1 - Pregnant individuals who received in-person prenatal Care (6,559) Arm 2 - Pregnant individuals who received audio telehealth and in-person prenatal care (6,048)	Full Term NICU Admission	183 Days	Arm 1 - 98 (1.5) Arm 2 - 94 (1.6)	Ref: Arm 1 Relative risk: 1.03 (95% CI: 0.78 to 1.36), p=0.78	BMI at delivery, race

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Afonso Nogueira, 2021(3)	2c	Arm 1 - Individuals with heart failure attending outpatient cardiology appointments (Pre-COVID) (160) Arm 2 - Individuals with heart failure attending outpatient cardiology appointments (43)	Hospitalized for Heart Failure	497 days	Arm 1 - 71 (44.4) Arm 2 - 11 (25.6)	Ref: Arm 1, Chi-squared: NR, p=0.83	No
Cvietusa, 2022(17)	2c	Arm 1 - No asthma care (Baseline: NR, Follow-up: 2,977) Arm 2 - In-person only (Baseline: NR, Follow-up: 1,792) Arm 3 - Mixed (in- person and virtual) (Baseline: NR, Follow-up: 1,084) Arm 4 - Virtual care only (Baseline: NR, Follow-up: 1,952)	Hospitalization	NR	Arm 1 - Continuous data Baseline: NR Follow-up: Mean: 0 (SE 0) Arm 2 - Continuous data Baseline: NR Follow-up: Mean: <0.001 (SE 0.062) Arm 3 - Continuous data Baseline: NR Follow-up: Mean: <0.001 (SE 0.291) Arm 4 - Continuous data Baseline: NR Follow-up: Mean: 0 (SE 0)	Ref: Arm 1, p=0.034 (for all comparisons)	Age, sex, race, baseline value of outcome, person-year, overdispersion
D'Anna, 2021(18)	2c	Arm 1 - In-person (2019) (180) Arm 2 - Telephone (2020) (136)	Admission to hospital for recurrent transient ischemic attack/stroke	3 months	Arm 1 - 3 (1.67) Arm 2 - 2 (1.47)	Ref: Arm1, p=0.445	No
Ostberg, 2022(50)	2c	Arm 1 - In-person (2019) (455) Arm 2 - Telehealth/zoom (2020) (455)	Admit to in- patient	NR	Arm 1 - 27 (5.9) Arm 2 - 29 (6.4)	Ref: Arm1, p=0.054	No
Severino, 2022(61)	2c	Arm 1 - Telehealth (92) Arm 2 - In-person (92)	Cardiovascular hospitalization	12 months	Arm 1 - 14 (0.152) Arm 2 - 19 (0.207)	Ref: Arm 1 (telehealth) Hazard ratio: 1.34 (95% CI: 0.67 to 2.68), p=0.4	Age, gender, clinical characteristics, echocardiographic parameters
Sevilis, 2022(62)	2c	Arm 1: Pre- COVID (15,226) Arm 2: COVID (11,105)	Inpatient thrombolytics	24 hours	Arm 1 - 66 (4) Arm 2 - 70 (5.7)	Ref: Arm1, p=0.033	No
Sharma, 2020(64)	2c	Arm 1: IBD Services before COVID (2019) (1,036) Arm 2: IBD Services after COVID (2020) (334)	Inpatient Contact	NR	Arm 1 - Events: 17 (1.6) Arm 2 - Events: 3 (0.9)	Ref: Arm 1, % change from baseline: -0.82, p=NR	No
Walker, 2023(71)	2c	Arm 1 - In-person (20,666) Arm 2 - Telehealth (10,988)	In-patient admission	NR	Arm 1 - NR (0.265) Arm 2 - NR (0.228)	Ref: Arm 1 Likelihood of in-patient admission: 0.024 (95% CI: -0.018 to 0.031), p=<0.001	Baseline characteristic, facility fixed effect
Watson, 2021(72)	2c	Arm 1 - Pre- telephone clinic (face to face) (814) Arm 2 - Post- introduction (telephone) (910)	Hospitalization within 24-hours	24 hours	Arm 1 - 18 (2.21) Arm 2 - 22 (2.42)	Ref: Arm 1, p=0.531	No
Zhao, 2021(75)	2c	Arm 1 - Individuals with heart failure attending in-person outpatient appointment (39) Arm 2 - Individuals with heart failure attending telehealth appointments (43)	Hospitalization for Heart Failure	66-82 days	Arm 1 - 0 (NR) Arm 2 - 2 (NR)	NR	No



Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Zhu, 2021(76)	2c	Arm 1 - In-person (2019) (1,286) Arm 2 - Telephone (2020) (1,493)	Planned Admission or Procedure	NR	Arm 1 - 33 (2.6) Arm 2 - 15 (1)	Ref: Arm 1 Odds ratio: 0.38 (95% CI: 0.208 to 0.71), p=0.002	No
			Unplanned admission	NR	Arm 1 - 53 (4.1) Arm 2 - 39 (2.6)	Ref: Arm 1 Odds ratio: 0.62 (95% CI: 0.41 to 0.95), p=0.027	No
1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2s=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. ACSC= ambulatory care sensitive conditions; CCI= Charlson Comorbidity Index; CI=confidence interval; ED=emergency department; N=sample size; NICU=neonatal intensive care unit; NR=not reported; NS=non-significant; OR=odds ratio; p=p-value; Ref=reference.							

**Supplementary Table 4-C. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Healthcare Utilization, Readmission.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Borgen, 2021(8)	2a	Arm 1 - Individuals with new COVID-19 not receiving telehealth care management discharged from the hospital (593) Arm 2 - Individuals with new COVID-19 receiving telehealth care management (114)	Hospital Readmission	30 days	Arm 1 - 26 (4.4) Arm 2 - 4 (3.5)	Ref: Arm 1, Chi-squared test of independence: 0.18, p=0.6	No
Carlberg, 2020(11)	2a	Arm 1 - Patients receiving telehealth and in- person evaluation in the ED (132) Arm 2 - Patients receiving telehealth only evaluation in the ED (153)	Admitted upon return, within 72 hours, COVID-19 related	72 hours	Arm 1 - 1 (8) Arm 2 - 0 (0)	NR	No
			Admitted upon return, Within 72 hours, Non-COVID-19 related	72 hours	Arm 1 - 0 (0) Arm 2 - 0 (0)	NR	No
Khosla, 2022(33)	2b	Arm 1 - Pre- pandemic (215) Arm 2 – Post-pandemic (258)	Readmission	6 weeks	Arm 1 - 38 (17.8) Arm 2 - 45 (17.4)	Ref: Arm 1, p=0.91	No
Hughes, 2022(29)	2c	Arm 1 – In-person follow-up (NR) Arm 2 – Telehealth follow-up (146)	Readmission	30 days	Arm 1 - 6 (0.171) Arm 2 - 20 (0.137)	NR	No
1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2a=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. CI=confidence interval; N=sample size; NR=not reported; OR=odds ratio; p=p-value; Ref=reference.							

**Supplementary Table 5-A. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Clinical Outcomes, Mortality.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Aiken, 2021(4)	2b	Arm 1 - Individuals receiving medical abortion following in-person visit (22,158) Arm 2 - Individuals receiving medical abortion following telemedicine/hybrid visit (29,984)	Adverse Effect: Death	59 days (Arm 1) 85 days (Arm 2)	Arm 1 - 0 (0) Arm 2 - 0 (0)	Ref: Arm 1 Covariate adjusted test of difference or proportions: NR, p=NR	Patient age, race/ethnicity, gestational age, parity and prior abortions using logistic regression and weighted risk differences.
Arias, 2022(5)	2b	Arm 1 - Pre-telehealth implementation (780) Arm 2 - Post-telehealth implementation (799)	Fetal death	NR	Arm 1 - 11 (1.4) Arm 2 - 13 (1.6)	Ref: Arm 1, p=0.72	No
Afonso Nogueira, 2021(3)	2c	Arm 1 - Individuals with heart failure attending outpatient cardiology appointments (Pre-COVID) (160) Arm 2 - Individuals with heart failure attending outpatient cardiology appointments (43)	Mortality	497 days	Arm 1 - 20 (12.5) Arm 2 - 1 (2.3)	Ref: Arm 1 Test of real vs estimated mortality: NR, p=NR	No
Severino, 2022(61)	2c	Arm 1 – Telehealth (92) Arm 2 - In-person (92)	Mortality	12 months	Arm 1 - 10 (0.109) Arm 2 - 11 (0.12)	Ref: Arm 1 (telehealth) Hazard ratio: 1.09 (95% CI: 0.46 to 2.56), p=0.4	Age, gender, clinical characteristics, echocardiographic parameters
Watson, 2021(72)	2c	Arm 1 - Pre- telephone clinic (face to face) (814) Arm 2 - Post- introduction (telephone) (910)	30-day mortality post systemic therapy	30 days	Arm 1 - 7 (0.86) Arm 2 - 0 (0)	Ref: Arm 1, p=0.008	No
Zhao, 2021(75)	2c	Arm 1 - Individuals with heart failure attending in-person outpatient appointment (39) Arm 2 - Individuals with heart failure attending telehealth appointments (43)	Mortality and Major Cardiovascular Event	66-82 days	Arm 1 - NR (5.1) Arm 2 - NR (2.33)	Ref: Arm 1 Assumed Chi-squared: NR, p=0.6	No

1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2a=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. CI=confidence interval; N=sample size; NR=not reported; OR=odds ratio; p=p-value; Ref=reference.

**Supplementary Table 5-B. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Clinical Outcomes, Patient-Reported Outcomes.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Arias, 2022(5)	2b	Arm 1 - Pre-telehealth Implementation (780) Arm 2 - Post-telehealth Implementation (799)	Postpartum depression screening	NR	Arm 1 - 368 (65.1) Arm 2 - 571 (86.3)	Ref: Arm 1 Odds ratio: 4.61 (95% CI: 3.38 to 6.28), p<0.001	Prenatal care provider only
Bryson, 2023(10)	2b	Arm 1 - Telehealth (156) Arm 2 - In-person (270)	Follow-up for Long acting reversible contraceptive; any symptom reported (pelvic pain, uterine bleeding,	NR	Arm 1 - 87 (55.8) Arm 2 - 123 (45.6)	Ref: Arm 1 (telehealth) Odds ratio: 1.4 (95% CI: 0.94 to 2.1), p=0.04	Patient age at the time of insertion, presence of menstrual or medical

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
			dysmenorrhea, acne, weight change, mental health change)				diagnoses at insertion, reason for long-acting reversible contraception (LARC), type of LARC device, and timing of follow-up visit.
Minsky, 2021(47)	2c	Arm 1 - Not using telemedicine (228) Arm 2 - Using telemedicine (51)	Deterioration in dietary habit score	NR	Arm 1 - 97 (42.54) Arm 2 - 17 (33.33)	NR	No
Kablinger, 2022(31)	3	Arm 1 – Pre-pandemic (196) Arm 2 – Post-pandemic (196)	BASE-6	NR	Arm 1 -Continuous data Baseline: NR Follow-up: Mean: 23.91 (NR) Arm 2 - Arm 1 - Continuous data Baseline: NR Follow-up: Mean: 21.01 (NR)	Ref: Arm 1 Difference: p=<0.00	No
		Arm 1 – Pre-pandemic (199) Arm 2 – Post-pandemic (199)	GAD-7	NR	Arm 1 - Continuous data Baseline: NR Follow-up: Mean: 10.55 (NR) Arm 2 - Continuous data Baseline: NR Follow-up: Mean: 8.39 (NR)	Ref: Arm 1 Difference: p=<0.00	No
		Arm 1 – Pre-pandemic (176) Arm 2 – Post-pandemic (176)	PHQ-9	NR	Arm 1- Continuous data Baseline: NR Follow-up: Mean: 11.88 (NR) Arm 2 - Continuous data Baseline: NR Follow-up: Mean: 9.7 (NR)	Ref: Arm 1 Difference: p=0.00	No
Levinson, 2021(37)	3	Arm 1 – In-person (60) Arm 2 – Telehealth, zoom (33)	Eating Disorder Examination Questionnaire v4 (EDE-Q-IV)	Mean stay: 11.32 weeks Discharge	Arm 1 - Continuous data Baseline: Mean: 4.1 (SD 1.07) Follow-up: Mean: 2.73 (SD 1.24) Arm 2 - Continuous data Baseline: Mean: 3.56 (SD 1.42) Follow-up: Mean: 2.56 (SD 1.14)	Ref: Arm 1 p=NS	No
			Beck Depression Inventory II (BDI-II)	Mean stay: 11.32 weeks Discharge	Arm 1 - Continuous data Baseline: Mean: 31.2 (SD 11.64) Follow-up: Mean: 23.37 (SD 14.42) Arm 2 - Continuous data	Ref: Arm 1 p=NS	No

