資料4. 医療安全のeラーニング　採択文献一覧

文献番号	執筆者、題名、雑誌・書籍名、出版日	研究デザインのレベル	研究デザイン	介入の内容	対象者	アウトカムのレベル	アウトカムの指標	主な結果	活動・対策の短所	費用	その他
＜医中誌Web＞											
J002	原 博明(慈泉会相澤病院 臨床検査センター検査科), 小林 幸子, 伊藤 紀子, 荻無里 千史, 樋口 佳代子, 伊藤 信夫, 忠地 花代, 薄田 誠一:当院看護師教育における輸血療法の安全対策と適正化に対する輸血検査室の取り組み. 相澤病院医学雑誌(1882-0565)12巻 Page15-21(2014.03).	3:対照群のある観察研究	前後比較研究	・平成19年4月から平成25年10月までに4段階で行った血液製剤に関する研修(e-leaningは第3段階と第4段階で使用)」 ・「目的は輸血療法、対象は新人看護師、全看護師、中途入職看護師、検査科臨床検査技師、関連使用ツールの相澤病院のe-Learningシステムがどういうものか不明、結果は受講率、発生件数、正解率、アンケート」	・「第1段階:平成19年4月～平成25年4月:新人看護師431人」「第2段階:平成22年12月～平成23年3月:全看護師495人」「第3段階:平成23年7月～平成25年4月:新人看護師・中途入職看護師:124人」「第4段階:平成25年8月～平成25年10月:前看護師・検査課臨床検査技師:545人」	2:代替アウトカム	・「段階別における対象者受講率」「輸血関連のニアミス・ミス発生件数」「取り扱い不備による血液製剤の廃棄件数」 ・「確認問題初回正解率と最終正解率とアンケート(「第1段階:講義のみ」「第2段階:確認問題初回正解率と最終正解率とアンケート」「第3段階:確認問題初回正解率と最終正解率」「第4段階:初回正解率と最終正解率確認問題正解率」)	・「取り組み始めた研修当初と比較して輸血関連ニアミス・ミス報告が減少した」「廃棄件数は平成22年23年がピークで以後減少」			[参考:論文] ・「e-Learning システムは確実に対象者に研修が行なえ研修管理者は受講者の進捗状況および正解率や誤答を迅速に把握することが出来た。」 [その他] ・デザインが複雑。何が効いたのかわからない。研修の効果であるかどうかの検証がない。統計的な検証なし。
J004	宮川 操(徳島大学病院), 石山 由紀子, 大岡 裕子:新人看護師への安全管理教育に関する一考察　e-learningと入職前実技研修を導入して. 日本看護学会論文集: 看護管理(1347-8184)37号 Page88-90(2007.04).	3:対照群のある観察研究	前後比較研究	・「オリエンテーション・フォローアップ研修に加えて、入職前に3日間の実技研修の実施とe-learningを導入」 ・「目的は注射・与薬インシデントの減少、対象は新人看護師、関連使用ツールはいつでもどこでも学習できるe-leaning、結果はアンケート」	・「今年度(おそらく2006年)A病院に入植した新人13人」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「アンケート調査」「新人インシデント報告率の年次比較」	・「入職後の不安軽減につながった」「実技研修にe-learningを併用したことは、集合教育を補完し実践技術の定着を促進することに有効であった」「新人の入職後6ヶ月間の注射・与薬インシデント報告件数と報告率をみると減少している」			[参考:査読者コメント] ・「入職後の不安軽減につながった」「実技研修にe-learningを併用したことは、集合教育を補完し実践技術の定着を促進することに有効であった」とあるが検証できていない。 ・「新人の入職後6ヶ月間の注射・与薬インシデント報告件数と報告率をみると減少している」とあるが、検証できていない。
J006	土屋 一女(帝京山梨看護専門学校), 菅沼 真由美, 棚本 知砂美, 内藤 さゆり, 佐野 千冬:「転倒・転落」事故防止学習用CAI教材の安全教育における学習効果. 日本看護学会論文集: 看護教育(1347-8265)35号 Page54-56(2005.01).	2:非無作為化比較試験	非無作為化比較試験	・「事故事例のシミュレーション体験により事故の危険要因・対処行動が学習できる「転倒・転落」事故防止学習CAI教材」 ・「目的は転倒・転落事故防止学習用CAI教材の学習効果、対象は看護学生3年課程各論実習課程直前、関連使用ツールはCAI教材、比較は「CAI使用群」と「GW(グループワーク)群」、結果はアンケートとテスト」	「3年課程各論実習直前69名2年生」「CAI使用群34名とグループワーク演習群35名の2群に分けて分析」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「事故防止に対する認識度に関するアンケート調査(t検定)」「転倒・転落事故防止に関する知識の到達度に関するテスト(t検定)」	・「事故防止に対する認識はCAI群よりGW群の方が高かった」「事故防止に対する知識の到達度において有意差があったのは、「転倒時の対処ー転倒により生じる異常」(2.75±0.49、1.62±0.97)等の5項目で、いずれもCAI群のほうが高かった」			[参考:論文] ・「CAIを活用し、確実な事故防止に対する知識を習得するためには、選択肢の表現方法の工夫、視覚教材の活用、学習内容の説明、繰り返し質問されることが有効であると考えらえる」

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＜PubMed＞											
E001	MacEachin, S Rachel and Lopez, Connie M and Powell, Kimberly J and Corbett, Nancy L. The fetal heart rate collaborative practice project: situational awareness in electronic fetal monitoring-a Kaiser Permanente Perinatal Patient Safety Program Initiative. The Journal of perinatal & neonatal nursing 2009; 23(4): 314-23; quiz 324-5.	3:対照群のある観察研究	前後比較研究	・「a multimedia instructional electronic fetal monitoring training program.」「The Fetal Heart Rate Collaborative Practice Project, under the umbrella of Kaiser Permanente's Perinatal Patient Safety Program (PPSP), was developed to bring awareness and understanding to the necessity of correct observation, interpretation, and evaluation of the fetal heart rate (FHR)」「After production was complete, a series of conferences attended by nurses, certified nurse midwives, and physician champions, from each hospital, attended to learn how to facilitate training at their own perinatal units.」 ・「目的はプログラムの評価、フォーカスしたのはThe Fetal Heart Rate Collaborative、カイザーパーマネンテのプロジェクトの一環、対象は新生児ユニットの多職種、評価はSAQ質問票、4年後の比較、実施時期は2002年、2004年、実施場所はカイザーパーマネンテThe Northern California Regionの医療機関」	・「The Northern California Region owns and operates 14 perinatalinpatient units and serves more than J.2 million members.