

Supplementary information

Appendix A: Search strategies:

(disrupt* adj3 (innovat* or technolog*)),ab,ti. for the Ovid database and (disrupt* N2 (innovat* or technolog*)), for the CINAHL database.

Appendix B: Full table of extracted results:

Author	Year	Country	Type	Article	Innovation
Abrams ¹	2014	USA	Device	Review	E-cigarettes
Adaji ²	2018	USA	Processes	Review	Integrated psychiatric care
Alami ³	2017	Canada	Digital Health	Review	Digital health
Alfonso ⁴	2016	Spain	Device	Review	Bioresorbable vascular scaffolds
Alston ⁵	2003	USA	Digital Health	Review	Web based delivery model for primary care services
Arora ⁶	2010	USA	Processes	Trial	ECHO (Extension for Community Healthcare Outcomes)
Asgar ⁷	2018	Canada	Technique	Review	TAVI (Transcatheter Aortic Valve Implantation)
Ashrafian ⁸	2017	United Kingdom	Technique	Review	Robotic surgery
Badlani ⁹	2012	USA	Processes	Review	Single specialty hospitals
Bagley ¹⁰	2015	United Kingdom	Education	Review	Distance learning

Bagot ¹¹	2015	USA	Digital Health	Observational trial	Telemedicine in the acute health setting (stroke medicine)
Baldwin ¹²	2007	United Kingdom	Digital Health	Review	Mobile health in the context of ED
Barker ¹³	2016	USA	Technique	Review	TAVR (Transcatheter aortic valve replacement)
Ben-Or ¹⁴	2013	USA	Device	Review	da Vinci robot
Berlin ¹⁵	2014	USA	Technique	Review	TAVI
Best ¹⁶	2006	USA	Basic Science	Review	Nanomedicine
Bhavan ¹⁷	2016	USA	Processes	Review	Self-administered outpatient antibiotic therapy (OPAT)
Bibby ¹⁸	2013	USA	Basic Science	Review	'Shotgun' metagenomic sequencing
Birchall ¹⁹	2014	United Kingdom	Basic Science	Review	Tissue engineering
Bluestein ²⁰	2013	USA	Technique	Review	Device thrombogenicity emulation
Boisguerin ²¹	2014	Germany	Basic Science	Review	Mutation-targeting RNA-based vaccines

Borges ²²	2015	Portugal	Digital Health	Review	Radio-frequency energy harvesting for wearable sensors
Boston-Fleischhauer ²³	2016	USA	Processes	Review	Acute care organisation
Bradley ²⁴	2009	USA	Technique	Review	MR guided focused ultrasound surgery
Broome ²⁵	2014	USA	Education	Review	Open access publishing
Burkhart ²⁶	2015	USA	Technique	Review	Arthroscopic rotator cuff repair
Burns ²⁷	2011	USA	Processes	Review	Single specialty hospitals
Cable ²⁸	2014	New Zealand	Education	Review	Interprofessional master's program in health profession education
Cadogan ²⁹	2014	Australia	Education	Review	Free Open Access Medical education (FOAM)
Cai ³⁰	2016	USA	Basic Science	Review	Mass spectrometry-based proteomics
Castle ³¹	2016	USA	Processes	Review	Accountable care units
Chase ³²	2006	USA	Processes	Review	Nurse practitioners

Chen ³³	2014	China	Device	Review	Wireless capsule endoscopy
Chew ³⁴	2018	Canada	Device	Review	Leadless pacemakers
Ciuti ³⁵	2016	Italy	Device	Review	Wireless capsule endoscopy
Clarke ³⁶	2013	USA	Technique	Review	'UroLift' procedure
Cloft ³⁷	2012	USA	Technique	Trial	Flow diversion in neurosurgical procedures
Cohen ³⁸	2017	USA	Basic Science	Review	In vitro fertilisation and in vitro gametogenesis
Connaughton ³⁹	2014	USA	Device	Review	Biofilm in orthopaedic implants
Contandriopoulos ⁴⁰	2016	Canada	Processes	Review	Nurse Practitioners
Correa ⁴¹	2017	USA	Device	Review	E-cigarettes
Couch ⁴⁶	2010	USA	Technique	Trial	Trans-oral robotic surgery
Crobeddu ⁴²	2013	USA	Technique	Review	Flow diversion in neurosurgical procedures
D'Alfonso ⁴³	2018	USA	Processes	Review	Kaiser's School of Nursing