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
					Baseline: Mean: 26.16 (SD 12.62) Follow-up: Mean: 20.13 (SD 11.8)		
Liou, 2022(40)	3	Arm 1 – In-person (Baseline: 242, Follow-up: 217) Arm 2 – Telehealth (Baseline: 25, Follow-up: 15)	Patient Health Questionnaire-9 (PHQ-9)	NR	NR	Ref: Arm 1 Mean change from baseline: 0.26 (95% CI: -2.66 to 3.18), p=NR	Total number of sessions, PTSD, grief, and pain
			General Anxiety Disorder-7 (GAD-7)	NR	NR	Ref: Arm 1 Mean change from baseline: 0.16 (95% CI: -2.34 to 2.67), p=NR	Total number of sessions, PTSD, grief, and pain
Rene, 2022(57)	3	Arm 1 – In-person (157) Arm 2 – Telehealth (181)	Depression severity (PHQ-9)	NR	Arm 1 - Continuous data Baseline: Mean: 11.5 (SD 6.4) Follow-up: Mean: 8.7 (SD 6.3) Arm 2 - Continuous data Baseline: Mean: 11.8 (SD 5.7) Follow-up: Mean: 8.9 (SD 6.2)	Ref: Arm 1 p=<0.001	Treatment cohort, age, sex, race, initial score
			Anxiety severity (GAD-7)	NR	Arm 1 - Continuous data Baseline: Mean: 11 (SD 4.9) Follow-up: Mean: 8.7 (SD 5.5) Arm 2 - Continuous data Baseline: Mean: 12.9 (SD 4.9) Follow-up: Mean: 9.8 (SD 5.6)	Ref: Arm 1 p=<0.001	Treatment cohort, age, sex, race, initial score
Zayde, 2021(74)	3	Arm 1 – Pre-pandemic (12) Arm 2 – Post-pandemic (12)	Patient Health Questionnaire–9 score	20 Weeks	Arm 1 - Continuous data Baseline: Mean: 7.8 (SD 5.96) Arm 2 - Follow-up: Mean: 3.1 (SD 2.02)	Cohen's d: -0.75 (95% CI: -0.62 to 8.78), p=NR	No
			Generalized Anxiety Disorder Scale–7 score (before vs after)	20 Weeks	Arm 1 - Continuous data Baseline: Mean: 8.2 (SD 5.47) Arm 2 - Follow-up: Mean: 2.8 (SD 1.75)	Cohen's d: -0.94 (95% CI: 2.23 to 8.57), p=NR	No

1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2a=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. BASE-6= Brief adjustment scale-6; BDI-II= Beck Depression Inventory II; CI=confidence interval; EDE-Q-IV= Eating Disorder Examination Questionnaire version 4; GAD-7= Generalized anxiety disorder-7; N=sample size; NR=not reported; NS=non-significant; p=p-value; PHQ-9= The patient health questionnaire -9; Ref=reference; SD=standard deviation

**Supplementary Table 5-C. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Clinical Outcomes, Condition Specific Outcomes.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Griebeler, 2022(27)	1a	Arm 1 - In-person (35) Arm 2 - Telehealth (35)	5% weight change	12 weeks	Arm 1 - (70.5) Arm 2 - (64.7)	Ref: Arm 1 Odds ratio: 0.9 (95% CI: 0.6 to 1.3), p=NR	No
Aiken, 2021(4)	2b	Arm 1 - Individuals receiving medical abortion following in-person visit (22,158) Arm 2 - Individuals receiving medical abortion following telemedicine/hybrid visit (29,984)	Successful Medical Abortion	59 days (Arm 1) 85 days (Arm 2)	Arm 1 – 21,769 (0.982) Arm 2 – 29,618 (0.988)	Ref: Arm 1 Covariate adjusted test of difference or proportions: NR, p=1	Patient age, race/ethnicity, gestational age, parity and prior abortions using logistic regression and weighted risk differences.
Arias, 2022(5)	2b	Arm 1 - Pre-telehealth implementation (780) Arm 2 - Post-telehealth implementation (799)	Any breastfeeding at postpartum visit	NR	Arm 1 - 420 (75.3) Arm 2 - 473 (72.3)	Ref: Arm 1, Odds ratio: 0.09 (95% CI: 0.68 to 1.18), p=0.25	No
Clark, 2022(14)	2b	Arm 1 - In-person (208) Arm 2 - Telehealth (295)	C-section	NR	Arm 1 - 110 (52.8) Arm 2 - 157 (53.2)	Ref: Arm 1, p=0.941	No
			NICU admission		Arm 1 - 38 (18.3) Arm 2 - 68 (23)	Ref: Arm 1 p=0.296	No
Gao, 2022(25)	2b	Arm 1 - In-person (938) Arm 2 - Telehealth (938)	Pre-term birth <37 weeks	37 weeks	Arm 1 - 127 (13.5) Arm 2 – 153 (16.3)	Ref: Arm 1, p=0.76	Matched on age, race, ethnicity, and prenatal conditions, including hypertensive disorder, gestational diabetes, and infections of genitourinary tract in pregnancy
Barequet, 2021(6)	2c	Arm 1 - In-person/Office (NR) Arm 2 - Telehealth (204)	Diagnostic accuracy and reliability for detecting keratoconus patients' progression - Specificity between office and remote	NR	Arm 1 - Continuous data Baseline: NR Arm 2 - Follow-up: Specificity: 95.8 (95% CI NR)	NR	No
			Diagnostic accuracy and reliability -	NR	Arm 1 - Continuous data Baseline: NR Arm 2 - Follow-up:	NR	No

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
			Sensitivity between office and remote		Sensitivity: 69.2 (95% CI NR)		
			Diagnostic accuracy and reliability - Positive predictive value between office and remote	NR	Arm 1 - Continuous data Baseline: NR Arm 2 - Follow-up: 52.9 (95% CI NR)	NR	No
			Diagnostic accuracy and reliability - Negative predictive value between office and remote	NR	Arm 1 - Continuous data Baseline: NR Arm 2 - Follow-up: 97.9 (95% CI NR)	NR	No
Cvietusa, 2022(17)	2c	Arm 1 - No asthma care (Baseline: NR, Follow-up: 2,977) Arm 2 - In-person only (Baseline: NR, Follow-up: 1,792) Arm 3 - Mixed (in- person and virtual) (Baseline: NR, Follow-up: 1,084) Arm 4 - Virtual care only (Baseline: NR, Follow-up: 1,952)	Asthma exacerbations	NR	Arm 1 - Continuous data Baseline: NR Follow-up: Mean: 0.013 (SE 0.003) Arm 2 – Continuous data Baseline: NR Follow-up: Mean: 0.127 (SE 0.015) Arm 3 - Continuous data Baseline: NR Follow-up: Mean: 0.537 (SE 0.055) Arm 4 - Continuous data Baseline: NR Follow-up: Mean: 0.161 (SE 0.018)	Ref: Arm 1, p=<0.001 (for all comparisons)	No
Fredwall, 2021(21)	2c	Arm 1 - Patients seen in- person at Epilepsy Clinic (101) Arm 2 - Patients seen by telemedicine at Epilepsy Clinic (16)	In remission or had improvements, 1 month	1 month	Arm 1 - NR (0.7) Arm 2 - 14 (0.88)	NR	No
			In remission or had improvements, 3 months	3 months	Arm 1 - NR (0.75) Arm 2 - 14 (0.88)	NR	No
Mair, 2021(42)	2c	Arm 1 - Pre-COVID (2019) (210) Arm 2 - Tele-rheumatology (340)	Disease in remission	NR	Arm 1 - 162 (77.1) Arm 2 - 291 (85.6)	Ref: Arm1 Difference in proportion : 0.08 (95% CI: 0.02 to 0.15), p=Significant	NR
Minsky, 2021(47)	2c	Arm 1 - Not using telemedicine (228) Arm 2 - Using telemedicine (51)	Likely to lose weight	NR	NR	Ref: Arm1 Odds ratio: 2.79 (95% CI: 1.04 to 7.48), p=0.042	Gender, age, baseline weight, treatment, exercise level, mood, dietary score

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Tchang, 2022(69)	2c	Arm 1 - In-person (69) Arm 2 - Hybrid (85) Arm 3 - Video (91)	≥5% weight loss	6 months	Arm 1 - 32 (46.4) Arm 2 - 47 (55.3) Arm 3 - 54 (59.3)	Ref: Arm 1, p=0.26	No
Walker, 2023(71)	2c	Arm 1 - In-person (20,666) Arm 2 - Telehealth (10,988)	Likelihood of HbA1C in control	NR	Arm 1 - NR (NR) Arm 2 - NR (NR)	Ref: Arm 1 Likelihood estimate of HbA1C in control: 0.013 (: 0.002 to 0.024), p=<0.023	Baseline characteristic, facility fixed effect
Ye, 2022(73)	2c	Arm 1 - In-person (20,745) Arm 2 - 1 telemedicine visit (6,878) Arm 3 - 2 or more telemedicine visits (5,104)	Not Meeting the Controlling High Blood Pressure quality measure (all hypertension patients)	NR	NR	Ref: Arm 1 Arm 2 - Odds ratio: 2.06 (95% CI: 1.94 to 2.18), p=<0.001 Ref: Arm 1 Arm 3 - Odds ratio: 2.49 (95% CI: 2.31 to 2.68), p=<0.001	No
Levinson, 2021(37)	3	Arm 1 - In-person (60) Arm 2 - Telehealth, zoom (33)	Body Mass Index	Mean stay: 11.32 weeks Discharge	Arm 1 - Continuous data Baseline: NR Follow-up: Mean: 24.78 (SD 7.63) Arm 2 - Continuous data Baseline: NR Follow-up: Mean: 26.26 (SD 10.39)	Ref: Arm 1 p=NS	No
Prato, 2022(55)	3	Arm 1 - In-person (20) Arm 2 - Telehealth, zoom (20)	Yale Global Tic Severity Rating Scale (YGTSS)	2 months	Arm 1 - Continuous data Baseline: 25.8 (SD 7.3) Follow-up: Mean: 13.7 (SD 5.4), % change from baseline -7.7 (95% CI: -8.9 to -6.4) Arm 2 - Continuous data Baseline: 25.5 (SD 10.5) Follow-up: Mean: 14.1 (SD 6.3), % change from baseline -6.6 (95% CI: -7.7 to -5.5)	Ref: Arm 1 , % change from baseline: 1.1 (95% CI: -0.6 to 2.7), p=NR	No
			Children's Yale-Brown Obsessive-Compulsive Scale for Children (CY-BOCS)	2 months	Arm 1 - Continuous data, Baseline: Mean: 22.7 (SD 12.7), Follow-up: Mean: 15.1 (SD 7.2), % change from baseline: -3.4 (95% CI: -4.6 to -2.2) Arm 2 - Continuous data Baseline: Mean: 22.3 (SD 12), Follow-up: mean: 14.3 (SD 6.6), % change from baseline: -4.3 (95% CI: -5.4	Ref: Arm 1 , % change from baseline: -0.9 (95% CI: -2.5 to 0.7), p=NR	No

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
					to -3.2)		
			Multidimensional Anxiety Scale for Children (MASC)	2 months	Arm 1 - Continuous data Baseline: Mean: 36.2 (SD 15.3), Follow-up: Mean: 22.6 (SD 5.4), % change from baseline: -5.1 (95% CI: -6.3 to -3.9) Arm 2 - Continuous data Baseline: Mean: 35.1 (SD 16.8), Follow-up: mean: 21.6 (SD 10.1), % change from baseline: -6 (95% CI: -7.2 to -4.9)	Ref: Arm 1, % change from baseline: -1 (95% CI: -2.6 to 0.7), p=NR	No

1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2a=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. CI=confidence interval; N=sample size; NR=not reported; OR=odds ratio; p=p-value; Ref=reference. BP=blood pressure; CI=confidence interval; IQR=interquartile range; ml=milliliter; N=sample size; NR=not reported; OR=odds ratio; p=p-value; Ref=reference; SD=standard deviation; SE=standard error

**Supplementary Table 5-D. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Clinical Outcomes, Adverse Events.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
McNamara, 2021(45)	1a	Arm 1 - Face to face (341) Arm 2 – Telehealth (151)	Average medication related problems per encounter	NR	Arm 1 - Continuous data Baseline: NR Follow-up: Mean: 1.65 (SD 1.56) Arm 2 - Continuous data Baseline: NR Follow-up: Mean: 1.06 (SD 1.21)	Ref: Arm 1, p<<0.01	No
			Medication related problem: adverse drug event (per encounter)	NR	Arm 1 - Continuous data Baseline: NR Follow-up: Mean: 0.05 (SD 0.45) Arm 2 - Continuous data Baseline: NR Follow-up: Mean: 0.12 (SD 0.34)	Ref: Arm 1, p=0.496	No
Aiken, 2021(4)	2b	Arm 1 - Individuals receiving medical abortion following in-person visit (22,158) Arm 2 - Individuals receiving medical abortion following telemedicine/hybrid visit (29,984)	Adverse Effect: Major Surgery	59 days (Arm 1) 85 days (Arm 2)	Arm 1 - 0 (0) Arm 2 - 0 (0)	Ref: Arm 1 Covariate adjusted test of difference or proportions: NR, p=NR	Patient age, race/ethnicity, gestational age, parity and prior abortions using logistic regression and weighted risk differences.



Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Duryea, 2021(15)	2b	Arm 1 - Pregnant individuals who received in-person prenatal Care (6,559) Arm 2 - Pregnant individuals who received audio telehealth and in- person prenatal care (6,048)	Composite Outcome (Still Birth, Full-term NICU Admission, Placental Abruption, Arterial Blood Gas pH <7.0	183 Days	Arm 1 - 195 (0.03) Arm 2 - 173 (0.029)	Ref: Arm 1 Relative risk: 0.96 (95% CI: 0.78 to 1.17), p=0.71	BMI at delivery, race
Kerestes, 2021(32)	2b	Arm 1 - In person (94) Arm 2 – Telemedicine + med pick up (124) Arm 2 – Telemedicine + Mailed Medicine (69)	Complication: Blood Transfusion	252 days	Arm 1 - 0 (0) Arm 2 - 2 (1.6) Arm 3 - 0 (0)	NR	No
Pinsker,2021(54)	2c	Arm 1 - Individuals with diabetes receiving in-person insulin pump training (14,284) Arm 2 - Individuals with diabetes receiving virtual insulin pump training (8,984)	Adverse Event	NR	Arm 1 - Continuous Baseline: NR Follow-up: Mean: 0.04 (SD 0.24) Arm 2 - Continuous Baseline: NR Follow-up: Mean: 0.03 (SD 0.2)	Ref: Arm 1, p=0.003	Training method, age, previous therapy, trainer type, baseline A1c
Severino, 2022(61)	2c	Arm 1 - Telehealth (92) Arm 2 - In-person (92)	Major adverse cardiovascular events	12 months	Arm 1 - 18 (0.197) Arm 2 - 20 (0.217)	Ref: Arm 1(telehealth) Hazard ratio: 1.15 (95% CI: 0.61 to 2.19), p=0.65	Age, gender, clinical characteristics, echocardiographic parameters
Fortier, 2022(20)	3	Arm 1 - In-person (29) Arm 2 - Telephone (45)	Adverse events	24 weeks	Arm 1 – 0 (0) Arm 2 - 0 (0)	NR	No

1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2a=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. CI=confidence interval; N=sample size; NR=not reported; OR=odds ratio; p=p-value; Ref=reference. BMI=body mass index; CI=confidence interval; COPD=Chronic obstructive pulmonary disease; N=sample size; NA=not available; NR=not reported; OR=odds ratio; p=p-value; Ref=reference; SD=standard deviation

**Supplementary Table 6-A. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Process Outcomes, Missed Visits.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Mathews, 2022(43)	1a	Arm 1 - In-person (1,493) Arm 2 - Telehealth (684)	Missed appointment	NR	Arm 1 - Events 143 (NR) Arm 2 - Events 25 (NR)	Ref: Arm 1 percentage difference: -0.8252, p=<NR	No
Chen, 2023(13)	1a	Arm 1 - In-person, telehealth transition period (March 2020-June 2020) (52,697 visits) Arm 2 - Telephone, telehealth transition period (March 2020-June 2020) (132,713 visits) Arm 3 - Video, telehealth transition period (March 2020-June 2020) (98 visits)	Non-attendance	NR	Arm 1 - Events: NR (0.365) Arm 2 - Events: NR (0.352) Arm 3 - Events: NR (0.673)	Ref: Arm 1 Odds ratio (Arm 2 comparing to Arm 1): 1.04 (95% CI: 1.02 to 1.07), p=<0.001 Ref: Arm 1 Odds ratio (Arm 3 comparing to Arm 1): 4.37 (95% CI: 2.74 to 6.97), p=<0.001	Demographic factors and patient and clinic variation
		Arm 1 - In-person, elective telehealth period (July 2020-August 2021) (492,254 visits) Arm 2 - Telephone, elective telehealth period (July 2020-August 2021) (305,197 visits) Arm 3 - Video, elective telehealth period (July 2020-August 2021) (26,232 visits)	Non-attendance	NR	Arm 1 - Events: NR (0.252) Arm 2 - Events: NR (0.212) Arm 3 - Events: NR (0.355)	Ref: Arm 1 Odds ratio (Arm 2 comparing to Arm 1): 0.82 (95% CI: 0.81 to 0.83), p=<0.001 Ref: Arm 1 Odds ratio (Arm 3 comparing to Arm 1): 2.02 (95% CI: 1.95 to 2.08), p=<0.001	Demographic factors and patient and clinic variation
Adepoju, 2022(2)	1c	Arm 1 - In-person (207,621) Arm 2 - Telemedicine (70,550)	Missed appointment	NR	Arm 1 - Events 38,750 (18.7) Arm 2 - Events 11,113 (15.8)	Ref: Arm 1 Odds ratio: 0.87 (95% CI: 0.84 to 0.89), p=<0.001	Patient sociodemographic characteristics, geographic classification, medical appointment information, and clinic characteristics
Adams, 2023(1)	2b	Arm 1 - In-person (NR) Arm 2 - Telehealth (NR)	Visit show rate	Peak Covid, 6-12 week Visit show rate	Arm 1 - NR (0.65) Arm 2 - NR (0.76)	Ref: Arm 1, Relative risk: 1.17 (95% CI:	NR

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
						0.87 to 1.57), p=0.31	
				Peak Covid, <6 week Visit show rate	Arm 1 - NR (0.57) Arm 2 - NR (0.96)	Ref: Arm 1, Relative risk: 1.7 (95% CI: 1.31 to 2.22), p=<0.001	
				Ongoing Covid, 6-12 week Visit show rate	Arm 1 - NR (0.74) Arm 2 - NR (0.85)	Ref: Arm 1, Relative risk: 1.16 (95% CI: 0.9 to 1.5), p=0.26	
				Ongoing Covid, <6 week Visit show rate	Arm 1 - NR (0.88) Arm 2 - NR (0.96)	Ref: Arm 1, Relative risk: 1.09 (95% CI: 0.93 to 1.29), p=0.29	
Arias, 2022(5)	2b	Arm 1 - Pre-telehealth Implementation (780) Arm 2 - Post-telehealth Implementation (799)	Postpartum visit attendance rate	NR	Arm 1 - 565 (72.4) Arm 2 - 662 (82.9)	Ref: Arm 1 Odds ratio: 1.9 (95% CI: 1.47 to 2.46), p=<0.001	Race, prenatal care provider, parity, gestational age at delivery and insurance status
			Cardiology follow-up visit attendance rate	NR	Arm 1 - 29 (51.8) Arm 2 - 36 (61)	Ref: Arm 1 Odds ratio: 1.8 (95% CI: 0.79 to 4.11), p=0.32	Prenatal care provider only
Clark, 2022(14)	2b	Arm 1 - In-person (1,253) Arm 2 - Telehealth (1,411)	Missed appointment	NR	Arm 1 - Events 77 (0.0615) Arm 2 - 17 (0.0121)	Ref: Arm 1, p=<0.001	No
Boshara, 2022(9)	2c	Arm 1 - In-person (332 visits) Arm 2 - Telehealth (246 visits)	Appointment adherence	NR	Arm 1 - NR (70.8) Arm 2 - NR (79.2)	Ref: Arm 1, p=<0.001	Paired data
Klain, 2021(34)	2c	Arm 1 - 2019 visit (corresponding period to follow-up visit during COVID-19) (525) Arm 2 - 2020 telemedicine follow-up visit during COVID-19 (445)	Outpatient F/U evaluations	NR	NR	Ref: Evaluations in corresponding 2019 period Difference in number of evaluations: -0.15 (15% missed outpatient visit in 2020 comparing 2019), p=NR	No
Sohail, 2023(65)	2c	Arm 1 - In-person Arm 2 - Video visit Arm 3 - Telephone visit	Appointment no-show	NR	Arm 1 - Event NR (0.204) Arm 2 - Event NR (0.122) Arm 3 - Event NR (0.126)	Ref: Arm 1, Odds ratio (Arm 2 comparing to Arm 1): 0.61 (95% CI: 0.52 to 0.71),	Raw patient numbers not available, calculated based on percentages in text

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
						p<0.05 Ref: Arm 1, Odds ratio (Arm 3 comparing to Arm 1): 0.57 (95% CI: 0.52 to 0.63), p<0.05	
Sun, 2022(66)	2c	Arm 1 - In-person Arm 2 - Telehealth	Appointment no-show	NR	Arm 1 - NR Arm 2 - NR	Ref: Arm 1 Odds ratio: 0.43 (95% CI: 0.32 to 0.57), p=0	Multivariable random effects logistic regression
Watson, 2021(72)	2c	Arm 1 - Pre- telephone clinic (face to face) (814) Arm 2 - Post- introduction (telephone) (910)	Proportion of patients who cancelled colonoscopies	NR	Arm 1 - 13 (1.5) Arm 2 - 22 (2.5)	Ref: Arm 1 p-value only: p=0.14	No
Zhu, 2021(76)	2c	Arm 1 - In-person (2019) (1,443) Arm 2 - Telephone (2020) (1,597)	Appointment non-attendance	NR	Arm 1 - 157 (10.9) Arm 2 - 104 (6.5)	Ref: Arm 1 Odds ratio: 0.57 (95% CI: 0.44 to 0.739), p<0.001	No
Rene, 2022(57)	3	Arm 1 - In-person (157) Arm 2 - Telehealth (181)	Cancellation	NR	Arm 1 - Continuous data Baseline: Mean: NR Follow-up: Mean: 0.36 (SD 0.76) Arm 2 - Continuous data Baseline: NR Follow-up: Mean: 0.45 (SD 0.81)	Ref: Arm 1 p=0.003	No
			No show	NR	Arm 1 - Continuous data Baseline: Mean: NR Follow-up: Mean: 0.25 (SD 0.54) Arm 2 - Continuous data Baseline: NR Follow-up: Mean: 0.38 (SD 0.67)	Ref: Arm 1 p=0.26	No
Zayde, 2021(74)	3	Arm 1 - Pre-pandemic (12) Arm 2 - Post-pandemic (12)	No show rates	20 Weeks	Arm 1 - Continuous data Baseline: Mean: 0.23 (SD 0.23) Arm 2 - Follow-up: Mean: 0.32 (SD 0.25)	NR	No

1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2a=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. CI=confidence interval; N=sample size; NR=not reported; OR=odds ratio; p=p-value; Ref=reference. BMI=body mass index; CI=confidence interval; COPD=Chronic obstructive pulmonary disease; N=sample size; NA=not available; NR=not reported; OR=odds ratio; p=p-value; Ref=reference; SD=standard deviation

**Supplementary Table 6-B. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Process Outcomes, Case Resolution/Duplication.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Jazayeri, 2022(30)	1b	Arm 1 - In-person (1,131) Arm 2 - Telehealth (638)	Follow-up visits	NR	Arm 1 - Continuous Baseline: Mean: 1.208 (SD 0.443), Follow-up: NR Arm 2 - Continuous Baseline: Mean: 1.21 (SD 0.495), Follow-up: NR	Ref: Arm 1 t-test between means: NR p=0.922	No
Tarn, 2021(68)	1c	Arm 1 - Patients receiving in-person outpatient care at primary care clinic (52) Arm 2 - Patients receiving telephone outpatient care at primary care clinic (55) Arm 3 - Patients receiving telehealth( video) outpatient care at primary care clinic (89)	Telemedicine visit	NR	Arm 1 - Continuous Baseline: Mean: 1.1 (SD 0.3), Follow-up: NR Arm 2 - Continuous Baseline: Mean: 1.16 (SD 0.46), Follow-up: NR Arm 3 - Continuous Baseline: Mean: 2.3 (SD 0.7), Follow-up: NR	NR	No
Hatef, 2022(28)	1c	Arm 1 - First encounter in- person (493,716) Arm 2 - First encounter telemedicine (113,857)	Acute ambulatory care, follow-up encounter	14 days	NR (NR)	Ref: Arm 1 Odds ratio: 1.44 (95% CI: 1.42 to 1.46), p=NR	Type of acute and chronic ambulatory care sensitive conditions treated during the episode.
		Arm 1 - First encounter in- person (410,743) Arm 2 - First encounter telemedicine (94,481)	Chronic ambulatory care, follow-up encounter	14 days	NR (NR)	Ref: Arm 1 Odds ratio: 0.94 (95% CI: 0.92 to 0.95), p=NR	Type of acute and chronic ambulatory care sensitive conditions treated during the episode.
Carlberg, 2020(11)	2a	Arm 1 - Patients receiving telehealth and in- person evaluation in the ED (132) Arm 2 - Patients receiving telehealth only evaluation in the ED (153)	Return to healthcare within 72 hours	72 hours	Arm 1 - 7 (5.3) Arm 2 - 6 (3.9)	NR	No
			Admitted upon return, Within 72 hours, Non-COVID-19 related	72 hours	Arm 1 - 5 (3.8) Arm 2 - 4 (2.6)	NR	No
Kerestes, 2021(32)	2b	Arm 1 - In person abortion service (94) Arm 2 – Telemedicine + med pick up (124) Arm 2 – Telemedicine + Mailed Medicine (69)	Abortion complication without surgery	243, 244, 245 days	Arm 1 - 88 (0.936) Arm 2 - 120 (0.968) Arm 3 - 67 (0.971)	NR	No
Fredwall, 2021(21)	2c	Arm 1 - Patients seen in- person at Epilepsy Clinic (101) Arm 2 - Patients seen by telemedicine at Epilepsy Clinic (16)	Linked with counseling, 1 month	1 month	Arm 1 - NR (75) Arm 2 - 8 (35)	NR	No
			Linked with counseling, 3 months	3 months	Arm 1 - NR (76) Arm 2 - 10 (63)	NR	No