の新生児ユニットの多職種」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「(Birth iniury rate reduction will be the true test of program effectiveness, but it will take years before significance can be appreciated because of low occrr- rence rates.なので) program evaluations from attendees, the Safety Attitudes Questionnaire.」「The Safety Attitude Questionnaire (SAQ) is a validated instrument to elicit staff attitudes through analytically derived factors for 6 climate scales: teamwork climate, safety climate, job satisfaction, perceptions of management, working conditions, and stress recognition.34」	・「In 2OO2, the return rate was 7 4% with 1838 surveys returned. In 2006, I 170 surveys were returned from the 11 medical centers」 ・「The ability to track pre/post intervention methodology to demonstrate PPSP effectiveness has been beneficial to validate program continuation. A lO% increase from the SAQ baseline is considered a statistically significant improvement.」 ・「Program evaluations rendered very positive scores from both physicians and clinicians. Comparing baseline to 4 years later, the perception of safety from the staff has increased over l0% in 5 out of the 6 factors analyzed.」			[参考:論文] ・「The PPSP started at 4 Northern California sites and,because of program success, has spread across all 8 Kaiser Permanente regional areas.」

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E002	Carney, Patricia A and Abraham, Linn and Cook, Andrea and Feig, Stephen A and Sickles, Edward A and Miglioretti, Diana L and Geller, Berta M and Yankaskas, Bonnie C and Elmore, Joann G. Impact of an educational intervention designed to reduce unnecessary recall during screening mammography. Academic radiology 2012; 19(9): 1114-20.	1:無作為化比較試験	無作為化比較試験(RCT)	・「a tailored web based educational program designed to reduce excessive screening mammography recall. Briefly, it was web-based and had three components.」 「フォーカスしたのはマンモのスクリーニングにおけるリコール反応の低下、対象は放射線科医、関連使用ツールはウェブベースのトレーニング、「コントロール群」と「介入群」、9ヶ月前と9か月後の前後比較も。」	「Four mammography registries of the Breast Cancer Surveillance ConsortiumのThirty-one radiologists who completed the CME were included in the adjusted model comparing radiologists in the Intervention Group (n=22) to radiologists who completed the intervention in the Control Group (n=9).」 「Participants' recall rates from actual practice were evaluated for three time periods: the nine months before the intervention was delivered to the Intervention Group (baseline period), the nine months between the Intervention and Control Groups (T1) and nine months after Completion of the intervention by the Controls (T2).」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「recall rate (その他、sensitivity, specificity, PPV and cancer detection rates等)」	・「In conclusion, our study resulted in a null effect, which may indicate a single one-hour intervention is not adequate to change excessive recall among radiologists who undertook the intervention we were testing.」 ・「T1 the Intervention Group had 12% higher odds of a positive mammogram compared to the Controls, after controlling for baseline (OR=1.12, 95% CI=1.00-1.27, p=0.0569). At T2 a similar association was found; however, it was not statistically significant (OR=1.10, 95% CI=0.96-1.25). No associations were found among radiologists in the Controls when comparing those who completed the CME (n=9) to those who did not (n=10). In addition, we found no associations between time-period and recall rate among radiologists who set realistic goals」 ・「In conclusion, our study resulted in a null effect, which may indicate a single one-hour intervention is not adequate to change excessive recall among radiologists who undertook the intervention we were testing.」	