**Additional File 2**

**Study Characteristics of AHD Teaching Strategies**

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| **Authors, year** | **Country** | **Paper Type**  **Self-described AHD (Y/N)** | **Discipline** | **Target Audience** | **# Participants** | **Rationale** | **Delivery Time (hr)** | **Teaching Strategies** | **Resources (personnel)** | **Resources (other: space, money, SP, etc.)** | **Evaluation Design** | **Learner Outcome / Kirkpatrick Level** |
| Abbott et al., 20141 | Canada | Specific Educational experience + Evaluation  N | Family medicine | Resident | 69 | Residents should use lab tests more efficiently and appropriately. | 4 | Didactics | General pathologist and 2 senior general pathology residents | Classroom, facility tours, pre-session slide presentation | One group, pre/post | 1, 2 |
| Abraham et al., 20012 | US | Specific Educational experience + Evaluation  N | Adolescent medicine | Resident | 56 | Few evaluations of violence prevention education programs exist. | 3 | Multi-modal, incl didactics (Didactics + SP + Role play) | Teen peer educators | SP | RCT  Two groups, pre/post | 2, 3 |
| Aggarwal et al., 20123 | US | Specific Educational experience + Evaluation  N | Anesthesia | Resident | 24 | More anesthesia providers need training in speciﬁc skills required for perioperative care of liver transplant patients. | 4 | Multi-modal, incl didactics (Didactics + SP + Simulation) | Central Line/Torso task trainer | SP  Online materials, simulation mannequin, anesthesia machine, standard operating room monitors | One group, pre/post | 1, 2 |
| Audcent et al., 20134 | Canada | Specific Educational experience + Evaluation  Y | Pediatrics | Resident | 125 | Opportunities for resident global health training and exposure are most often limited to electives or trainees in dedicated global health tracks. | Two 2-hour sessions | Multi-modal, incl didactics (Didactics + Role play + Video) | 2 “site champion” global health enthusiasts | Comprehensive trainer manual, slides including video clips | One group, pre/post | 1, 2, 3 |
| Batalden et al., 20135 | US | Specific Educational experience +Evaluation  3 educational experiences (different sites)  Y | Internal medicine | 1) Resident/Faculty  2) Resident/Faculty  3) Faculty | 1) 39  2) 122  3) 135 | There is limited data on AHD. | 1) 4  2) 2.5  3) 1.5 | 1) CBL + Other (Role play/simulation)  2) CBL + Other (Didactic + Skills-based exercises)  3) CBL + Other (Team-based learning) | 1) Associate program director; subspecialty faculty members; clinical coverage  2) Program director; 5 chief residents; clinical coverage  3) 5 associate program directors; 1 chief resident; clinical coverage | 1) study materials; computer work stations  2) textbooks; teaching materials  3) teaching materials; Clicker audience response system, 6 touchscreen tablets, wireless booster antenna; | 1) Residents - One-group, pre/post (perception) and post (ITE)  Faculty – one-group, post  2) Residents - One-group, pre/post (self-report) and post (ITE)  Faculty – one group, post (anecdotal)  3) Faculty – one group, post (anecdotal) | 1) 1, 2  2) 1, 2  3) 1 |
| Benson et al., 20186 | US | Specific Educational experience + Evaluation  N | Family medicine | Resident | 71 | Resident education about awareness of healthcare disparities in the learning environment should be strengthened. | 1.2 | PBL | Residents | Not reported | One group, pre/post | 1, 2, 3 |
| Chesney et al., 20189 | Canada | Specific Educational experience + Evaluation  N | Surgery | Resident | 18 | Surgeons lack training in preference-sensitive communication skills to provide decisional support in situations that require complex weighing of desirable and undesirable outcomes. | 2 | Multi-modal, incl didactics (Didactics + Role play) | 2 faculty | Not reported | One group, pre/post and 6 months post | 1, 2, 3 |
| Denizard-Thompson et al., 201810 | US | Specific Educational experience + Evaluation  Y | Internal medicine | Resident | 93 | Internal medicine residents report low confidence in performing musculoskeletal examinations and intra-articular steroid injections. | 2.8 | Simulation + other (Simulation + Didactics + Game + Online resources) | 1 or 2 clinicians (chief resident, educational liaison, program director) | Not reported | One group, pre/post | 1, 2 |