Dawn ⁴⁴	2017	USA	Device	Review	3D printing in cardiac surgery
De Vos ⁴⁵	2016	France	Basic Science	Review	Human induced pluripotent stem cells
Del Vecchio ⁴⁷	2011	USA	Technique	Review	Fat grafting to breasts
Donaldson ⁴⁸	2008	USA	Processes	Review	Re-organisation of care system based on Patient Reported Outcomes
Doss ⁴⁹	2016	Australia	Processes	Review	Outpatient management of knee osteoarthritis
Downing ⁵⁰	2009	USA	Basic Science	Review	Clinical genomics within context of personalised medicine
Drum ⁵¹	2016	USA	Diagnostics	Review	Pulse oximetry
Eckert ⁵²	2014	USA	Technique	Review	Fluoridation of water
Edmonson ⁵³	2016	USA	Processes	Review	Nurses performing cardiopulmonary resuscitation (CPR)
Edmunds ⁵⁴	2002	USA	Processes	Review	Nurse Practitioners
Eltoum ⁵⁵	2012	USA	Diagnostics	Observational trial	Endoscopic ultrasound-guided

					fine-needle aspiration
Fagerstrom ⁵⁶	2015	USA	Device	Review	E-cigarettes
Felker ⁵⁷	2015	USA	Digital Health	Review	Big data analysis
Feltus ⁵⁸	2015	USA	Basic Science	Review	High throughput DNA sequencing
Fernandez Carrillo ⁵⁹	2017	Spain	Basic Science	Review	Direct acting anti-viral agents in Hepatitis C
Gerbault ⁶⁰	2018	France	Technique	Review	Piezosurgery
Giatsidis ⁶¹	2017	USA	Technique	Review	Face transplant
Gibson ⁶²	2000	USA	Education	Review	Distance learning
Gilchrist ⁶³	2017	USA	Technique	Review	Trans-radial endovascular access
Glabman ⁶⁴	2009	USA	Processes	Review	Retail clinics
Goeddel ⁶⁵	2015	USA	Processes	Review	Perioperative Surgical Home
Grady ⁶⁶	2014	USA	Digital Health	Review	Telemedicine
Green ⁶⁷	2004	USA	Technique	Review	Endovascular surgery
Gupte ⁶⁸	2016	USA	Digital Health	Observational trial	Telemedicine

Hanna ⁶⁹	2017	USA	Digital Health	Review	Health informatics
Hans ⁷⁰	2018	Canada	Digital Health	Review	Mobile Health
Hansen ⁷¹	2012	USA	Basic Science	Review	Metabolomics
Hansen ⁷²	2009	USA	Technique	Review	Mobile fluoroscopic imaging in orthopaedic surgery
Hansen-Turton ⁷³	2007	USA	Processes	Review	Retail clinics
Harris ⁷⁴	2010	USA	Education	Review	Distance learning
Hart ⁷⁵	2015	Germany	Basic Science	Review	Communicative re-programming (anakinosis) with cellular therapies in situ for treating refractory metastatic cancer
Hathaway ⁷⁶	2006	USA	Education	Review	Doctor of Nursing practice
Havighurst ⁷⁷	2008	USA	Processes	Review	Health tourism
Hawkins ⁷⁸	2017	USA	Technique	Review	TAVR
Heckers ⁷⁹	2017	USA	Processes	Review	Systems Neuroscience of Psychosis (SyNoPsis)