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Kolb, 2021(35)	2c	Arm 1 - Patients receiving in-person outpatient care at ENT clinic (Recurrent Acute Otitis Media Cohort) (50) Arm 2 - Patients receiving telehealth outpatient care at ENT clinic, (Recurrent Acute Otitis Media Cohort) (50)	Routine follow-up recommended	42 days	Arm 1 - 16 (32) Arm 2 - 10 (20)	Ref: Arm 1 Chi- Squared Test: NR, p=0.254	No
Mossack, 2022(48)	2c	Arm 1 - In-person (25) Arm 2 - Telephone (23)	>= 1 follow up	NR	Arm 1 - 16 (64) Arm 2 - 18 (78)	Ref: Arm1, p=0.278	No
			30 day follow-up	30 days	Arm 1 - 7 (28) Arm 2 - 9 (39)	Ref: Arm1, p=0.414	No
			60 day follow-up	60 days	Arm 1 - 14 (56) Arm 2 - 15 (65)	Ref: Arm1, p=0.514	No
			90 day follow-up	90 days	Arm 1 - 15 (60) Arm 2 - 18 (78)	Ref: Arm1, p=0.173	No
Zhu, 2021(76)	2c	Arm 1 - In-person (2019) (1,286) Arm 2 - Telephone (2020) (1,493)	Follow-up phone call	NR	Arm 1 - 29 (2.3) Arm 2 - 48 (3.2)	Ref: Arm 1 Odds ratio: 1.44 (95% CI: 0.901 to 2.293), p=0.127	No
Li, 2021(38)	2c	Arm 1 - Patients triaged in- person for ophthalmologic issue (51) Arm 2 - Patients receiving virtual triage for ophthalmologic issue (183)	Need in- person ophthalmologic review	NR	Arm 1 - 400 (88.7) Arm 2 - 220 (54.6)	Ref: Arm 1 Chi- Squared: 128.2, p<0.001	No
			Return to the Emergency Room within 1 month	30 days	Arm 1 - 8 (15.7) Arm 2 - 65 (35.5)	Ref: Arm 1 Chi- Squared: 7.31, p=0.007	No
Rowe, 2021(59)	2c	Arm 1 - Telephone Cardiology Outpatient Visits (1,118) Arm 2 - Video Cardiology Outpatient Visits (327)	Follow-up appointment within study period	148 days	Arm 1 - 196 (16.5) Arm 2 - 79 (24.2)	Ref: Arm 1, p=0.015	Age, Gender, English as First Language, Rural Status, initial appointment status, cardiologist seen
Offiah, 2022(49)	2c	Arm 1 - Traditional clinic (1,220) Arm 2 - Virtual clinic (496)	Return clinic	NR	Arm 1 - 980 (80.3) Arm 2 - 353 (71.2)	Ref: Arm1, p=0.0003	No
Lindhagen, 2022(39)	2c	Arm 1 - Pre-COVID-19 Pandemic (814) Arm 2 - COVID-19 Pandemic (910)	Number of unplanned telephone contacts with doctor per patient	NR	Arm 1 - Continuous data Baseline: NR, Follow-up: Mean: 0.88 (SD 1.89) Arm 2 - Continuous data Baseline: NR, Follow-up: Mean: 0.9 (SD 1.9)	Ref: Arm 1, p=0.379	No
Metcalfe, 2023(46)	2c	Arm 1 - In-person (75) Arm 2 - Telemedicine (75)	Number of patients followed-up	NR	Arm 1 - 22 (29) Arm 2 - 53 (71)	Ref: Arm 1 Odds ratio: 5.8 (95% CI: NR), p<0.001	No

1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2a=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. CI=confidence interval; N=sample size; NR=not reported; OR=odds ratio; p=p-value;

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Ref=reference. BMI=body mass index; CI=confidence interval; COPD=Chronic obstructive pulmonary disease; N=sample size; NA=not available; NR=not reported; OR=odds ratio; p=p-value; Ref=reference; SD=standard deviation							

**Supplementary Table 6-C. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Process Outcomes, Change in Therapy/Medication.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
McNamara, 2021(45)	1a	Arm 1 - Face to face (341) Arm 2 - Telehealth (151)	Medication related problems: needed additional drug therapy (per encounter)	NR	Arm 1 - Continuous data Baseline: NR Follow-up: Mean: 0.37 (SD 0.7) Arm 2 - Continuous data Baseline: NR Follow-up: Mean: 0.12 (SD 0.4)	Ref: Arm 1, p=0.527	No
			Medication related problems: different drug needed (per encounter)	NR	Arm 1 - Continuous data Baseline: NR Follow-up: Mean: 0.09 (SD 0.31) Arm 2 - Continuous data Baseline: NR Follow-up: Mean: 0.06 (SD 0.23)	Ref: Arm 1, p=0.423	No
Wabe, 2022(70)	1a	Arm 1 - Face to face (8,303,233) Arm 2 - Telehealth (5,304,983)	Consultations with at least one medication prescribed	NR	Arm 1 - 3,264,748 (39.3) Arm 2 - 1,751,878 (33)	Ref: Arm 1 Odds ratio: 1.38 (95% CI: 1.379 to 1.381), p=NR	Age, sex, socioeconomic status, patient status, remoteness, primary health network, and the state of the practice
			Consultations with first-time medication prescribed	NR	Arm 1 - 1,520,401 (18.3) Arm 2 - 537,144 (10.1)	Ref: Arm 1 Odds ratio: 2.03 (95% CI: 2.02 to 2.031), p=NR	Age, sex, socioeconomic status, patient status, remoteness, primary health network, and the state of the practice

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Cobo-Calvo, 2022(15)	2c	Arm 1 - Face to face 2018 (276) Arm 2 - Face to face 2019 (360) Arm 3 - Telehealth 2020 (289) Arm 4 - Telehealth extension period (Jan-May 2021) (NR)	Mean monthly treatment prescriptions	NR	Arm 1 - Continuous data Baseline: NR, Follow-up: Mean: 23 (SD 8) Arm 2 - Continuous data Baseline: NR, Follow-up: Mean: 30 (SD 7) Arm 3 - Continuous data Baseline: NR, Follow-up: Mean: 24.1 (SD 7) Arm 4 - Continuous data Baseline: NR, Follow-up: Mean: 23.2 (SD 5.5)	Ref: Arm 1 and Arm 2, Arm 3 compared to Arm1:p=0.727, compared to Arm2: p=0.049  Ref: Arm 2 and Arm 3, Arm 4 compared to Arm1: p=0.072, compared to Arm2: p=0.805	No
Lindhagen, 2022(39)	2c	Arm 1 - Pre-COVID-19 Pandemic (868) Arm 2 - COVID-19 Pandemic (891)	Increased medication	NR	Arm 1 - NR (21.3) Arm 2 - NR (22.2)	Ref: Arm 1, p=0.641	No
			Decreased medication	NR	Arm 1 - NR (6.1) Arm 2 - NR (5.9)	Ref: Arm 1,p=0.914	No
Mair, 2021(42)	2c	Arm 1 - Pre-COVID (2019) (210) Arm 2 – Tele-rheumatology (340)	Any medication change	NR	Arm 1 - 79 (37.6) Arm 2 – 84 (24.7)	Ref: Arm1 Difference in proportion : 0.11 (95% CI: 0.04 to 0.19), p=Significant	No
			No change in disease-modifying antirheumatic drugs	NR	Arm 1 - 152 (72.4) Arm 2 – 285 (73.9)	Ref: Arm1 Difference in proportion : - 0.13 (95% CI: -0.21 to -0.05), p=Significant	No
Mossack, 2022(48)	2c	Arm 1 - In-person (25) Arm 2 - Telephone (23)	Treatment change	NR	Arm 1 - 9 (NR) Arm 2 - 8 (NR)	Ref: Arm1, p=0.9	No
Offiah, 2022(49)	2c	Arm 1 - Traditional clinic (1,220) Arm 2 - Virtual clinic (496)	Patients ≥ 1 management change	NR	Arm 1 - 470 (38.5) Arm 2 - 99 (19.9)	Ref: Arm1, p=<0.0000	No
Piga, 2022(53)	2c	Arm 1 - In-person (25) Arm 2 - Telephone (23)	Treatment adjusted	NR	Arm 1 - 17 (0.16) Arm 2 - 19 (0.179)	NR	No
			Treatment tapering/cessation	NR	Arm 1 - 9 (0.085) Arm 2 - 11 (0.104)	NR	No
Severino, 2022(61)	2c	Arm 1 - In-person (92) Arm 2 - Telehealth (92)	Change in therapy	12 months	Arm 1 - 15 (NR) Arm 2 - 19 (NR)	Ref: Arm 1, p=0.9	Age, gender, clinical characteristics, echocardiographic parameters
Sharma, 2020(64)	2c	Arm 1 - IBD Services before COVID (2019) (50) Arm 2 - IBD Services after COVID (2020) (45)	Medication dose escalation	32 days	Arm 1 - 8 (16) Arm 2 - 8 (18)	Ref: Arm 1, Fisher's exact test: NR, p=>0.99	No



Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Zhu, 2021(76)	2c	Arm 1 - In-person (2019) (1,286) Arm 2 - Telephone (2020) (1,493)	Changes in analgesia	NR	Arm 1 - 96 (7.5) Arm 2 - 79 (5.3)	Ref: Arm 1 Odds ratio: 0.69 (95% CI: 0.509 to 0.942), p=0.019	No
			Clinicians change immunosuppressive therapy	NR	Arm 1 - 352 (27.4) Arm 2 - 338 (22.6)	Ref: Arm 1 Odds ratio: 0.78 (95% CI: 0.654 to 0.923), p=0.004	No

1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2a=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. CI=confidence interval; N=sample size; NR=not reported; OR=odds ratio; p=p-value; Ref=reference. BMI=body mass index; CI=confidence interval; COPD=Chronic obstructive pulmonary disease; N=sample size; NA=not available; NR=not reported; OR=odds ratio; p=p-value; Ref=reference; SD=standard deviation

### Supplementary Table 6-D. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Process Outcomes, Treatment/ Medication Adherence.

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Griebeler, 2022(27)	1a	Arm 1 – In-person (24) Arm 2 – Telehealth (30)	Full medication compliance	NR	Arm 1 – 18 (0.75) Arm 2 – 24 (0.8)	Ref: Arm 1, p=0.58	No
McNamara, 2021(45)	1a	Arm 1 – Face to face (341) Arm 2 – Telehealth (151)	Medication related problem: non-adherence (per encounter)	NR	Arm 1 – Continuous data Baseline: NR Follow-up: Mean: 0.01 (SD 0.14) Arm 2 – Continuous data Baseline: NR Follow-up: Mean: 0.01 (SD 0.08)	Ref: Arm 1, p=1	No
Zimmerman, 2021(77)	1a	Arm 1 – In-person (207) Arm 2 – Telehealth (207)	Completed treatment	NR	Arm 1 – NR (62.3) Arm 2 – NR (72.9)	Ref: Arm 1, p<0.05	No
Baughman, 2021(7)	2c	Arm 1 – Office (54,872) Arm 2 – Telemedicine (8,850) Arm 3 – Telemedicine+Office (63,722)	Adherent to treatment	6 months	Arm 1 – 33,053 (60.2) Arm 2 – 4,960 (56) Arm 3 – 38,013 (59.7)	Ref: Arm 1 Difference %: 4.2, p<0.001	No
Cvietusa, 2022(17)	2c	Arm 1 – No asthma care (Baseline: NR, Follow-up: 2,977) Arm 2 – In-person only (Baseline: NR, Follow-up: 1,792) Arm 3 – Mixed (in- person and virtual) (Baseline: NR, Follow-up: 1,084) Arm 4 – Virtual care only (Baseline: NR, Follow-up: 1,952)	Proportion of days covered	NR	Arm 1 – Continuous data Baseline: NR Follow-up: Mean: 0.489 (SE 0.007) Arm 2 – Continuous data Baseline: NR Follow-up: Mean: 0.446 (SE 0.008) Arm 3 – Continuous data Baseline: NR Follow-up: Mean: 0.497 (SE 0.01)	Ref: Arm 1, p<0.001 (for all comparisons)	Age, sex, race, baseline value of outcome,

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
					Arm 4 – Continuous data Baseline: NR Follow-up: Mean: 0.476 (SE 0.008)		
Garmendia, 2021(26)	2c	Arm 1 – Individuals with Sleep Apnea attending outpatient clinic, pre-covid/in-person (193) Arm 2 – Individuals with Sleep Apnea attending outpatient clinic, post-covid, telehealth (77)	CPAP Compliance	NR	NR	Ref: Arm 1 Chi-squared: NR, p=0.099	No
McCoy, 2022(44)	2c	Arm 1 – In-person before telemedicine (113) Arm 2 – Telemedicine (59) Arm 3 – In-person during telemedicine (4)	Surgery performed	NR	Arm 1 – 41 (36.3) Arm 2 – 24 (40.7) Arm 3 – 2 (50)	NR	No
Mossack, 2022(48)	2c	Arm 1 – In-person (25) Arm 2 – Telephone (23)	Medication adherence	NR	Arm 1 – 12 (48) Arm 2 – 12 (52)	Ref: Arm1, p=1	No
Cunningham, 2022(16)	3	Arm 1 – Pre-pandemic (in-person) (72) Arm 2 – Pandemic (telemedicine) (35)	90-days treatment retention	90 days	Arm 1 – 24 (33.3) Arm 2 – 17 (48.6)	NR	No
Fortier, 2022(20)	3	Arm 1 – In-person (29) Arm 2 – Telehealth-virtual care (45)	Dropout	24 weeks	Arm 1 – 7 (24) Arm 2 – 8 (18)	Ref: Arm 1 Chi-squared: NR, p=0.506	No
			Attendance	24 weeks	Arm 1 – NR (75) Arm 2 – NR (88)	Ref: Arm 1 Z-score NR, p=0.007	No
Frost, 2022(22)	3	Arm 1 – In-person (1,158) Arm 2 – Telehealth (3,180)	Treatment retention	90 days	Arm 1 – 294 (0.254) Arm 2 – 1,024 (0.322)	Ref: Arm 1 Odds ratio: 1.31 (95% CI: 1.12 to 1.53), p=NR	Sociodemographic and clinical characteristics
Gainer, 2023(24)	3	Arm 1 – In-person (235) Arm 2 – Telephone (222) Arm 3 – Telehealth with video (87)	Treatment engagement	NR	Arm 1 – NR (NR) Arm 2 – NR (NR) Arm 3 – NR (NR)	Ref: Arm 1 Odds ratio (Arm 2 comparing to Arm 1): 2.12 (95% CI: 1.05 to 4.28), p=0.036 Ref: Arm 1 Odds ratio (Arm 3 comparing to Arm 1): 5.4 (95% CI: 1.92 to 15.2), p=0.001	Demographics, socioeconomic status, substance use history and other clinical characteristics
Ripp, 2022(58)	3	Arm 1 – In-person (2019) (1,077) Arm 2 – Telehealth (2020) (354)	Completed follow-up visits	NR	NR	Ref: Arm 1 Odds ratio: 1.57 (95% CI: 1.23 to 2), p=<0.001	Age, sex, race, ethnicity, insurance type, and week of visit

