This is the third year presenting bibliographic resources for programs in which art museums partner with medical schools to cultivate medical students’ skills in rigorous observation, critical thinking, communication, team-building, empathy in relation to diagnostic practices.

Participating art museums and medical schools who attended “The Art of Examination: Art Museum and Medical School Partnerships” Forum that took place on June 8 and 9, 2016 at the Museum of Modern Art, New York initially contributed to this bibliography of journal articles, books and reports, and other media. One recommendation from the Forum is to continue to support the network of collaborators and partnerships between art museums and medical schools by offering a current listing of resources. These will
advance the field by creating opportunities to exchange teaching methodologies and establish networks for research and evaluation.

New sources in this 2018 version are listed in red.

The Edith O’Donnell Institute for Art History, The University of Texas at Dallas continues to compile these sources and stores them on our website at http://www.utdallas.edu/arthistory/medicine/#resources.

The PDF version of this bibliography includes embedded links to resources. These links were all working at the time of publication, but we cannot guarantee they will remain stable over time.

The Bibliography is Organized into 5 sections

1. Program Descriptions
2. Medical Humanities
3. Research and Evaluation
4. Books and Reports
5. Video, Podcast, and Other Media
Program Descriptions


Frick Collection program in which medical students examine painted portraits, then apply the same skills to examine photographs of patients’ faces.


RISD program with Alpert Medical School.


Student perception using an “Art in Medicine” 8-week course for first-year medical students at the Brighton and Sussex Medical School as a sample study.


Overview of Boston programs in art of observation.


Studying works by classic and contemporary artists to increase awareness of the complex nature of human beings and their conditions.


Four guiding principles to pedagogy eight core principles of clinical observation.


*Introduction to the methodology of the Yale Center for British Art observational program including visual analysis exercises.*


*Study on improvement of PA visual skills from workshop at Yale Center for British Art.*


*Study on the Personal Responses Tour at Harvard Art Museums; its effectiveness led to it being a required exercise for first-year medical students.*


*The Brigham and Women’s Hospital Department of Medicine and the Boston Museum of Fine Arts program combats physician burnout and empathy erosion.*


*Indiana University School of Nursing use of VTS.*


*Weill Cornell Medical College art elective at the Metropolitan Museum of Art.*


*On the Frick Collection’s training of law enforcement officers.*


Lehe, Jennifer; Stone, Linda. “Art of Analysis: A Case Study in Fostering Empathy, Critical Thinking, and Mindfulness through Museum-University Partnership.” Ohio State University presentation. Retrieved from http://hdl.handle.net/1811/84728 Presentation showcasing Columbus Museum of Art and The Ohio State University College of Medicine’s Art of Analysis course.
To cultivate medical students' creative capacity, the authors developed the Integrated Clinical Arts (ICA) program, a required component of the first-year curriculum at the Warren Alpert Medical School of Brown University.

Summary results from ten weekly art museum sessions. Describes the benefits of VTS facilitation and includes a process example.

Commentary in which a fourth-year medical student argues for the relevance of the arts and humanities and the need to sustain medical students' exposure to these through the medical curriculum.

Measured results showing an interdisciplinary course improved participants' capacity to make accurate observations of art and physical findings.

Exploration of doctors and "objectivity".

First- and second-year medical students at Southampton University took part in 3-hour life drawing classes with a life drawing tutor and an anatomist.


University of Alberta Arts & Humanities in Health & Medicine Program.

Resources to enhance scientific observation including a proposed curriculum for an eight-week arts observation seminar.

Describes an approach to gallery teaching that honors the memories, associations, and emotions that visitors bring to their encounters with works of art.

Health Sciences students were assigned to two learning groups that participated in a visual literacy program at the McMaster Museum of Art in Ontario.

Medical Humanities

This study sought to explore the perceived influence of narrative medicine training on clinical skill development of fourth-year medical students, focusing on competencies mandated by ACGME and the RCPSC in areas of communication, collaboration, and professionalism.

Expanding the traditional role of doctor as science-using, evidence-based practitioner to include that of doctor as a "maker" (creator) and artist.


Report on the importance of narrative.


The University of Toronto Scarborough's Oshin Vartanian is an expert on the neuroscience of aesthetics and creativity. In a recent study he explored the different ways people observe and appreciate art on a neurological level.


Observations on practicing medicine in a modern world.