| Di Genova et al., 201511 | Canada | Specific Educational experience + Evaluation  Y | Pediatrics | Resident | 18 | Redesigned its AHD based on program concerns including inadequate preparation for general pediatric practice, gaps in CanMEDS education and exclusive use of didactic lectures. | 4 | Simulation + other (Simulation + Didactics) | Division directors, general pediatricians | Financial remuneration | One group, post | 1, 2, 3 |
| Donoghue et al., 200912 | Canada | Specific Educational experience + Evaluation  N | Pediatrics | Resident | 51 | Residents have scant experiences in leading resuscitations for pediatric patients. | 1.5 | Simulation + other (Simulation + Didactics + CBL) | Investigator | Not reported | RCT  Two groups, pre/post | 2 |
| Downar et al., 201213 | Canada | Specific Educational experience + Evaluation  N | Critical care medicine | Resident, Fellow | 51 | Few training programs teach communication skills in a formal way to deliver complicated medical information or bad news to distressed patients and family members, and participate in making difficult decisions in an ethically sound manner. | 4 | Multi-modal, incl didactics (Didactics + SP) | Faculty member or trained mediator | SP | One group, pre/post and 1-4 years post | 1, 2 |
| Dumont et al., 201414 | Canada | Specific Educational experience + Evaluation  Y | OB/GYN | Resident | 24 | Residents receive limited exposure to the concepts and techniques associated with PAG. | 3 | Simulation | Specialist in Pediatric and Adolescent Gynecology | Not reported | One group, post | 1, 2 |
| Dumont et al., 201615 | Canada | Specific Educational experience + Evaluation  Y | OB/GYN | Resident | 35 | Residents do not always graduate feeling comfortable with the PAG population. | 3 | Simulation | Specialist in PAG | Simulation center, advanced pelvic models for procedure-specific stations | One group, pre/post | 2 |
| Eid et al., 201516 | US | Specific Educational experience + Evaluation  Y | Hematology/Oncology | Fellow | Not reported | Few published studies have evaluated the effectiveness of changing the traditional curriculum of several hourly educational sessions per week to an AHD educational format. | 3-4 | Didactics | Not reported | Not reported | One group, post | 1, 2 |
| Eisenberg et al., 201917 | US | Specific Educational experience + Evaluation  Y | Internal medicine | Resident | 19 | Little is known about effective strategies to teach medical trainees to respond to discrimination by patients. | 3 | Multi-modal, incl didactics (Didactics + SP) | Faculty member, 4 senior and chief resident facilitators | SP  Patient safety training center | One group, pre/post | 1, 2 |
| Farsad et al., 197819 | US | Specific Educational experience + Evaluation  N | Pediatrics | Resident | 39 | No information is available on the interviewing skills of different levels of pediatric trainees and practicing pediatricians. | 1.5 | Didactics | Not reported | SP | Two groups, pre/post | 3 |
| Ha et al., 201420 | US | Specific Educational experience + Evaluation  Y | Internal medicine | Resident | 364 | Little is known about AHD curriculum regarding its effect on knowledge acquisition and resident satisfaction. | 3 | Multi-modal, incl didactics (Didactics + CBL) | Not reported | Lunch | Two groups, post | 1, 2 |
| Harrison et al., 199921 | US | Specific Educational experience + Evaluation  N | Emergency medicine | Resident | 20 | Emergency physicians should be prepared to provide impartial, objective testimony in legal proceedings. | 2 | Multi-modal, incl didactics (Didactics + CBL) | 1 attorney-at-law per 10 residents | Large conference room | One group, pre/post | 2 |
| Miller et al., 201622 | US | Specific Educational experience + Evaluation  N | Radiology | Resident | 61 | Teaching principles of patient-centered healthcare delivery and patient interaction in a radiology residency setting is often difficult and ineffective in a traditional lecture format. | 1.5 | CBL | Program directors | Conference room, tables, chairs, anonymized actual patient letters, Survey Monkey, audio recording application on a standard tablet computer | One group (at 2 different institutions), post | 1, 2, 3 |