Heerenma ⁸⁰	2016	Netherlands	Basic Science	Review	DNA sequencing
Heidesch ⁸¹	2008	USA	Processes	Review	Nurse practitioners
Helmus ⁸²	2008	USA	Basic Science	Review	Bio-compatibility
Hermiller ⁸³	2005	USA	Device	Review	Drug eluting stents
Holderried ⁸⁴	2017	Germany	Digital Health	Review	eHealth in otorhinolaryngology
Househ ⁸⁵	2017	Saudi Arabia	Digital Health	Review	Health informatics
Huber ⁸⁶	2007	USA	Device	Trial	Functional pulmonary valved stent
Hui ⁸⁷	2017	USA	Device	Review	3D printing
Hultman ⁸⁸	2013	USA	Technique	Review	Autologous reconstruction
Hultman ⁸⁹	2014	USA	Technique	Review	Laser treatment to treat burn scars
Hunt ⁹⁰	2017	Australia	Digital Health	Review	Hireup - online platform for people with disability to select and manage their own support worker
Hurks ⁹¹	2015	USA	Technique	Observational trial	Endovascular surgery

Hussain ⁹²	2015	Malaysia	Digital Health	Review	Medical smartphone apps
Huston ⁹³	2018	USA	Education	Review	Simulation based nursing teaching
Hutchinson ⁹⁴	2017	USA	Diagnostics	Review	Prostate MRI
Hutchinson ⁹⁵	2018	USA	Technique	Review	Stereotactic radio-ablation
Hynynen ⁹⁶	2016	Canada	Technique	Review	Focussed ultrasound as non-invasive therapeutic energy delivery modality
Iglehart ⁹⁷	2014	USA	Digital Health	Review	Telemedicine
Jackrel ⁹⁸	2015	USA	Basic Science	Review	Agents that reverse protein misfolding – Parkinson's Disease, Amyotrophic Lateral Sclerosis
Jacobson ⁹⁹	2011	USA	Processes	Review	Affordable Care Act
Jameson ¹⁰⁰	2014	USA	Digital Health	Review	Home monitoring
Jha ¹⁰¹	2012	USA	Diagnostics	Review	CT scan
Jilla ^{102,103}	2018	USA	Device	Review	Over the counter hearing aids

Jolesz ¹⁰⁴	2009	USA	Technique	Review	MRI-guided focused ultrasound surgery
Jones ¹⁰⁵	2016	USA	Device	Review	3D printing
Jordan ¹⁰⁶	2015	USA	Digital Health	Review	Big data analysis
Kain ¹⁰⁷	2015	USA	Processes	Review	Perioperative surgical home
Kaissi ¹⁰⁸	2016	USA	Processes	Review	Retail clinics
Kallen ¹⁰⁹	2013	Germany	Basic Science	Review	Self-adjuvanted RNA active vaccines
Kancharla ¹¹⁰	2017	USA	Device	Review	Leadless pacemakers
Kaslow ¹¹¹	2004	USA	Basic Science	Review	Gene based vaccine
Kavic ¹¹²	2003	USA	Technique	Review	Laparoscopic surgery
Kazdin ¹¹³	2017	USA	Digital Health	Review	Telemedicine
Keller ¹¹⁴	2018	United Kingdom	Digital Health	Review	#colorectalresearch - use of hashtag in social media to disseminate knowledge
Kenagy ¹¹⁵	2002	USA	Processes	Review	Ambulatory Surgical Centres
Kerfoot ¹¹⁶	2004	USA	Processes	Review	Affordable Care Act

Khor ¹¹⁷	2016	United Kingdom	Digital Health	Review	Augmented reality in surgery
Kibbe ¹¹⁸	2008	USA	Digital Health	Review	Health informatics
Kiechle ¹¹⁹	2014	USA	Basic Science	Review	Whole genome sequencing
Kissinger ¹²⁰	2008	USA	Processes	Review	Retail clinics
Kittaneh ¹²¹	2013	USA	Basic Science	Review	Clinical genomics in breast cancer treatment
Kneebone ¹²²	2010	United Kingdom	Education	Review	'Distributed simulation'
Kobewka ¹²³	2018	Canada	Digital Health	Review	Online doctors
Kosinski ¹²⁴	2012	USA	Processes	Review	Business model in healthcare
Krakower ¹²⁵	2017	USA	Processes	Review	Pre-exposure prophylaxis for HIV
Kricka ¹²⁶	2016	USA	Digital Health	Review	Big data analysis
Kurzock ¹²⁷	2015	USA	Basic Science	Review	Next generation sequencing
Kushins ¹²⁸	2017	USA	Processes	Review	Physicians assistants in rural USA
Lauer ¹²⁹	2013	USA	Education	Review	Randomised registry trials