・「Our study resulted in a null effect, which may indicate a single intervention is not adequate to change excessive recall among radiologists who undertook the intervention we were testing. It is likely that more complex approaches are needed to change radiologists practice patterns.」		[limitations] ・サンプルサイズが小さいこと ・54人のうち最終的に32人(1人missing)にとどまったこと [参考:論文] ・「there is little evidence that CME-type interventions improve care (24). 」 ・「Several studies indicate that once physicians practice patterns are established, they are difficult to change (25-27).」 ・「 Numerous reviews have summarized efforts to change practice patterns, and have described six general strategies that have been applied, including education, feedback, participation, administrative rules, incentives, and penalties (28)」

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E003	Boyle, Todd A and Ho, Certina and Mackinnon, Neil J and Mahaffey, Thomas and Taylor, Jeffrey M. Safety implications of standardized continuous quality improvement programs in community pharmacy. Journal of pharmacy practice 2013; 26(3): 228-36.	3:対照群のある観察研究	前後比較研究	・「SafetyNET-Rx is a CQI program which enables community pharmacies to better report and learn from QREs through a standardized QRE reporting and learning process and access to a common repository of QREs that are occurring (and being addressed) throughout Canada. The current version of the SafetyNET-Rx program is comprised of a number of technology, process, training, and regulatory elements, including a pharmacy-tailored CQI cycle, anonymous online reporting of QREs to the ISMP Canada national database using their Community Pharmacy Incident Reporting™ tool (CPhIR), access to pharmacy-level and national aggregate data on QREs, training sessions on CQI and related topics (eg, root cause analysis, quality management), and amobile (iPad) system for pharmacy inspectors to assess compliance to SafetyNET-Rx or standards of practice related to CQI or QRE reporting.」 ・「目的は標準化CQIプログラムにおける薬剤の安全、フォーカスしたのは薬剤の安全、関連使用ツールはweb-baced、対象は地域の薬局、評価は調査、「前と後	・「Fifty-three community pharmacies in Nova Scotia, Canada,」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「The Institute for Safe Medication Practices (ISMP) Canada's Medication Safety Self-Assessment (MSSA) survey」	・「Over the study period a number of key aspects of pharmacy safety improved. 」 ・「the most significant changes occurred were with quality processes and risk management (Hypothesis 10; z＝－5.015, p≤.01, r＝－.49), staff competence and education (Hypothesis 8; z＝－4.585, p≤.01, r＝－.45), communication of drug orders and other information (Hypothesis 3; z＝－4.370, p≤.01, r＝－.42), and drug labeling, packaging, and nomenclature (Hypothesis 4; z＝－4.309, p≤.01, r＝－.42), with all showing a medium-to-large improvement based on effect size.13 Areas where only low-to-medium improvements occurred were with patient information (Hypothesis 1; z＝－2.842, p≤.01, r＝－.27) and drug information (Hypothesis 2; z＝－3.362, p≤.01, r＝－.32). After 1 year of standardized CQI program use, it appears that pharmacies have implemented or increased their use of safety practices and tools related to drug labeling, packaging, and nomenclature as well as communication between staff. 」	［limitations］ ・導入施設はまだ少ない ・直後の調査なので3～5年後の調査が必要 ・自己評価 ・グループ効果（薬局単位の導入なので） ［参考:査読者メモ］ ・ISMPをもとに地域で作成したプログラムの検証 ・10の仮説をたてて検証 ・ISMPの10要素についての記載あり「The Institute for Safe Medication Practices (ISMP) has identified 10 elements that have the greatest impact on medication use, and therefore areas where QREs are most likely to occur.9-11		