The brain’s ability to observe plays in relation to the battlefield.


Bias-reducing observations and strategies.


Call to adopt the model of narrative medicine.
The benefits of the arts in healthcare from the director of the mental health clinic at the University of Minnesota’s Boynton Health Service and president of the Society for the Arts in Healthcare.

*Sound Health: Music and the Mind* initiative workshops in which music therapists, experts in the neuroscience of music, and supporters of biomedical research and the arts discuss the current state of the field and identify future research needs.

Analysis of student material about Performing Medicine, a collaborative program between a theatre company and The London School of Medicine and Dentistry.

*Systematic Review Visual Thinking Strategies in Nursing*

*How surrendering to an artwork benefits the medical professional.*

*How museums play into the social ideas of well-being and health.*
Review of art observation in medicine.

Importance of humanities in a medical education.

Explores mechanisms that enact empathetic responses.

A module was developed in a virtual learning environment based on narrative medicine, with the purpose of discussing key subjects of adolescent health care.

A systematic literature review using the PubMed and ERIC databases; qualitative content analysis of 49 included articles, identifying themes related to educational characteristics, processes and outcomes in arts-based education.

Stories and examples on what is meaningful about doctors’ practice and to remoralize doctors and help them advocate for their needs more clearly.

The key to a new generation of compassionate, less burnt-out, less biased doctors is in humanities education.
*How medical humanities can improve physician skills.*

Kinsella EA & Bidinosti S. (2015). “‘I now have a visual image in my mind and it is something I will never forget’: An analysis of an arts-informed approach to health professions ethics education.” *Advances in Health Sciences Education, Early On-line:* 1-18
*This paper reports on a study of an arts informed approach to ethics education in a health professions education context.*

*Overview of the UK Centre for Medical Humanities programs and goals for the field.*

*How "enstrangement" and "alienation effect" techniques can disrupt be used in order to discover new ways of perceiving and being in the world.*

[https://www.artsy.net/article/artsy-editorial-med-schools-requiring-art-classes](https://www.artsy.net/article/artsy-editorial-med-schools-requiring-art-classes)
*Overview of current programs and benefits.*

*Article on the Met’s program with police officers and art of observation.*

*New methods for enhancing science students' innovative thinking, in a pilot program developed to teach innovative thinking.*
How a computerized checklist that requires doctors to review blood clot prevention for every patient helped to eliminate bias.

https://insights.ovid.com/pubmed?pmid=28991847
The medical humanities specialize in this ambiguity and uncertainty, which are hallmarks of actual clinical practice but rarely addressed in medical education.

Medline was searched for publications concerning the humanities in undergraduate medical education appearing from January 2000 to December 2008.

Commonsense measures to tackle bias in care.

The MEDLINE, Google Scholar and ISI Web of Knowledge databases were searched for published articles on studies that have attempted to evaluate the efficacy of an arts-based approach in undergraduate medical education; one mixed, 10 qualitative and four quantitative studies were reviewed.

https://jamanetwork.com/journals/jama/article-abstract/2670231
Work of visual artist Beverly Fishman as it relates to medicine and the pharmaceutical field.
How expectations of empathy can affect perceptions of competency and credibility.

Health care institutions seeking to build a legacy of leadership in empathic patient care, narrative--employed in mentoring physicians in training and in establishing strong, dialogic relationships with patients and colleagues--should serve as a central strategy, or scaffold.

Explores the complexities and difficulties for medical education to promote and medical students to internalize empathy.

Addresses concerns for residents' potential negativity on humanities-based education.

Belief that cultivating a tolerance of uncertainty, and adressing the barriers to this goal for physicians, patients, and the health care system, will require a revolutionary change in medicine’s cultural attitude and approach to uncertainty.

Good patient care is found in being truly present with patients.
Theater techniques in medical skill teaching.

Each fall, the first year medical students at Michigan State University COLLEGE OF Human Medicine are asked to create an art project for their “Doctor/Patient Relationship” course.

Research and Evaluation

Findings of a pilot test of Yo Veo Salud (I See Health), an intervention designed to positively modify attitudes toward Latinos among medical trainees.

Describes the effects of an art-based module in an entry-level curriculum for occupational therapy (OT) students in which an exploratory pilot study investigated the feasibility of a group- administered visual art-based module for 20 first-year OT graduate students with the Ackland Art Museum.