Leff ¹³⁰	2017	United Kingdom	Technique	Review	Margin assessment – bio-impedance, mass spectrometry, optical, imaging
Lesser ¹³¹	2007	USA	Diagnostics	Review	Nerve conduction study
Levy ¹³²	2008	USA	Digital Health	Review	Role of computers in modernising radiology
Li ¹³³	2012	Australia	Processes	Review	Nurse Practitioners
Lindsey ¹³⁴	2015	USA	Basic Science	Review	Mass spectrometry-based proteomics
Loo ¹³⁵	2016	United Kingdom	Device	Review	3D printing
Louizos ¹³⁶	2012	USA	Basic Science	Review	Nanotechnology
Ma ¹³⁷	2013	USA	Education	Review	Open access genomics modules
MacConaill ¹³⁸	2010	USA	Basic Science	Review	Parallel DNA sequencing in cancer genome sequencing
Mack ¹³⁹	2012	USA	Technique	Review	TAVI
Macnab ¹⁴⁰	2014	Canada	Basic Science	Review	Near infrared spectrophotometry
Malek ¹⁴¹	2017	Germany	Digital Health	Review	Artificial intelligence

Marshall ¹⁴²	2018	United Kingdom	Digital Health	Review	Online consulting in primary care (e.g. GP at hand)
Marwick ¹⁴³	2016	Australia	Diagnostics	Review	Portable ultrasound as physical examination device (PUPED)
McGinniss ¹⁴⁴	2015	USA	Basic Science	Review	Next generation sequencing
McKinlay ¹⁴⁵	2012	USA	Processes	Review	Retail clinics
Mehta ¹⁴⁶	2013	USA	Education	Review	Online course for medical education
Mesko ¹⁴⁷	2017	Hungary	Digital Health	Review	Digital health, AI, wearable technology, robotics, telemedicine
Michaelis ¹⁴⁸	2004	USA	Device	Review	Drug eluting stents
Moerenhout ¹⁴⁹	2018	Belgium	Digital Health	Review	E-Health - "Dr Google" and electronic health records
Monteith ¹⁵⁰	2013	USA	Technique	Review	Transcranial MR-guided focused ultrasound (MRgFUS) surgery

Moore ¹⁵¹	2017	USA	Basic Science	Review	Use of perinatal tissue as allogenic biomaterial
Murino ¹⁵²	2016	United Kingdom	Device	Review	Capsule endoscopy
Naguib ¹⁵³	2017	USA	Device	Review	Sugammadex
Nam ¹⁵⁴	2015	USA	Basic Science	Review	Point of care testing
Nassiri ¹⁵⁵	2015	USA	Technique	Review	Targeted prostate biopsy
Nguyen ¹⁵⁶	2016	USA	Digital Health	Review	Smartphone technology in cardiology
Niranjan ¹⁵⁷	2012	USA	Technique	Review	Intracranial radiosurgery
Oo ¹⁵⁸	2015	USA	Basic Science	Review	Use of nanotechnology to deliver therapies
Page ¹⁵⁹	2014	USA	Digital Health	Review	Cloud based privacy preserving remote ECG monitoring and surveillance
Pallen ¹⁶⁰	2010	United Kingdom	Basic Science	Review	High throughput DNA sequencing
Palmieri ¹⁶¹	2011	Peru	Digital Health	Review	Health informatics