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E004	Dankbaar, Mary E W and Richters, Olivier and Kalkman, Cor J and Prins, Gerrie and Ten Cate, Olle T J and van Merrienboer, Jeroen J G and Schuit, Stephanie C E. Comparative effectiveness of a serious game and an e-module to support patient safety knowledge and awareness. BMC medical education 2017; 17(1): 30.	1:無作為化比較試験	無作為化比較試験(RCT)	・「a serious game : 'Air Medic Sky-1' : The serious game called Air-Medic-Sky-1 on patient safety was developed by the Patient Safety Center from the University Medical Center Utrecht, the Netherlands for starting residents and medical students.」 ・「an e-module : an e-learning module on patient safety, covering the topics from the video lectures (communication, focus under stress, teamwork, etc.) and stress management.」 ・「フォーカスしたのは医療安全、対象は医学部4年生、関連使用ツールはオランダで開発されたゲーム感覚の医療安全教育ツール、評価はテストと質問票、「a serious game」と an e-module」の比較」	・「Fourth-year medical students were randomly assigned to either a serious game that included video-lectures, biofeedback exercises and patient missions (n = 32) or an e-module, that included text-based lectures on the same topics (n = 34). A third group acted as a historical control-group without extra education (n = 37). 」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「(1) knowledge on patient safety」「 (2) self-efficacy in patient safety issues」「 (3) motivation to use the e-module or game」「(4) self-reported stress and patient safety awareness」	・「The results showed patient safety knowledge had equally improved in the game group and e-module group compared to controls, who received no extra education. Average learning-time was 3 h for the game and 1 h for the e-module-group. The serious game was evaluated as more engaging; the e-module as more easy to use. During rotations, students in the three groups reported low and similar levels of patient-safety awareness and stress. Students who had treated patients successfully during game missions experienced higher self-efficacy and less stress during their rotation than students who treated patients unsuccessfully.」		・「An online game is scalable as it can, once developed, teach large groups of trainees with no extra costs per person.」「This is consistent with results from media-research indicating that information can be presented in a variety of media with equal learning outcomes, but at very different costs and access .」等の記載はあるも研究のなかで具体的な計算などはなし。	[limitations] ・ノンテクニカルスキルに対する理解が学生ではいまひとつ ・それぞれの方法における教育内容とかける時間が一ではない ・ゲームの内容が多彩なのでどれが効いているのかわからない ・教育内容におけるコントロールグループとのフォーカスポイントの違い ・自己評価

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E005	Wheeler, D W and Degnan, B A and Murray, L J and Dunling, C P and Whittlestone, K D and Wood, D F and Smith, H L and Gupta, A K. Retention of drug administration skills after intensive teaching. Anaesthesia 2008; 63(4): 379-84.	