| Moreno et al., 201323 | US | Specific Educational experience + Evaluation  N | Pediatrics | Resident | 70 | Resident attendance and participation at didactic conferences is often limited owing to time demands. | 3.5 | Multi-modal, incl didactics (Didactics + CBL) | 2 faculty and 1 resident per session | $5 gift card | Two groups, post | 1, 2 |
| Pembroke et al., 201724 | Canada | Specific Educational experience + Evaluation  Y | Radiation oncology | Resident | 10 | QI skills must be taught and formally established within Radiation Oncology residents' curriculum. | 2 X 6 (sessions)  3 (online) | Multi-modal, incl didactics (Didactics + Workshops + Self-directed online modules) | Clinical fellow, 3 staff physicians, expert in QI methods | Online training using the Institute of Healthcare Improvement and Healthcare QI Partnership teaching programs | One group, pre/post | 1, 2 |
| Raman et al., 201025 | Canada | Specific Educational experience + Evaluation  Y | Gastroenterology | Resident | 20 | There is limited data whether didactic or interactive educational delivery methods among physicians can achieve similar results on long-term retention of knowledge. | 4 | Didactics | 1 GI physician nutrition expert | Not reported | Two groups, pre/post and delayed post | 2 |
| Ramar et at., 201526 | US | Specific Educational experience + Evaluation  N | Pulmonary, Critical Care | Resident, Fellow | 7 | QI tools are essential to be taught in medical school, residency, and fellowship training programs to improve quality and safety in patient care. | 2-hour of video and a 4-hour of AHD session | Multi-modal, incl didactics (Flipped classroom with didactics (home) + PBL (class)) | 2 QI instructors, 5 physicians, faculty moderator | REDCap | One group, pre/post | 1, 2 |
| Reznek et al., 200327 | US | Specific Educational experience + Evaluation  N | Emergency medicine | Resident | 13 | There is no established curriculum that teaches the necessary crisis management skills in emergency care. | 5-6 | Simulation + other incl didactics (Simulation + Didactics) | Residency director | SP  Simulated ED, simulation mannequin | One group, post | 1, 2 |
| Robbins et al., 201828 | US | Specific Educational experience + Evaluation  Y | Vascular surgery | Resident, Fellow | 6 | Work-hour restrictions, patient care duties, and operative schedules create barriers for surgical trainees to attend didactics. | 3 | Multi-modal, incl didactics (Didactics + Conference discussion) | 7 vascular surgery faculty | Not reported | One group, pre/post | 1, 2 |
| Schinasi et al., 201829 | US | Specific Educational experience + Evaluation  N | Pediatrics | Resident | 27 | Immersive simulation provides physicians with the opportunity to practice complex skill to recognize when a patient safety events has occurred and effectively carry out disclosure, all while caring for a patient who is actively experiencing the consequences of an unintended outcome. | 3 | Simulation + other (Simulation + Didactics + Interactive Small Group Discussion) | 6 core faculty members (both physicians and nurses), lead facilitator, 2 confederates (nurse, parent), 1 behind-the-scenes simulation technician | Simulated pediatric patient + confederate parent/nurse.  Simulation center. Estimated cost for 27 residents was $6,993, not accounting for 39 per clinician facilitator. | One group, post and delayed post | 1, 2, 3 |
| Stokes et al., 201730 | Canada | Specific Educational experience + Evaluation  Y | Internal medicine | Resident | 207 | Lack of formal teaching sessions are barriers to the success in Guyana-based, internal medicine post-graduate medical education program. | 3 | CBL | Medical residents (weekly teaching). Administrative staff. Information technologist support. | Videoconferencing equipment | Two groups, post | 1, 2, 3 |
| Tam et al., 201732 | Canada | Specific Educational experience + Evaluation  Y | Pediatrics | Resident | 28 | Teaching resources for CBL in pediatric infectious diseases are limited. | 1-1.5 | CBL | Attending physician, fellow, senior resident | Module composed of two resource files, case file, suggested reading list | Two groups, post | 1, 3 |