1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2a=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. CI=confidence interval; N=sample size; NR=not reported; OR=odds ratio; p=p-value; Ref=reference. BMI=body mass index; CI=confidence interval; COPD=Chronic obstructive pulmonary disease; N=sample size; NA=not available; NR=not reported; OR=odds ratio; p=p-value; Ref=reference; SD=standard deviation

**Supplementary Table 6-E. Study Results Investigating the Effectiveness of Telehealth vs. In-person Care by Outcome Category and Clinical Area – Process Outcomes, Up to Date Labs and Paraclinical Assessment.**

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
Jazayeri, 2022(30)	1b	Arm 1 - In-person (1,131) Arm 2 - Telehealth (638)	Imaging orders	3 months	Arm 1 - Continuous data Baseline: NR, Follow-up: Mean: 0.521 per patient (SD 0.852) Arm 2 - Continuous data Baseline: NR, Follow-up: Mean: 0.364 (SD 0.646)	Ref: Arm 1 t-test between means, p=<0.001	No
			Lab orders	3 months	Arm 1 - Continuous data Baseline: NR, Follow-up: Mean: 4.867 per patient (SD 5.317) Arm 2 - Continuous data Baseline: NR, Follow-up: Mean: 4.049 (SD 4.901)	Ref: Arm 1 t-test between means, p=0.001	No
			Procedures	3 months	Arm 1 - Continuous data Baseline: NR, Follow-up: Mean: 0.128 per patient (SD 0.334) Arm 2 - Continuous data Baseline: NR, Follow-up: Mean: 0.122 (SD 0.328)	Ref: Arm 1 t-test between means, p=0.718	No
Arias, 2022(5)	2b	Arm 1 - Pre-telehealth Implementation – Diabetic Patients (45) Arm 2 - Post-telehealth Implementation – Diabetic Patients (59)	Completion of postpartum glucose tolerance test	NR	Arm 1 - 12 (26.7) Arm 2 - 15 (25.4)	Ref: Arm 1 Odds ratio: 0.99 (95% CI: 0.37 to 2.68), p=0.89	Race, insurance status, and length of hospital stay
Cobo-Calvo, 2022(15)	2c	Arm 1 - Face to face 2018 (2,207) Arm 2 - Face to face 2019 (2,356) Arm 3 - Telehealth 2020 (2,202)	Mean monthly visits	NR	Arm 1 - Continuous data Baseline: NR, Follow-up: Mean: 183.9 (SD 29.1) Arm 2 - Continuous data Baseline: NR, Follow-up: Mean: 196 (SD 17.5) Arm 3 - Continuous data Baseline: NR, Follow-up: Mean: 183.5 (SD 68.9)	Ref: Arm 1 and Arm 2, Arm 3 compared to Arm1:p=0.984, compared to Arm2: p=0.538	No
Lindhagen, 2022(39)	2c	Arm 1 - Pre-telephone clinic, face to face (814) Arm 2 – Post introduction, telephone (910)	Ulcerative colitis, Proportion of patients with surveillance colonoscopy	NR	Arm 1 - 76 (15) Arm 2 - 49 (9.4)	Ref: Arm 1, p=0.007	No
			Crohn's disease, Proportion of patients with surveillance colonoscopy	NR	Arm 1 - 17 (5.1) Arm 2 - 11 (3.3)	Ref: Arm 1, p=0.224	No
Liu, 2021(41)	2c	Arm 1 - Pre-COVID-19 clinic patients at various outpatient facilities (492) Arm 2 - Post-COVID-19 clinic patients at various outpatient facilities (582)	Pathology test/consult completed	5 days	Arm 1 - 426 (86.6) Arm 2 - 443 (76.1)	Ref: Arm 1 Assumed t-test: NR, p<0.001	No

Author, Year	Clinical Area	Arm Definition (n)	Outcome	Time of Analysis	Participants With Outcomes, n (%)	Comparison	Adjusted
		Arm 1 - Pre-COVID-19 clinic patients at various outpatient facilities (295) Arm 2 - Post-COVID-19 clinic patients at various outpatient facilities (345)	Radiology test/consult completed	5 days	Arm 1 - 247 (83.7) Arm 2 - 229 (66.4)	Ref: Arm 1 Assumed t-test: NR, p≤0.001	No
Ostberg, 2022(50)	2c	Arm 1 - In-person (2019) (455) Arm 2 - Telehealth/zoom (2020) (455)	All order class (imaging, labs, medication, nursing)	NR	Arm 1 - Continuous data Baseline: NR, Follow-up: Median: 9 (IQR 6, 12) Arm 2 - Continuous data Baseline: NR, Follow-up: Median: 10 (IQR 7, 14)	Ref: Arm 1 Rate Ratio: 1.19 (95% CI: 1.11 to 1.28, p=<0.001)	Age, gender, billing level, insurance status, and length of stay
Parise, 2021(51)	2c	Arm 1 - Not included in telemedicine study (43) Arm 2 - Included in telemedicine study (166)	Continuous glucose monitoring	NR	Arm 1 - 7 (16) Arm 2 - 155 (93.4)	Ref: Arm 1, p=<0.001	No
Reddy, 2021(56)	2c	Arm 1 - Before virtual care (in-person) (763) Arm 2 - Transition to virtual care (168) Arm 3 - After transition to virtual care (813)	Laboratory testing	4 weeks before Transition, 1 week during transition, 4 weeks after transition	Arm 1 - 265 (34.7) Arm 2 - 58 (34.5) Arm 3 - 105 (12.9)	Ref: Arm 1, p=<0.0001	No
			Diagnostic imaging	4 weeks before Transition, 1 week during transition, 4 weeks after transition	Arm 1 - 112 (14.7) Arm 2 - 17 (10.1) Arm 3 - 40 (4.9)	Ref: Arm 1, p=<0.0001	No
			Procedures (biopsy, paracentesis, acupuncture, endoscopy, catheter exchanges, etc.)	4 weeks before Transition, 1 week during transition, 4 weeks after transition	Arm 1 - 16 (2.1) Arm 2 - 1 (0.6) Arm 3 - 5 (0.6)	Ref: Arm 1, p=0.0223	No
Szigety, 2022(67)	2c	Arm 1 - In-person (2,642) Arm 2 - Transition to virtual care (1,685)	Genetic testing was recommended	NR	Arm 1 - NR (70.9) Arm 2 - NR (79.5)	Ref: Arm1, p=<0.001	No
			Test completion rates	NR	Arm 1 - NR (55.1) Arm 2 - NR (51.2)	Ref: Arm1, p=0.09	No

1a=general medical care, adults; 1b=general medical care, children; 1c=general medical care, all ages; 2a=specialized care, COVID-19; 2b=specialized care, pregnancy/prenatal/gynecological; 2c=specialized care, other; 3=general behavioral/mental health. CI=confidence interval; N=sample size; NR=not reported; OR=odds ratio; p=p-value; Ref=reference. BMI=body mass index; CI=confidence interval; COPD=Chronic obstructive pulmonary disease; N=sample size; NA=not available; NR=not reported; OR=odds ratio; p=p-value; Ref=reference; SD=standard deviation

**Supplementary Table 7-A. Risk of Bias Assessment for Non-Randomized Studies.**

Author, year	Domain 1: Confounding	Domain 2: Patient Selection	Domain 3: Classifying Interventions	Domain 4: Deviations from intended interventions	Domain 5: Missing data	Domain 6: Measurement of outcomes	Domain 7: Selection of reported results	Overall Assessment
Adams, 2023(1)	Serious	Moderate	Low	No information	Low	Low	Moderate	Serious
Adepoju, 2022(2)	Moderate	Low	Low	No information	Moderate	Low	Low	Moderate
Afonso Nogueira, 2021(3)	Critical	Low	Low	Low	Low	Low	Low	Serious
Aiken, 2021(4)	Moderate	Moderate	Low	Moderate	Low	Low	Low	Moderate
Arias, 2022(5)	Low	Low	Low	Low	Low	Low	Low	Low
Barequet, 2021(6)	Serious	No information	Low	Low	Low	Low	Low	Serious
Baughman, 2021(7)	Low	Low	Low	Low	Moderate	Low	Low	Moderate
Borgen, 2021(8)	Moderate	Low	Low	Low	Low	Low	Low	Moderate
Boshara, 2022(9)	Low	No information	Low	Low	Low	No information	Low	Moderate
Bryson, 2023(10)	Moderate	Low	Moderate	No information	Moderate	Low	Moderate	Moderate
Carlberg, 2020(11)	Serious	Moderate	Low	Low	Low	Low	Low	Serious
Casariago-Vales, 2021(12)	Serious	Serious	Low	Serious	Moderate	Moderate	Low	Serious
Chen, 2023(13)	Moderate	Low	Low	No information	Low	Low	Low	Moderate
Clark, 2022(14)	Serious	Moderate	Low	No information	No information	Low	Low	Serious
Cobo-Calvo, 2022(15)	Critical	Moderate	Low	Low	Low	Low	Low	Serious
Cunningham, 2022(16)	Critical	Low	Low	Moderate	No information	Low	Low	Serious
Cvietusa, 2022(17)	Low	Low	Low	Low	Low	Low	Low	Low
D'Anna, 2021(18)	Critical	Moderate	Low	Low	Low	Low	Low	Serious
Duryea, 2021(19)	Moderate	Low	Low	Low	Low	Low	Low	Serious
Fortier, 2022(20)	Serious	Low	Low	Low	Low	Serious	Low	Serious
Fredwall, 2021(21)	Serious	Low	Low	Low	Moderate	Low	Low	Serious
Frost, 2022(22)	Moderate	Low	Moderate	No information	Low	Low	Low	Moderate
Gaetani, 2021(23)	Moderate	Moderate	Low	Moderate	Low	Moderate	Low	Moderate
Gainer, 2023(24)	Moderate	Low	Moderate	Low	Moderate	Low	Moderate	Moderate
Gao, 2022(25)	Serious	Low	Low	No information	Low	Low	Low	Serious
Garmendia, 2021(26)	Low	Serious	Low	No information	Low	Low	Low	Moderate

Author, year	Domain 1: Confounding	Domain 2: Patient Selection	Domain 3: Classifying Interventions	Domain 4: Deviations from intended interventions	Domain 5: Missing data	Domain 6: Measurement of outcomes	Domain 7: Selection of reported results	Overall Assessment
Hatef, 2022(28)	Low	Low	Low	Low	Low	Low	Low	Low
Hughes, 2022(29)	Serious	Low	Low	No information	No information	Serious	Low	Serious
Jazayeri, 2022(30)	Serious	Low	Moderate	No information	Serious	Serious	Moderate	Serious
Kablinger, 2022(31)	Low	No information	Low	Low	Low	Low	Low	Moderate
Kerestes, 2021(32)	Moderate	Low	Low	Low	Moderate	Moderate	Moderate	Moderate
Khosla, 2022(33)	Low	Low	Low	Low	Low	Low	Low	Low
Klain, 2021(34)	Serious	Low	Low	Low	Low	Low	Low	Serious
Kolb, 2021(35)	Serious	Low	Serious	Low	Low	Low	Low	Serious
Korycinski, 2022(36)	Moderate	Low	Low	Low	No information	Low	Low	Moderate
Levinson, 2021(37)	Serious	Serious	Low	Serious	Moderate	Low	Low	Serious
Li, 2021(38)	Serious	Serious	Moderate	Low	Low	Moderate	Low	Serious
Lindhagen, 2022(39)	Critical	Low	Low	Low	Low	Low	Low	Serious
Liou, 2022(40)	Low	Moderate	Low	No information	Moderate	Low	Low	Moderate
Liu, 2021(41)	Serious	Moderate	Low	Low	Critical	Low	Low	Serious
Mair, 2021(42)	Low	Serious	Low	No information	Low	Low	Low	Moderate
Mathews, 2022(43)	Serious	Moderate	Low	No information	Low	Low	Low	Serious
McNamara, 2021(45)	Moderate	Low	Low	Low	Low	Low	Low	Moderate
McCoy, 2022(44)	Critical	Low	Low	Low	Low	Low	Low	Serious
Metcalfe, 2023(46)	Serious	Low	Moderate	No information	Low	Moderate	Low	Serious
Minsky, 2021(47)	Serious	Low	Low	Low	Serious	Low	Low	Serious
Offiah, 2022(49)	Critical	No information	Low	Serious	Low	Low	Low	Serious
Ostberg, 2022(50)	Low	Serious	Low	Low	Low	Low	Low	Serious
Parise, 2021(51)	Serious	Low	Low	Low	Serious	Low	Low	Serious
Phillips, 2021(52)	Moderate	Low	Serious	Low	Low	Moderate	Low	Serious
Piga, 2022(53)	Low	Serious	Low	No information	Low	Serious	Low	Serious
Pinsker, 2021(54)	Serious	Low	Low	Low	Low	Low	Moderate	Serious