Review and analysis of 62 studies using quantitative evaluation methods.

Commentary on the Gurwin et al 2018 study in which a group of medical students at the University of Pennsylvania were given six 90-minute training sessions at the Philadelphia Museum of Art.


Qualitative Results of Art elective in collaboration between Sapienza University and Art specialist group (Intro English, article Italian)


Randomized, single-masked, controlled trial to evaluate the effects of formal observation training in the visual arts on the general and ophthalmologic observational skills of medical students.


Study found that auscultative and observational abilities of soon-to-be Registered Nurses (RNs) improved with visual training and music training.


Case study on a pre- and post-test and evaluation survey developed for a three-hour exercise presented to medical students just before starting clerkships.

Study results of art of observation for nurses course.


Controlled trial involving 42 general practitioners and 26 primary care nurses in 12 primary care practices in London.


Evaluating the success of Art Rounds for nursing students.


Study at University of Texas Health Science Center San Antonio shows students increased the amount of time they spent looking at patients and patient images, and other skills after Art Rounds course.


Further commentary on the 2018 study “Medical Students’ Exposure to the Humanities Correlates with Positive Personal Qualities and Reduced Burnout: A Multi-Institutional U.S. Survey” (Mangione, etc.).
Mangione, S; Chakraborti, C; Staltari, G; Harrison, R; Tunkel, AR; Liou, KT; CerCEO, E; Voeller, M; Bedwell, WL; Fletcher, K; Kahn, MJ. “Medical Students’ Exposure to the Humanities Correlates with Positive Personal Qualities and Reduced Burnout: A Multi-Institutional U.S. Survey.” Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/29380213

Online survey to test the hypothesis that medical students with higher exposure to the humanities would report higher levels of positive physician qualities (e.g., wisdom, empathy, self-efficacy, emotional appraisal, spatial skills), while reporting lower levels of negative qualities that are detrimental to physician well-being (e.g., intolerance of ambiguity, physical fatigue, emotional exhaustion, and cognitive weariness).


Research study sought to answer the questions: What meaning does VTS have for nursing students? How do nursing students use it in caring for patients?


Study in which half of a class of non-nurse college graduates entering a master’s degree program was assigned to a museum experience, whereas the other half received traditional teaching methods.


Clinical qualitative study in which students appeared to hone observation skills and improve pattern recognition.


Article on study of observation sessions at the Philadelphia Museum of Art where facilitators used the “Artful Thinking” approach, which focuses on introspection and observation before interpretation.
Books and Reports

2016 Journal of Museum Education Reader Guide
http://museumeducation.info/jme/reader-guide


“Arts, Health, and Well-Being in America”: A White Paper
https://thenoah.net/about/arts-health-and-well-being-in-america-a-white-paper/
NOAH white paper which was unveiled in a print version at the inaugural Arts in Health conference for the organization in September 2017.


Chapter that includes substantial sections on VTS's applications in medicine, including a literature review and a discussion of assessment.


**Video, Podcast, and Other Media**

“Empathy the Human Connection to Patient Care.” Cleveland Clinic. Youtube. Posted February 2013. https://www.youtube.com/watch?v=cDDWvj_q-o8

*Patient care is more than just healing -- it’s building a connection that encompasses mind, body and soul.*


Yale physicians Jacqueline Dolev and Irwin M. Braverman explain how trips to a museum improved students’ powers of observation.


*Doctor and writer Atul Gawande suggests we take a step back and look at new ways to do medicine -- with fewer cowboys and more pit crews.*
Herman, Amy. “How Art Can Help You Analyze.”
Amy E. Herman explains why art historical training can prepare you for real world investigation.

https://www.ted.com/talks/bj_miller_what_really_matters_at_the_end_of_life
BJ Miller is a hospice and palliative medicine physician who thinks deeply about how to create a dignified, graceful end of life for his patients.

https://soundcloud.com/artsypodcast/no-47-the-latest-requirement-for-med-students-studio-art
Columbia University’s Dr. Delphine Taylor discusses how life-drawing classes or visits to the Met help her students tackle ambiguity and humanize their patients.

https://www.ted.com/talks/abraham_verghese_a_doctor_s_touch
Physician and writer Abraham Verghese describes our strange new world where patients are merely data points, and calls for a return to the traditional one-on-one physical exam.

New sources as of August, 2018