Parikh ¹⁶²	2016	USA	Basic Science	Review	Blood based screening for colon cancer
Parkinson ¹⁶³	2009	USA	Basic Science	Review	Personalised medicine directing oncological treatment
Patel ¹⁶⁴	2006	USA	Diagnostics	Observational trial	Portable ultrasound scanning
Paterick ¹⁶⁵	2009	USA	Processes	Review	Retail clinics
Pauly ¹⁶⁶	2008	USA	Processes	Review	Health maintenance organisation
Pechacek ¹⁶⁷	2016	USA	Device	Review	Electronic nicotine delivery system
Perkins ¹⁶⁸	2016	Australia	Processes	Review	Health Care Homes
Petito ¹⁶⁹	2017	USA	Digital Health	Review	Telemedicine in Eye Care
Pinney ¹⁷⁰	2016	USA	Device	Review	Left ventricular assist device
Ptak ¹⁷¹	2010	USA	Basic Science	Review	Nanotechnology
Rao ¹⁷²	2018	USA	Processes	Review	Re-structuring of pharmacy benefit manager system
Ratib ¹⁷³	2011	Switzerland	Digital Health	Review	Open source software

Reiner ¹⁷⁴	2013	USA	Digital Health	Review	Picture archiving and communication system (PACS)
Reinhardt ¹⁷⁵	2013	USA	Processes	Review	Price transparency in healthcare
Rifai ¹⁷⁶	2015	USA	Diagnostics	Review	Point of care testing
Roach ¹⁷⁷	2015	USA	Basic Science	Review	Bacterial whole genome sequencing
Roberts ¹⁷⁸	2016	Australia	Technique	Review	Femtosecond laser cataract surgery
Rosen ¹⁷⁹	2018	United Kingdom	Digital Health	Review	GP at hand
Rosenwasser ¹⁸⁰	2017	USA	Technique	Review	Neuro-endovascular surgery and use of tPA
Rothman ¹⁸¹	2017	USA	Digital Health	Review	Mobile technology within healthcare
Saarel ¹⁸²	2017	USA	Device	Review	Subcutaneous implantable cardioverter defibrillator (ICD)
Saffitz ¹⁸³	2012	USA	Basic Science	Review	Next generation genomic sequencing
Said ¹⁸⁴	2010	USA	Technique	Review	Thoracoscopy
Sanchez ¹⁸⁵	2015	USA	Device	Review	Bioresorbable stents

Sanchez-Nino ¹⁸⁶	2017	Spain	Basic Science	Review	Clinical proteomics in kidney disease
Satava ¹⁸⁷	2003	USA	Technique	Review	Biosurgery
Schlesinger ¹⁸⁸	2013	USA	Technique	Review	MR guided focused ultrasound surgery, present and future
Schulman ¹⁸⁹	2009	USA	Basic Science	Review	Personalised medicine
Schwamm ¹⁹⁰	2018	USA	Device	Review	Tenecteplase
Schwamm ¹⁹¹	2014	USA	Digital Health	Review	Telemedicine
Schwarz ¹⁹²	2016	Germany	Processes	Review	Diabetes health policy changes
Sensmeier ¹⁹³	2012	USA	Diagnostics	Review	Glucose point of care testing
Settembre ¹⁹⁴	2014	USA	Basic Science	Review	RNA based flu vaccine
Shaikh ¹⁹⁵	2015	USA	Digital Health	Review	E-surveillance
Sharma ¹⁹⁶	2017	India	Processes	Review	Health tourism in India
Shekarian ¹⁹⁷	2015	France	Basic Science	Review	Targeting immune system as cancer therapy
Shih ¹⁹⁸	2010	USA	Digital Health	Review	Mobile Health