Author, year	Domain 1: Confounding	Domain 2: Patient Selection	Domain 3: Classifying Interventions	Domain 4: Deviations from intended interventions	Domain 5: Missing data	Domain 6: Measurement of outcomes	Domain 7: Selection of reported results	Overall Assessment
Reddy, 2021(56)	Critical	Low	Low	Low	No information	Low	Low	Serious
Rene, 2022(57)	Low	Moderate	Low	No information	Low	Low	Low	Serious
Ripp, 2022(58)	Low	Low	Low	Low	Low	Low	Low	Low
Rowe, 2021(59)	Moderate	Low	Serious	Low	Low	Low	Low	Serious
Ryskina, 2021(60)	Moderate	Low	Moderate	Low	Low	Low	Low	Moderate
Severino, 2022(61)	Low	Moderate	Serious	No information	Moderate	Low	Low	Serious
Sevilis, 2022(62)	Critical	Low	Low	Low	Low	Low	Serious	Critical
Shah, 2022(63)	Moderate	Low	Low	No information	Moderate	Serious	Low	Moderate
Sharma, 2020(64)	Serious	Serious	Low	Low	Low	Moderate	Low	Serious
Sohail, 2023(65)	Low	Moderate	Low	No information	Moderate	Moderate	Low	Moderate
Sun, 2022(66)	Moderate	Low	Low	No information	Moderate	Low	Moderate	Moderate
Szigety, 2022(67)	Serious	Moderate	Low	No information	No information	Low	Low	Serious
Tarn, 2021(68)	Serious	Low	Low	Low	Low	Low	Low	Serious
Tchang, 2022(69)	Critical	Low	Low	Low	Moderate	Low	Low	Serious
Wabe, 2022(70)	Low	Low	Low	Low	Low	Low	Low	Low
Walker, 2023(71)	Low	Low	Low	No information	Critical	Low	Serious	Serious
Watson, 2021(72)	Critical	Low	Low	Low	Low	Low	Low	Serious
Ye, 2022(73)	Low	Low	Low	Low	Low	Low	Low	Low
Zayde, 2021(74)	Serious	Low	Low	Low	Low	Low	Low	Serious
Zhao, 2021(75)	Low	Moderate	Low	Low	Low	Low	Low	Moderate
Zhu, 2021(76)	Serious	Moderate	Low	Low	Moderate	Moderate	Low	Serious
Zimmerman, 2021(77)	Serious	Low	Low	Low	Moderate	Serious	Low	Serious

**Supplementary Table 7-B. Risk of Bias Assessment for Randomized Controlled Trials.**

Author, year	Domain 1: Randomization process	Domain 2: Deviations intended interventions (effect of assignment to intervention)	Domain 2: Deviations intended interventions (effect of adhering to intervention)	Domain 3: Missing outcome data	Domain 4: Measurement of the outcome	Domain 5: Selection of the reported result	Overall Assessment
Griebeler, 2022(27)	High risk	Low risk	Low risk	Some concerns	Low risk	Low risk	High risk
Mossack, 2022(48)	Low risk	Low risk	High risk	Low risk	Some concerns	Low risk	High risk
Prato, 2022(55)	Low risk	Some concerns	High risk	Low risk	High risk	Low risk	High risk



**Supplementary Table 8. Summary of Findings for Outcomes of Care Among Patients Receiving Telehealth Versus In-person Care During COVID-19.**

Clinical area	Number of Studies and Sample Size (N)	The Direction of Findings (Sample Size)			Conclusion*	Strength of Evidence
		Favors In-person	No Difference/ Unclear	Favors Telehealth		
<b>Healthcare Utilization Outcomes</b>						
<b>Emergency Department Visits (N=14 Studies)</b>						
General medical care, Adults	1 study (16,987) - Cohort 1 study(63) (N=16,987)	Cohort 1 study(63) (N=16,987)			For adult patients who receive care for general medical conditions, those who receive an initial telehealth visit have higher rates of ED visits compared with those who receive in-person care.	High Direct Imprecise Unknown Consistency Undetected Overall: Low
General medical care, Child	1 study (1,769) - Cohort Cohort 1 study(30) (N=1,769)		Cohort 1 study(30) (N=1,769)		For children who receive care for general medical conditions, those who receive an initial telehealth visit have the same rates of ED visits compared with those who receive in-person care.	High Direct Imprecise Unknown Consistency Undetected Overall: Low
General medical care, All ages	2 studies (N=608,878) - Cohort 2 studies (28, 52) (N=608,878)	Cohort 2 studies (28, 52) (N=608,878)		Cohort 1 study(28) (N=607,573)	For patients of all ages who receive care for general medical conditions, those who receive an initial telehealth visit for an acute condition may have higher rates of ED visits compared with those who receive in-person care and those who receive an initial telehealth visit for a chronic condition may have lower rates of ED visits compared with those who receive in-person care.	Medium Direct Precise Inconsistent Undetected Overall: Moderate
Care for specific conditions, COVID-19	3 studies (N=5,462) - Cohort 3 studies(8, 12, 36) (N=5,462)	Cohort 1 study(12) (N=4,384)		Cohort 2 studies(8, 36) (N=1,078)	For patients who receive specialized COVID-19 care, those who receive an initial telehealth visit may have higher ED visit rates compared with those who receive in-person care.	High Direct Precise Inconsistent Undetected Overall: Low
Care for specific conditions, Pregnancy/prenatal/gynecological care	1 study (N=287) - Cohort 1 study(32) (N=287)	Cohort 1 study(32) (N=287)			For women who receive specialized pregnancy/prenatal/gynecological care, those who receive an initial telehealth visit may have higher ED visit rates compared with those who receive in-person.	High Direct Imprecise Unknown consistency Undetected Overall: Low
Care for specific conditions, Other conditions	6 studies (N=11,546) - Cohort 5 studies (3, 17, 23, 56, 71, 72) (N=41,496) - Cross-sectional	Cross-sectional 1 study(72) (N=1,724)		Cohort 5 studies (3, 17, 23, 56, 71) (N=41,496)	For patients who receive care for specific conditions (excluding COVID-19 and pregnancy/prenatal/gynecological care), those who receive an initial telehealth visit may have lower ED	High Direct Precise Consistent Suspected Overall: Low

Clinical area	Number of Studies and Sample Size (N)	The Direction of Findings (Sample Size)			Conclusion*	Strength of Evidence
		Favors In-person	No Difference/Unclear	Favors Telehealth		
	1 study(72) (N=1,724)				visit rates compared with those who receive in-person.	
General behavioral/Mental health	No studies					
<b>Hospitalization (N=20 Studies)</b>						
General medical care, Adult	3 studies (N=17,517) - Cohort 3 studies (60, 63, 77) (N=34,504)	Cohort 1 study(63) (N=16,987)		Cohort 2 studies(60, 77) (N=17,517)	For adult patients who receive care for general medical conditions, hospitalization rates may be similar for those receiving an initial telehealth visit compared with those who receive an initial in-person visit.	High Direct Precise Inconsistent Undetected Overall: Moderate
General medical care, Child	No studies					
General medical care, All ages	2 studies (N=608,878) - Cohort 2 studies (28, 52) (N=608,878)	Cohort 1 study(28) (N=607,573)		Cohort 2 studies (28, 52) (N=608,878)	For patients of all ages who receive care for general medical conditions, those who receive an initial telehealth visit for an acute condition may have higher hospitalization rates compared with those who receive in-person care and those who receive an initial telehealth visit for a chronic condition may have lower hospitalization rates compared with those who receive in-person care.	Medium Direct Precise Inconsistent Undetected Overall: Moderate
Care for specific conditions, COVID-19	2 studies (N=4,677) - Cohort 2 studies (12, 36) (N=4,677)	Cohort 1 study(12) (N=4,384)		Cohort 1 study(36) (N=293)	For patients who receive specialized COVID-19 care, those who receive an initial telehealth visit may have higher hospitalization rates compared with those who receive in-person care.	High Direct Precise Inconsistent Undetected Overall: Low
Care for specific conditions, Pregnancy/prenatal/gynecological care	2 studies (N=14,186) - Cohort 2 studies (5, 19) (N=14,186)	Cohort 2 studies (5, 19) (N=14,186)			For women who receive specialized pregnancy/prenatal/gynecological care, those who receive an initial telehealth visit may have slightly higher hospitalization rates compared with those who receive in-person care.	High Direct Precise Consistent Undetected Overall: Low
Care for specific conditions, Other conditions	11 studies (N=73,358) - Cohort 10 studies (3, 17, 18, 50, 61, 62, 64, 71, 75, 76) (N=71,634) - Cross-sectional 1 study(72) (N=1,724)	Cohort 3 studies (50, 62, 75) (N=27,323) Cross-sectional 1 study(72) (N=1,724)		Cohort 7 studies(3, 17, 18, 61, 64, 71, 76) (N=44,311)	For patients who receive care for specific conditions (excluding COVID-19 and pregnancy/prenatal/gynecological care), those who receive an initial telehealth visit may have lower hospitalization rates compared with those who receive in-person care.	High Direct Precise Inconsistent Suspected Overall: Low

Clinical area	Number of Studies and Sample Size (N)	The Direction of Findings (Sample Size)			Conclusion*	Strength of Evidence
		Favors In-person	No Difference/Unclear	Favors Telehealth		
General Behavioral/Mental Health	No studies					
<b>Readmission (N=4 Studies)</b>						
General medical care, Adult	No studies					
General medical care, Child	No studies					
General medical care, All ages	No studies					
Care for specific conditions, COVID-19	2 studies (N=992) - Cohort 2 studies (8, 11) (N=992)			Cohort 2 studies(8, 11) (N=992)	For patients who receive specialized COVID-19 care, those who receive an initial telehealth visit may have similar readmission rates compared with those who receive in-person care.	High Direct Precise Consistent Undetected Overall: Low
Care for specific conditions, Pregnancy/prenatal/gynecological care	1 study (N=473) - Cohort 1 study(33) (N=473)			Cohort 1 study(33) (N=473)	For women who receive pregnancy/prenatal/gynecological care, readmission rates may be similar for those receiving telehealth compared with those who receive in-person care.	Medium Direct Precise Unknown consistency Undetected Overall: Low
Care for specific conditions, Other conditions	1 study (N= 146) - Cohort 1 study(29) (N= 146)			1 study (N= 146) - Cohort 1 study(29) (N= 146)	For patients who receive care for specific conditions (excluding COVID-19 and pregnancy/prenatal/gynecological care), those who receive an initial telehealth visit may have lower readmission rates compared with those who receive in-person care.	High Direct Precise Unknown consistency Undetected Overall: Low
General behavioral/Mental health	No studies					
<b>Clinical Outcomes</b>						
<b>Mortality (N=6 Studies)</b>						
General medical care, Adult	No studies					
General medical care, Child	No studies					
General medical care, All ages	No studies					
Care for specific conditions, COVID-19	No studies					
Care for specific conditions, Pregnancy/prenatal/gynecological care	2 studies (N=53,721) - Cohort 1 study(5) (N=1,579) - Cross-sectional 1 study(4) (N=52,142)	Cohort 1 study(5) (N=1,579)	Cross-sectional 1 study(4) (N=52,142)		For women who receive specialized pregnancy/prenatal/gynecological care, those who receive an initial telehealth visit may have similar mortality rates compared with those who receive in-person care.	High Direct Precise Consistent Undetected Overall: Low
Care for specific conditions, Other conditions	4 studies (N=2,193) - Cohort 3 studies(3, 61, 75) (N=469)			Cohort 3 studies(3, 61, 75) (N=469)	For patients who receive care for specific conditions (excluding COVID-19 and pregnancy/prenatal/gynecological	High Direct Precise Consistent

Clinical area	Number of Studies and Sample Size (N)	The Direction of Findings (Sample Size)			Conclusion*	Strength of Evidence
		Favors In-person	No Difference/Unclear	Favors Telehealth		
	- Cross-sectional 1 study(72) (N=1,724)			Cross-sectional 1 study(72) (N=1,724)	care), those who receive an initial telehealth visit may have lower mortality rates compared with those who receive in-person care.	Undetected Overall: Low
General behavioral/Mental health	No studies					
<b>Patient-Reported Outcome (N=8 Studies)</b>						
General medical care, Adult	No studies					
General medical care, Child	No studies					
General medical care, All ages	No studies					
Care for specific conditions, COVID-19	No studies					
Care for specific conditions, Pregnancy/prenatal/gynecological care	2 studies (N=2,005) - Cohort 2 studies(5, 10) (N=2,005)	Cohort 1 study(5) (N=1,579)		Cohort 1 study (10) (N=426)	For women who receive specialized pregnancy/prenatal/gynecological care, those who receive an initial telehealth visit may have worse patient-reported outcomes compared with those who receive in-person care.	High Direct Precise Inconsistent Undetected Overall: Low
Care for specific conditions, Other conditions	1 study (N=279) - Cohort 1 study(47) (N=279)			Cohort 1 study(47) (N=279)	For patients who receive care for specific conditions (excluding COVID-19 and pregnancy/prenatal/gynecological care), those who receive an initial telehealth visit may have better patient-reported outcomes compared with those who receive in-person care.	High Direct Precise Unknown consistency Undetected Overall: Low
General behavioral/Mental health	5 studies (N=1,079) - Cohort 5 studies(31, 37, 41, 57, 74) (N=1,079)	Cohort 1 study(37) (N=93)	Cohort 1 study(57) (N=338)	Cohort 3 studies(31, 41, 74) (N=648)	For patients receiving care for general behavioral and mental health conditions, those who receive an initial telehealth visit may have better patient-reported outcomes compared with those who receive in-person care.	High Direct Precise Inconsistent Undetected Overall: Low
<b>Condition-Specific Clinical Outcomes (N=15 Studies)</b>						
General medical care, Adult	1 study (N=70) - RCT 1 study(27) (N=70)	1 study (N=70) - RCT 1 study(27) (N=70)			For adult patients who receive care for general medical conditions, those who receive an initial telehealth visit may have worse clinical outcomes compared with those who receive in-person care.	High Direct Precise Unknown consistency Undetected Overall: Low
General medical care, Child	No studies					
General medical care, All ages	No studies					