2:非無作為化比較試験	非無作為化比較試験	・「A administration lecture, an online module and a simulated emergency cenario were offered to final year clinical students. None of the teaching was compulsory but participation was recorded, along with students' simulator performances and marks in an objective structured practical examination 9 months later. ・OSPE4群に分けて検証「A Formal lecture only」「B Formal lecture and viewed online teaching module」「C Formal lecture and attended patient simulator」「D Formal lecture, viewed online teaching module and attended patient simulator」 ・短期的な効果ではなく中期的な効果を評価 ・「目的は手厚さが異なる4種類の教育パターンを使った教育の評価、フォーカスしたのは薬剤管理、対象は学生、評価はシミュレーションのスコア、教育修了後のOSPE試験の結果を活用した中期的な教育効果、前後、後(短期と中期)、実施時期については明確な記載なし2005年？、実施場所はイギリス」	・「All 126 students in the final year of the clinical medicine course in our institution who sat the Final MB examination in December 2005 were included in the study. Nine months before Finals, 77 were offered an appointment in the high fidelity patient simulator; 48 of these students had been enrolled in the previously published study [10] but the others participated in different scenarios before the trial began.」(試験に合格すると medical practitioner)	3:安全と間接的に関係するその他の測定可能なアウトカム	・「These data could then be compared with the students' marks in the drug administration skills station in the objective structured practical examination (OSPE) approximately 9 months later,」	・「Participation in the simulated scenario only significantly improved examination scores when supplemented by online teaching (p = 0.002). Intensive drug administration teaching using an online module and high fidelity simulation improves drug administration skills in the medium term. Students found simulation much more engaging than online teaching.」 ・「Significant differences were not seen between all groups. However, Fig. 1 shows a trend of improvement as teaching became more intensive.」 ・「A positive relationship between performance in the drug administration OSPE station and performance in the simulated scenario was evident. When students' drug administration OSPE station scores corrected for the mean are plotted against simulator performance, the general trend towards improvement can be seen (Fig. 1), which proves to be statistically significant (H = 13.0, p = 0.042). Those scoring 1 performed worst in the final OSPE according to the Kruskal-Wallis rank of means. Those scoring 3, 5 or 6 performed significantly better than these students in the final OSPE (p = 0.033, 0.014 and 0.006, espectively). The positive effect was specific to the drug administration station. When performance in the simulator was plotted against that in the unrelated OSPE stations, no significant difference was seen (Fig. 2; H = 5.67, p = 0.462), showing that the effect was not confounded by differences in students' general ability.」		・「So, should all medical students be offered comprehensive simulator-based training to teach aspects of practical skills, the recognition and management of the critically ill and medical emergencies? Clearly this would have enormous cost implications, but it is worrying that medical students found the simulator more engaging than being involved in real medical emergencies on the wards.」の記載あり。具体的な計算はなし。	[limitations] ・4群にわけたがランダム化しているわけではない ・ダブルブラインドでもないしランダム化もできていないしコントロール群もない [参考:論文] ・先行研究でshort termを検証したので今回はmedium term ・「At the end of the clinical medicine course students sit the Final MB examination, consisting of written papers, an OSPE and clinical and viva examinations, so that they can attain provisional registration as a Medical Practitioner.」とのこと