| Wong et al., 200734 | Canada | Specific Educational experience + Evaluation  Y | Internal medicine | Resident | 72 – 81 | Operational delivery of formal curriculum for residency training in internal medicine has been challenging for many postgraduate programs. | 4 | Multi-modal, incl didactics (Didactics + Physical Exam + Workshops + CBL) | Chief medical residents, AHD organizing committee (e.g., chief residents, class representatives, APD) | Not reported | One group, post | 1 |
| Wong et al., 200935 | Canada | Specific Educational experience + Evaluation  Y | Internal medicine | Resident | 115 | Challenges remain in addressing effective patient-physician communication in medical education. | 4 | Multi-modal, incl didactics (Didactics + Interactive session + Video excerpts + Interactive reflection) | AHD director, faculty members, senior residents, chief medical residents | Personal response system | One group, pre/post | 1, 2 |
| Yuasa et al., 201336 | US | Specific Educational experience + Evaluation  N | Geriatric, Family medicine | Resident, Fellow, Faculty | 62 | Little formal training is provided for healthcare professionals how to effectively handle telephone calls about nursing home residents. | 2-3 | Role play | GM faculty, FM faculty, NP faculty | Not reported | One group, pre/post | 2, 3 |
| Zastoupil et al., 201737 | US | Specific Educational experience + Evaluation  Y | Pediatrics | Resident | 32 | No studies have utilized rigorous qualitative methods to better understand its impact and resident experiences with AHD. | 3.5 | Multi-modal, incl didactics (Didactics + CBL or Questions or Games) | 1 resident APD | Software | One group, pre/post (survey) and post (focus groups) | 1, 3 |
| Zeller et al., 201538 | Canada | Specific Educational experience + Evaluation  Y | Internal medicine | Resident | 31 | Internal medicine programs rarely incorporate anatomy review into clinical procedural teaching. | 3 | Multi-modal, incl didactics (Didactics + Interactive Lecture +  Video and visualization exercise + SP) | Hematology staff consultants | SP | One group, pre/post | 2 |
| Chalk, 20047 | Canada | Descriptive Survey  Y | Neurology | Program director | 21 | There are few hard data about the prevalence, content, or structure of the AHD in Canadian residency programs, including those in child and adult neurology. | N/A | N/A | N/A | N/A | N/A | N/A |
| Chen et al., 20158 | Canada | Descriptive Survey  Y | Internal medicine, orthopedic surgery, hematology | Resident | 27 | There is remaining question about what role classroom-based education in the form of AHD has in the resident’s learning experiences. | N/A | N/A | N/A | N/A | N/A | N/A |
| Evidence- Based Medicine Working Group, 199218 | Canada | Descriptive Survey  Y | Internal medicine | Resident | N/A | Evidence-based medicine requires new skills of the physician, including efficient literature searching and the application of formal rules of evidence evaluating the clinical literature. | N/A | N/A | N/A | N/A | N/A | N/A |
| Tagger et al., 201831 | Canada | Descriptive Survey  Y | Urology | Resident | 190 | Residency experiences and teaching in oncology among urology residents are variable across Canada. | N/A | N/A | N/A | N/A | N/A | N/A |
| Wagoner et al., 201933 | US | Descriptive Survey  Y | Pediatrics | Attending | 15 | An understanding of the impact of AHD on attending physicians and patient care has not been well described. | N/A | N/A | N/A | N/A | N/A | N/A |

Abbreviations: AHD, Academic Half-day; APD, associate program director; CBL, case-based learning; ED, emergency department; GI, gastroenterology; GM, general medicine; FM, family medicine; N, no - not self-identified as AHD; N/A, not applicable; NP, nurse practitioner; PAG, pediatric and adolescent gynecology; PBL, problem-based learning; QI, quality improvement; RCT, randomized controlled trial; SP, standardized patient; US, United States; Y, yes - self-identified as AHD;

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