Clinical area	Number of Studies and Sample Size (N)	The Direction of Findings (Sample Size)			Conclusion*	Strength of Evidence
		Favors In-person	No Difference/Unclear	Favors Telehealth		
Care for specific conditions, COVID-19	No studies					
Care for specific conditions, Pregnancy/prenatal/gynecological care	4 studies (N=56,100) - Cohort 2 studies(5, 14) (N=2,082) - Cross-sectional 2 studies(4, 25) (N=54,018)	Cohort 1 study(5) (N=1,579) Cross-sectional 1 study(25) (N=1,876)	- Cohort 1 study(14) (N=503)	Cross-sectional 1 study(4) (N=52,142)	For women who receive specialized pregnancy/prenatal/gynecological care, those who receive an initial telehealth visit may have worse condition-specific clinical outcomes compared with those who receive in-person care.	High Direct Imprecise Inconsistent Undetected Overall: Low
Care for specific conditions, Other conditions	8 studies (N=73,581) - Cohort 8 studies(6, 17, 21, 42, 47, 69, 71, 73) (N=73,581)	Cohort 4 studies(6, 17, 71, 73) (N=72,390)		Cohort 4 studies(21, 42, 47, 69) (N=1,191)	For patients who receive care for specific conditions (excluding COVID-19 and pregnancy/prenatal/gynecological care), those who receive an initial telehealth visit may have worse condition-specific clinical outcomes compared with those who receive in-person care (SOE: Low)	High Direct Precise Inconsistent Undetected Overall: Low
General behavioral/Mental health	2 studies (N=133) - Cohort 1 study(37) (N=93)  - RCT 1 study(55) (N=40)		- RCT 1 study(55) (N=40)	Cohort 1 study Levinson, 2021(37) (N=93)	For patients receiving care for general behavioral and mental health conditions, those who receive an initial telehealth visit may have better condition-specific clinical outcomes compared with those who receive in-person care.	High Direct Precise Inconsistent Undetected Overall: Low
<b>Adverse Events (N=7 Studies)</b>						
General medical care, Adult	1 study (N=492) - Cohort 1 study(45) (N=492)			Cohort 1 study(45) (N=492)	For adult patients receiving general medical conditions, patients who receive an initial telehealth visit may have slightly lower adverse event rates compared with those who receive in-person care.	High Direct Precise Unknown consistency Undetected Overall: Low
General medical care, Child	No studies					
General medical care, All ages	No studies					
Care for specific conditions, COVID-19	No studies					
Care for specific conditions, Pregnancy/prenatal/gynecological care	3 studies (N=65,036) - Cohort 3 studies(4, 19, 32) (N=65,036)	Cohort 1 study(32) (N=287)		Cohort 2 (4, 19) (N=64,749)	For women who receive specialized pregnancy/prenatal/gynecological care, those who receive an initial telehealth visit may have slightly lower adverse event rates compared with those who receive in-person care.	High Direct Precise Consistent Undetected Overall: Low
Care for specific conditions, Other conditions	2 studies (N=23,452) - Cohort			Cohort 2 studies(54, 61) (N=23,452)	For patients who receive care for specific conditions (excluding COVID-19 and	High Direct Precise

Clinical area	Number of Studies and Sample Size (N)	The Direction of Findings (Sample Size)			Conclusion*	Strength of Evidence
		Favors In-person	No Difference/Unclear	Favors Telehealth		
	2 studies(54, 61) (N=23,452)				pregnancy/prenatal/gynecological care), those who receive an initial telehealth visit may have a slightly lower adverse events rate compared with those who receive in-person care.	Consistent Undetected Overall: Low
General behavioral/Mental health	1 study (N=74) - Cohort 1 study(20) (N=74)		Cohort 1 study(20) (N=74)	NA	For patients receiving care for general behavioral and mental health conditions, those who receive an initial telehealth visit may have similar rates of adverse events compared with those who receive in-person care.	High Direct Imprecise Unknown consistency Undetected Overall: Low
<b>Process Outcomes</b>						
<b>Missed Visits (N=14 Studies)</b>						
General medical care, Adult	2 studies (N=331,638) - Cohort 1 study(43) (N=2,177)  - Cross-sectional 1 study (13) (N=329,461)	Cross-sectional 1 study(13) (N=329,461)		Cohort 1 study(43) (N=2,177)	For adult patients receiving general medical conditions, patients who receive an initial telehealth visit may have higher rates of missed visits compared with those who receive in-person care.	High Direct Precise Inconsistent Undetected Overall: Low
General medical care, Child	No Studies					
General medical care, All ages	1 study (N=278,171) - Cohort 1 study(2) (N=278,171)			Cohort 1 study(2) (N=278,171)	For patients of all ages receiving general medical conditions, patients who receive an initial telehealth visit may have lower rates of missed visits compared with those who receive in-person care.	High Direct Precise Unknown consistency Undetected Overall: Low
Care for specific conditions, COVID-19	No Studies					
Care for specific conditions, Pregnancy/prenatal/gynecological care	3 studies (N=4,243) - Cohort 3 studies(1, 5, 14) (N=4,243)			Cohort 3 studies(1, 5, 14) (N=4,243)	For women who receive specialized pregnancy/prenatal/gynecological care, those who receive an initial telehealth visit may have lower missed visit rates compared with those who receive in-person care.	High Direct Precise Consistent Undetected Overall: Low
Care for specific conditions, Other conditions	6 studies (N=34,280) - Cohort 5 studies(34, 65, 66, 72, 76) (N=33,702) - Cross-sectional 1 study(9) (N=578)	Cohort 2 studies(34, 72) (N=2,694)		Cohort 3 studies(65, 66, 76) (N=31,008) Cross-sectional 1 study(9) (N=578)	For patients who receive care for specific conditions (excluding COVID-19 and pregnancy/prenatal/gynecological care), those who receive an initial telehealth visit may have lower missed visit rates compared with those who receive in-person care.	High Direct Precise Consistent Undetected Overall: Low

Clinical area	Number of Studies and Sample Size (N)	The Direction of Findings (Sample Size)			Conclusion	Strength of Evidence
		Favors In-person	No Difference/Unclear	Favors Telehealth		
General behavioral/Mental health	2 studies (N=350) - Cohort 2 studies(57, 74) (N=350)	Cohort 2 studies(57, 74) (N=350)			For patients receiving care for general behavioral and mental health conditions, those who receive an initial telehealth visit may have higher rates of missed visits compared with those who receive in-person care.	High Direct Imprecise Consistent Undetected Overall: Low
<b>Case Resolution/ Duplication of Services (N=14 Studies)</b>						
General medical care, Adult	No studies					
General medical care, Child	1 study (N=1,769) - Cohort 1 study(30) (N=1,769)		Cohort 1 study(30) (N=1,769)		For children who receive care for general medical conditions, those who receive an initial telehealth visit have the same rates of case resolution compared with those who receive in-person care.	High Direct Imprecise Unknown Consistency Undetected Overall: Low
General medical care, All ages	2 studies (N=607,769) - Cohort 1 study(28) (N=607,573) - Cross-sectional 1 study(68)(N=196)	Cohort 1 study(28) (N=607,573) Cross-sectional 1 study(68) (N=196)		Cohort 1 study(28) (N=505,224)	For patients of all ages who receive care for general medical conditions, those who receive an initial telehealth visit for an acute condition may have higher rates of follow-up visits compared with those who receive in-person care and those who receive an initial telehealth visit for a chronic condition may have lower rates of follow-up visits compared with those who receive in-person care.	High Direct Precise Inconsistent Undetected Overall: Moderate
Care for specific conditions, COVID-19	1 study (N=285) - Cohort 1 study(11) (N=285)			Cohort 1 study(11) (N=285)		High Direct Precise Unknown Consistency Undetected Overall: Insufficient
Care for specific conditions, Pregnancy/prenatal/gynecological care	1 study (N=218) - Cohort 1 study(32) (N=218)			Cohort 1 study(32) (N=218)		High Direct Precise Unknown Consistency Undetected Overall: Insufficient
Care for specific conditions, Other conditions	9 studies (N=8,313) - Cohort 8 studies(21, 35, 38, 39, 46, 49, 59, 76) (N=8,265) - RCT 1 study(48) (N=48)	Cohort 4 studies(39, 46, 59, 76) (N=6,098) RCT 1 study(48) (N=48)		Cohort 4 studies(21, 35, 38, 49) (N=2,167)	For patients who receive care for specific conditions (excluding COVID-19 and pregnancy/prenatal/gynecological care), those who receive an initial telehealth visit may have higher rates of case resolution and a lower rate of duplicated services	High Direct Precise Inconsistent Undetected Overall: Low



Clinical area	Number of Studies and Sample Size (N)	The Direction of Findings (Sample Size)			Conclusion*	Strength of Evidence
		Favors In-person	No Difference/Unclear	Favors Telehealth		
					compared with those who receive in-person care.	
General behavioral/Mental health	No studies					
<b>Change in Therapy/ Medication (N=11 Studies)</b>						
General medical care, Adult	2 studies (N=13,608,708) - Cohort 2 studies(45, 70) (N=13,608,708)	Cohort 2 studies(45, 70) (N=13,608,708)			For adult patients receiving general medical conditions, patients who receive an initial in-person visit may have higher rates of change in therapy/medication compared with those who receive telehealth.	High Direct Precise Consistent Undetected Overall: Moderate
General medical care, Child	No studies					
General medical care, All ages	No studies					
Care for specific conditions, COVID-19	No studies					
Care for specific conditions, Pregnancy/prenatal/gynecological care	No studies					
Care for specific conditions, Other conditions	9 studies (N=8,104) - Cohort 8 studies(15, 39, 42, 49, 53, 61, 64, 76) (N=8,056)  - RCT 1 study(48) (N=48)	Cohort 3 studies(15, 42, 76)(N=4,254)  RCT 1 study(48) (N=48)		Cohort 5 studies(39, 49, 53, 61, 64) (N=3,802)	For patients who receive care for specific conditions (excluding COVID-19 and pregnancy/prenatal/gynecological care), those who receive an initial telehealth visit may have lower rates of change in therapy/medication compared with those who receive in-person care.	High Direct Precise Consistent Undetected Overall: Low
General behavioral/Mental health	No studies					
<b>Treatment/ Medication Adherence (N=13 Studies)</b>						
General medical care, Adult	3 studies (N=960) - Cohort 2 studies(45, 77) (N=906) - RCT 1 study(27) (N=54)		Cohort 1 study(45) (N=492)	Cohort 1 study(77) (N=414)  RCT 1 study(27) (N=54)	For patients of all ages who receive care for general medical conditions, those who receive an initial telehealth visit may have higher rates of therapy/medication adherence compared with those who receive in-person care.	High Direct Precise Consistent Undetected Overall: Low
General medical care, Child	No studies					
General medical care, All ages	No studies					
Care for specific conditions, COVID-19	No studies					
Care for specific conditions, Pregnancy/prenatal/gynecological care	No studies					



Clinical area	Number of Studies and Sample Size (N)	The Direction of Findings (Sample Size)			Conclusion*	Strength of Evidence
		Favors In-person	No Difference/Unclear	Favors Telehealth		
Care for specific conditions, Other conditions	5 studies (N=144,426) - Cohort 3 studies(7, 17, 26) (N=144,202) - Cross-sectional 1 study(44) (N=176) - RCT 1 study(48) (N=48)	Cohort 1 study(7) (N= 127,444)	Cohort 1 study(26) (N=270)	Cohort 1 study(17) (N=3,744) Cross-sectional 1 study(44) (N=176) RCT 1 study(48) (N=48)	For patients who receive care for specific conditions (excluding COVID-19 and pregnancy/prenatal/gynecological care), those who receive an initial telehealth visit may have lower rates of therapy/medication adherence compared with those who receive in-person care.	High Direct Precise Consistent Undetected Overall: Low
General behavioral/Mental health	5 studies (N=6,494) - Cohort 4 studies(16, 20, 24, 58) (N=2,156) - Cross-sectional 1 study(22) (N=4,338)			Cohort 4 studies(16, 20, 24, 58) (N=2,156) Cross-sectional 1 study(22) (N=4,338)	For patients receiving care for general behavioral and mental health conditions, those who receive an initial telehealth visit may have higher rates of therapy/medication adherence compared with those who receive in-person care.	High Direct Precise Consistent Undetected Overall: Low
<b>Up-to-Date Laboratory and Paraclinical Assessment (N=9 Studies)</b>						
General medical care, Adult	No studies					
General medical care, Child	1 study (N=1,769) - Cohort 1 study(30) (N=1,769)	1 study (N=1,769) - Cohort 1 study(30) (N=1,769)			For children who receive care for general medical conditions, those who receive an initial telehealth visit have lower rates of up-to-date labs and paraclinical assessment compared with those who receive in-person care.	High Direct Precise Unknown Consistency Undetected Overall: Low
General medical care, All ages	No studies					
Care for specific conditions, COVID-19	No studies					
Care for specific conditions, Pregnancy/prenatal/gynecological care	1 study (N=104) - Cohort 1 study(5) (N=104)	Cohort 1 study(5) (N=104)			For women receiving care for specialized care for pregnancy/prenatal/ gynecological care, those who receive an initial telehealth visit may have similar rates of up-to-date labs and paraclinical assessment compared with those who receive in-person care.	Medium Direct Imprecise Unknown Consistency Undetected Overall: Low
Care for specific conditions, Other conditions	7 studies (N=14,378) - Cohort 6 studies (15, 39, 41, 51, 56, 67) (N=13,468) - Cross-sectional 1 study(50) (N=910)	Cohort 5 studies (15, 39, 41, 56, 67) (N=13,259)	Cross-sectional 1 study(50) (N=910)	Cohort 1 study(51); (N=209)	For patients receiving care for specific conditions (excluding COVID-19 and pregnancy/prenatal/ gynecological care), those who receive an initial telehealth visit may have lower rates of up-to-date labs and paraclinical assessment	High Direct Precise Inconsistent Undetected Overall: Low