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E006	Srivastava, Anita and Kahan, Meldon and Jiwa, Ashifa. Prescription opioid use and misuse: piloting an educational strategy for rural primary care physicians. Canadian family physician Medecin de famille canadien 2012; 58(4): e210-6.	3:対照群のある観察研究	前後比較研究	・「educational interventions on safe opioid prescribing. Interventions included a main workshop with a lecture and interactive case discussions, an online chat room, video case conferencing, and consultant support.」 ・「目的は教育効果の評価、フォーカスしたのはオピオイド処方、対象は遠隔地マイノリティが多いエリアの家庭医、関連使用ツールはオンライン研修、「前」と「一年後」、評価は質問票、実施時期は2012年？明確な記載なし？、実施場所はカナダ」	・「Eighteen family physicians:from The Sioux Lookout Zone Physicians (SLZP), practicing in a rural and remote First Nations community(先住民コミュニティ)」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Knowledge, concerns, and practices surrounding opioid prescribing were assessed by a questionnaire (at baseline and 1-year follow-up) and by telephone interviews at 6 months」	「Multifaceted education and consultant support might play an important role in improving family physician comfort with opioid prescribing, and could improve the treatment of chronic pain while minimizing the risk of addiction.」	[limitations] ・サンプルサイズが小さい ・カルテレビューで直接的な評価ができているわけではない [参考:論文] (editor's key pointには) ・「All of the physicians who participated in the followup telephone interviews said that the most useful parts of the educational initiative were the workshop, the tool kit of offi ce materials, and the chance to speak with an expert about their cases during the follow-up interviews. 」 ・「Most responses to the follow-up survey did not differ significantly from baseline responses, although physicians were less concerned about getting patients addicted to opioids than they had initially been, and they had less difficulty		

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E007	Yardley, Lucy and Douglas, Elaine and Anthierens, Sibyl and Tonkin-Crine, Sarah and O'Reilly, Gilly and Stuart, Beth and Geraghty, Adam W A and Arden-Close, Emily and van der Velden, Alike W and Goosens, Herman and Verheij, Theo J M and Butler, Chris C and Francis, Nick A and Little, Paul and GRACE consortium, [Collective Name]. Evaluation of a web-based intervention to reduce antibiotic prescribing for LRTI in six European countries: quantitative process analysis of the GRACE/INTRO randomised controlled trial. Implementation science : IS 2013; 8(): 134.	1:無作為化比較試験	無作為化比較試験(RCT)	・「LRTIの抗生物質処方に関するweb-based training : GRACE/INTRO」 ・「目的は、LRTIへの抗生物質処方を減らすための介入効果、フォーカスしたのはLRTIへの抗生物質処方、関連使用ツールはwebbaced、対象はヨーロッパ6か国のGPと患者、評価はテストと質問票、4群に割り付け(4群:介入群3群:the C-reactive protein (CRP) test群、communication skills and use of a patient booklet群, その両方群)とコントロール群」、患者、実施時期は明確な記載なし?2013年?、実施場所はヨーロッパ6か国」	・「6か国(England, Wales, Belgium, Netherland, Spain, Poland)のGP(346名)(介入3群: the C-reactive protein (CRP) test群、communication skills and use of a patient booklet群, その両方群)とコントロール群」「patient(2886人)」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「GP attitudes: self-report」「Patient attitudes:self-report: patient enablement, satisfaction with the consultation, and beliefs about the risks and need for antibiotics.」(Website Satisfaction Questionnaire, alpha = 0.93, n = 230; Patient Enablement Instrument, alpha = 0.92, n = 2,847; Consultation Satisfaction Questionnaire, alpha = 0.93, n = 2,888).」	・「GPs in all countries and intervention groups had very positive perceptions of the intervention and the web-based training, and felt that taking part had helped them to reduce prescribing. All GPs perceived reducing prescribing as more important and less risky following the intervention, and GPs in the communication groups reported increased confidence to reduce prescribing. 