Shimada ¹⁹⁹	2013	USA	Digital Health	Review	Asynchronous telemedicine
Shoemaker ²⁰⁰	2002	USA	Basic Science	Review	DNA micro-arrays
Skiba ²⁰¹	2017	USA	Digital Health	Review	Health information technology
Slavin ²⁰²	2012	USA	Technique	Review	Endovascular surgery
Smith ²⁰³	2007	USA	Technique	Review	Coronary angioplasty
Smith ²⁰⁴	2013	USA	Technique	Review	Thoracic trauma techniques - TEVAR
Spaide ²⁰⁵	2018	USA	Diagnostics	Review	Optical conference tomography
Spinks ²⁰⁶	2017	Australia	Digital Health	Review	Automated dispensation in Pharmacy
Srinivasan ²⁰⁷	2013	USA	Processes	Review	Single procedure hospitals
Stimson ²⁰⁸	2014	United Kingdom	Device	Review	E-cigarettes
Stortecky ²⁰⁹	2013	Switzerland	Technique	Review	TAVI
Sultan ²¹⁰	2018	Ireland	Technique	Review	Streamliner Multilayer Flow Modulator in endovascular surgery

Svensson ²¹¹	2008	USA	Technique	Review	TAVI
Swendeman ²¹²	2015	USA	Digital Health	Review	Smartphone self-monitoring
Swisher-McClure ²¹³	2015	USA	Diagnostics	Review	Glucose point of care testing
Tarantini ²¹⁴	2018	Italy	Technique	Review	TAVI
Tegos ²¹⁵	2013	USA	Basic Science	Review	New anti-infective medication
Thompson ²¹⁶	2016	USA	Education	Review	Distance learning
Tice ²¹⁷	2002	USA	Processes	Review	Retail clinic
Tursz ²¹⁸	2015	France	Basic Science	Review	Genomics in personalised cancer treatment
Uriel ²¹⁹	2015	USA	Device	Review	Mechanical circulatory support
Ussui ²²⁰	2015	USA	Device	Review	Confocal Endomicroscopy of Colorectal Polyps
Vannier ²²¹	2003	USA	Diagnostics	Review	Craniofacial CT scanning
Veith ²²²	2008	USA	Technique	Review	Carotid artery stenting
Veld ²²³	2011	Netherlands	Digital Health	Review	Telemedicine
Verhees ²²⁴	2017	Netherlands	Digital Health	Review	Point of care testing informatic integration

Vetter ²²⁵	2015	USA	Processes	Review	Perioperative Surgical Home
Vinks ²²⁶	2017	USA	Basic Science	Review	Genomics
Vinn ²²⁷	2010	USA	Processes	Review	Residentialist - home visits for high risk patients
Wade ²²⁸	2014	USA	Basic Science	Review	Genomics
Wagner ²²⁹	2001	USA	Digital Health	Review	Information technology
Walcott ²³⁰	2016	USA	Technique	Review	Flow diversion in neurosurgical procedures
Warsof ²³¹	2015	USA	Technique	Review	Non-invasive prenatal testing
Weaver ²³²	2014	USA	Technique	Review	Endovascular surgery
Weinstein ²³³	2014	USA	Digital Health	Review	Mobile Health
Westbrook ¹³³	2012	Australia	Digital Health	Review	ICT
Wheler ²³⁴	2014	USA	Basic Science	Review	Applied genomics
White ²³⁵	2008	USA	Digital Health	Review	Electronic medical records

Wiederhold ²³⁶	2015	USA	Digital Health	Review	mHealth in ED
Windle ²³⁷	2003	USA	Digital Health	Review	Computerised physician order entry
Wissing ²³⁸	2017	Netherlands	Basic Science	Review	In situ tissue engineering
Wu ²³⁹	2017	USA	Basic Science	Review	Dried Blood Spot test for TAC, cyclosporine A and creatinine levels
Yates ²⁴⁰	2013	USA	Basic Science	Review	Shotgun proteomics
Yellowlees ²⁴¹	2012	USA	Digital Health	Review	Asynchronous Telepsychiatry
Yeo ²⁴²	2017	Singapore	Device	Review	Bio-artificial graft for vascular access
Yoo ²⁴³	2015	USA	Device	Review	3D printing
Ziai ²⁴⁴	2012	USA	Digital Health	Review	Digital pathology
Zimilichman ²⁴⁵	2013	USA	Processes	Review	Payment reform and policy changes (Medicare and Medicaid)