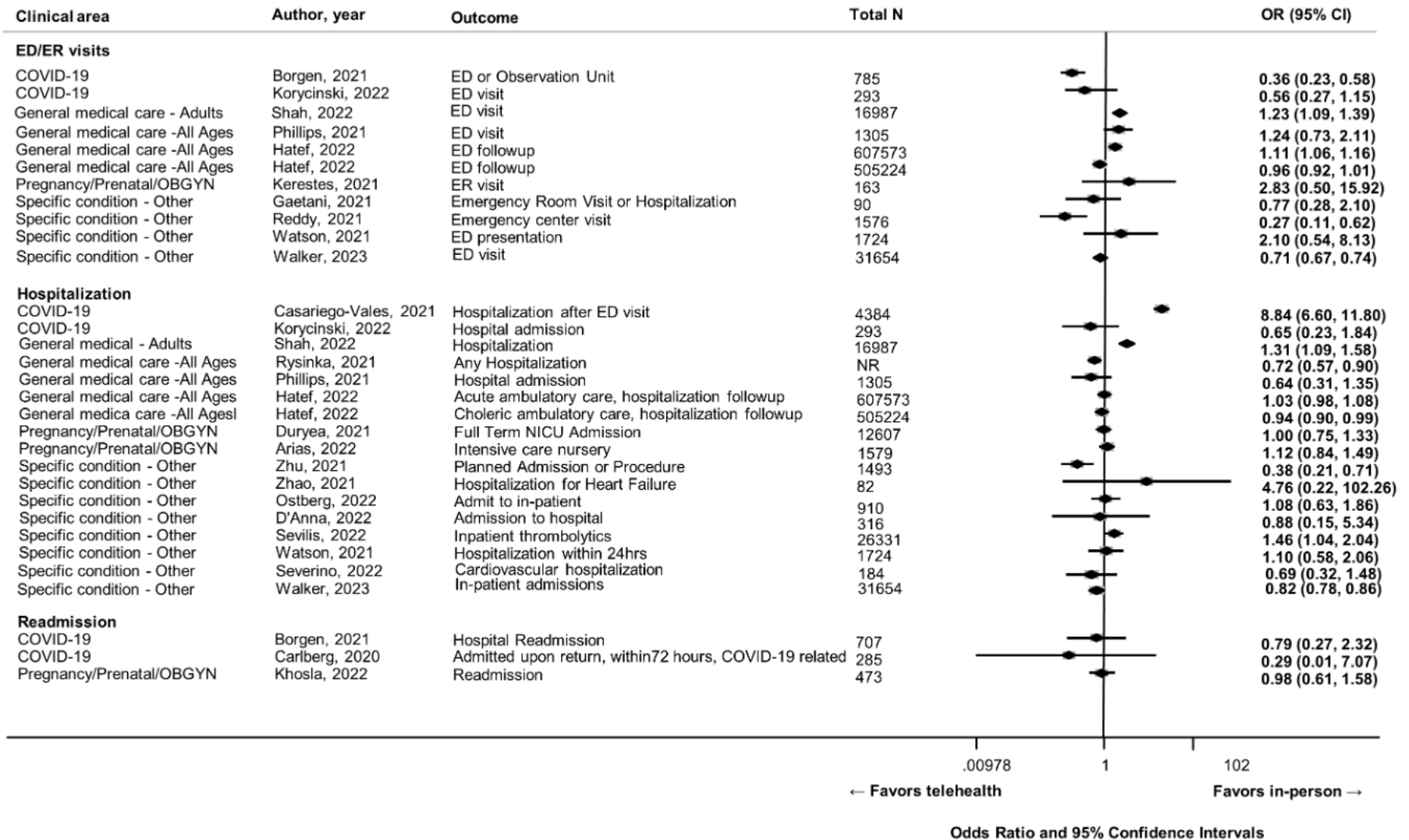
Clinical area	Number of Studies and Sample Size (N)	The Direction of Findings (Sample Size)			Conclusion*	Strength of Evidence
		Favors In-person	No Difference/Unclear	Favors Telehealth		
					compared with those who receive in-person care.	
General behavioral/Mental health	No studies					

ED=emergency department; NA=not applicable/no studies; SOE =strength of evidence

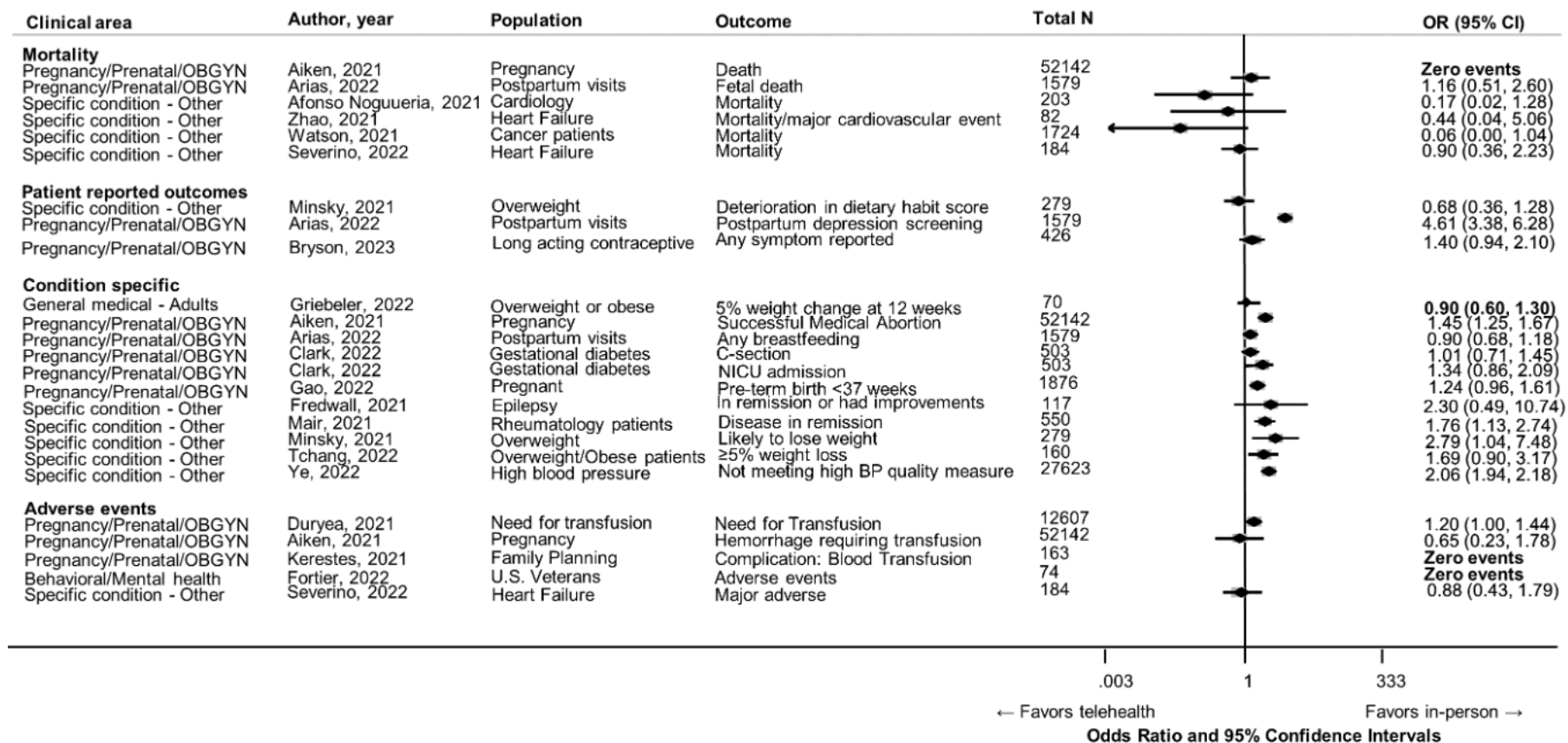
\*The strength of evidence domains included in the assessment (as listed in descending order) were study limitations (reported as low, medium, high), directness (whether the evidence links the interventions directly to health outcomes), precision (the degree of certainty surrounding an effect estimate concerning a given outcome), consistency (the degree to which reported effect sizes appear to have the same direction of effect), and reporting bias (indicates selective publication of results, which results in the misrepresentation of the true effect). After the assessment of each domain, the strength of evidence received a single grade of high, moderate, low, or insufficient.

# Supplementary Figure 1. Health Outcomes for Patients with an Initial Telehealth versus In-person Visit by Outcome Category and Clinical Area.\*

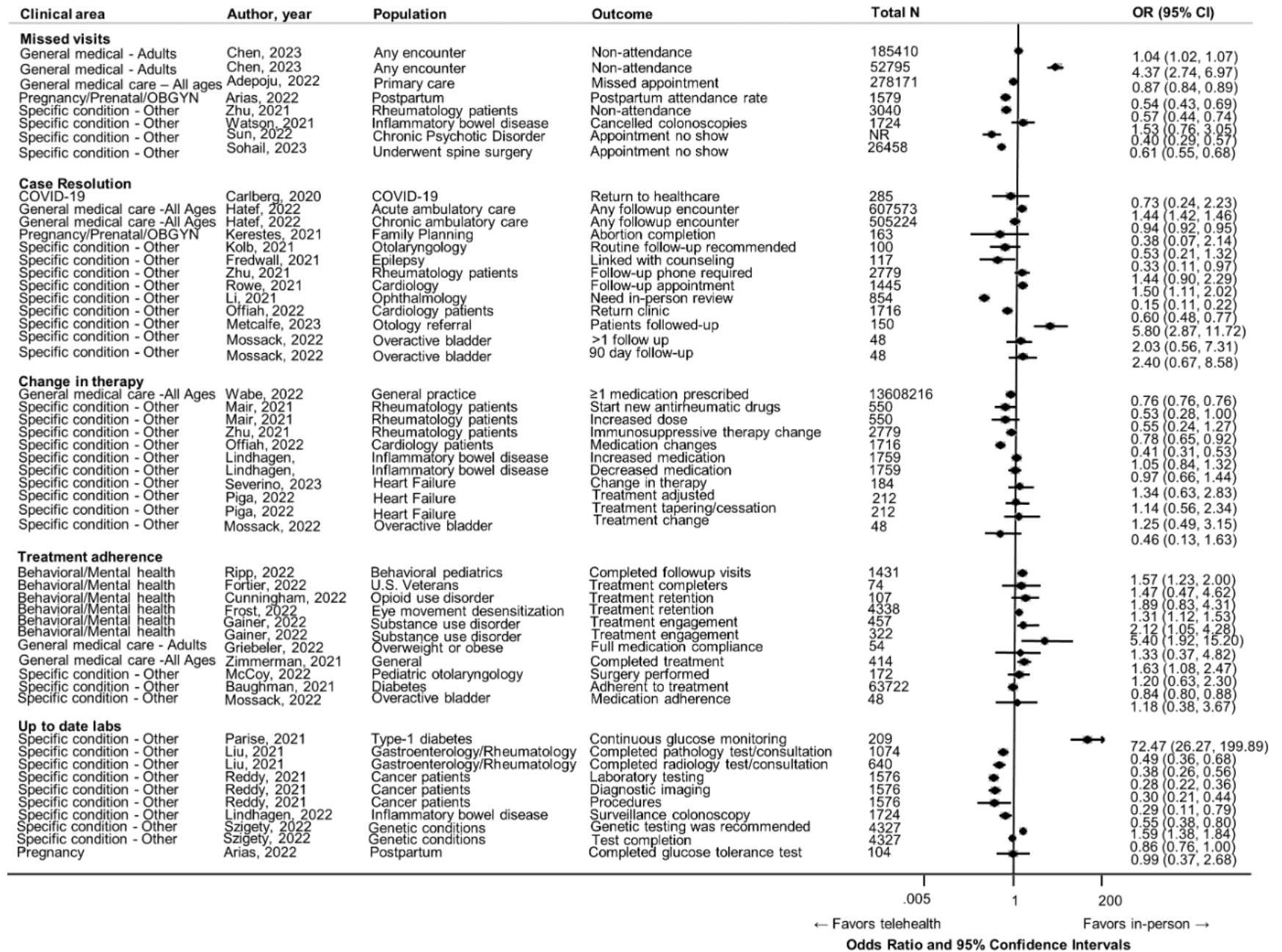
## A. Healthcare Utilization



## B. Clinical Outcomes



### C. Process Outcomes



CI=confidence interval; ED/ER=emergency department/emergency room; HHT=hereditary hemorrhagic telangiectasia; N=sample size; NICU=neonatal intensive care unit; NR=not reported; OBGYN=obstetrics and gynecology; OR=odds ratio

\* Included studies in each graph reported categorical data from which an odds ratio was calculated. Other studies did not report categorical data and odds ratios could not be calculated.

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