」 ・「Patients in the communication groups who received the booklet reported the highest levels of enablement and satisfaction and had greater awareness that antibiotics could be unnecessary and harmful.」			[limitations] ・コントロール群がwebsiteにアクセスできずpre-testが評価できていない ・被検者の負担を減らすために評価項目を最小限のものとせざるをえなかった ・処方率とGP・患者のattitudeとの複雑な関係が検討できていない ・統計的に有意であったが効果は小さい [参考:論文] ・「The study presented here is a process analysis of the recent GRACE/INTRO (Genomics to combat Resistance against Antibiotics in Community-acquired LRTI in Europe/INternet Training for Reducing antibiOtic use) trial of a multifactorial intervention to reduce antibiotic prescribing for acute LRTI in six European countries」

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E008	Damp, Julie and Anthony, Ryan and Davidson, Mario A and Mendes, Lisa. Effects of transesophageal echocardiography simulator training on learning and performance in cardiovascular medicine fellows. Journal of the American Society of Echocardiography : official publication of the American Society of Echocardiography 2013; 26(12): 1450-1456.e2.	1:無作為化比較試験	無作為化比較試験(RCT)	・「transesophageal echocardiography (TEE) simulation(The HeartWorks TEE simulator (Inventive Medical, Ltd., London, UK) ・「目的はシミュレーターによる教育効果の評価、フォーカスしたのは経食道心エコー、対象は基本的なトレーニングを終了したフェロー、関連使用ツールは(TEE) simulation、「(加えて)シミュレーションをした群」と「しない群」、評価後に逆にして再評価、実施時期は2009-2010,2010-2011、実施場所はイギリス」	・「フェロー27人(Group A (n = 8) consisted of fellows who had completed standard TEE training. Fellows starting their second clinical year were randomly assigned to group B (n = 10), simulator training during month 1, or group C (n = 9), simulator training during month 2.)」(先にシミュレーターを使う群(B)と後で使う群(C)の差))」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「The performance evaluation (Skills Assessment Checklist for TEE Simulator Assessment) and the self-assessment questionnaire」	・「Groups B and C had higher total assessment scores than group A. Groups B and C had higher numbers of views achieved without assistance (P = .01). After month 1, group B had higher total scores and number of views achieved without assistance compared with group C (P = .02 and P = .02, respectively). The length of time of the examination tended to be lower for group B, and fellows in group B had greater comfort with TEE than those in group C (P = .01).」(シミュレーターを使う時期が重要)		・「The cost of providing trainees with access to a TEE simulator must be weighed with the potential benefits. Similar to other types of sophisticated simulator technology, the initial purchase price of the TEE simulator is high (approximately $60,000; http://www.heartworks.me.uk). In addition to the purchasing price, the simulator may have costs associated with maintenance, software updates, and housing (the simulator we used requires at least a 20 ft2 space for housing and use). Costs that are more difficult to quantify but equally	[limitations] ・一施設の調査 ・サンプルサイズが小さい ・様々なバイアス ・患者側のバイアス [参考:論文] ・シミュレーターを活用するタイミングが重要 ・時間がないスーパーバイザーとシミュレーションをどのように組み合わせるかが重要
E009	Jelacic, Srdjan and Bowdle, Andrew and Togashi, Kei and VonHomeyer, Peter. The use of TEE simulation in teaching basic echocardiography skills to senior anesthesiology residents. Journal of cardiothoracic and vascular anesthesia 2013; 27(4): 670-5.	3:対照群のある観察研究	前後比較研究	・「a first-generation HeartWorks simulator」(HeartWorks (Inventive Medical Ltd, London, UK)) 「目的は教育効果の評価、フォーカスしたのはBasic Echocardiography Skill、対象はシニアの麻酔科レジデント、関連使用ツールはTEE : a first-generation HeartWorks simulator、「使用前テスト」と「使用後テスト」、実施時期December 2010 and May 2012.実施場所はアメリカ」	・「Thirty-seven senior (fourth-year) anesthesiology residents participated in this study」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「an online post-test and evaluation of the teaching session (Assessment of Anesthesiology Resident Satisfaction with TEE Simulation Sessions)」	・「There was a statistically significant increase in knowledge of normal echocardiographic anatomy (p＝0.04), with an average improvement in normal echocardiographic anatomy scores of15%.」			[limitations] ・コントロールがない・・・被検者への不公平がないように ・サンプルサイズが小さい・・・でも他の同様の調査より大きい ・ラボでも臨床現場においてもマニュアル手技に関する検証ができていない ・post testは直後なのでlong termの検証ができていない

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E010	Hon, Chun-Yip and Gamage, Bruce and Bryce, Elizabeth Ann and LoChang, Justin and Yassi, Annalee and Maultsaid, Deirdre and Yu, Shicheng. Personal protective equipment in health care: can online infection control courses transfer knowledge and improve proper selection and use? American journal of infection control 2008; 36(10): e33-7.	3:対照群のある観察研究	前後比較研究	・「A 30-minute online infection control course as part of a 4-day orientation program」 ・「目的はオンライン教育コースの効果評価、フォーカスしたのは感染管理のガウンテクニック、対象は新人看護師、看護補助者、感染管理に関わる職種、関連使用ツールはオンライン研修(4日間のオリエンテーションの一環)、評価はオブザーバーによる評価、前後、実施時期はFrom March to June 2007、実施場所はカナダ」	・「precourse and postcourse paired observations were fully completed by 117 participants (airborne precautions, n=37; droplet precautions, n=39; contact precautions, n=41).」 ・「Most of the participants (81.2%) were nurses; the others were care aides and licensed practical nurses (12%) and allied health personnel (6.8%). 」 「Nearly 55% of the participants had less than 1 year of experience in their current profession.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Precourse and postcourse paired observations: 「Selection」 「Sequence」「Hand hygiene(airborne, droplet, contact)」 「The observer team was composed of professionals in occupational health, infection control, patient safety, and education.」	・「Postcourse, all 3 scenarios demonstrated improvement in PPE sequence scores (P =.001); moreover, hand hygiene also was more frequent during both donning and doffing of PPE (P <.001).」「Our findings indicate that online infection control courses are able to adequately transfer knowledge regarding appropriate PPE selection and use.」			[参考:論文] ・他の調査より教育効果が高いのはホーソン効果、最初が低すぎ ・知識が持続するか ・臨床現場で適正な感染管理ができるか
E011	Desalvo, Daniel J and Greenberg, Larrie W and Henderson, Celia L and Cogen, Fran R. A learner-centered diabetes management curriculum: reducing resident errors on an inpatient diabetes pathway. Diabetes care 2012; 35(11): 2188-93.	3:対照群のある観察研究	前後比較研究	・「The 8-week curricular intervention consisted of Module1:1) an online tutorial addressing residents' baseline diabetes management knowledge, Module2:2) an interactive diabetes pathway discussion, Module3:3) a learner-initiated diabetes question and answer session, and Module4:4) a case presentation featuring embedded pathway errors for residents to recognize, resolve, and prevent.」 ・「フォーカスしたのは糖尿病のインシュリン管理、対象はこども病院のレジデント、関連使用ツールはオンライン、「講義前」と「講義後」、評価はレジデントが関与するエラー等、他のエラー、看護職のエラーなどとの比較もあり、実施時期はJanuary-September 2010、October 2010-July 2011、実施場所はアメリカ」	・「the pediatric residency program at the children's National Medical Center (CNMC) consisted of 89 residents: 26were first year, 29 were second year, and 34 were third year.」 ・「In the 9 months before the educational intervention, there were 144 diabetes admissions, averaging 16 per month. In the 10 months after the intervention, there were 166 diabetes admissions, averaging 16.6 per month. The 66 patients affected by a diabetes-related error were demographically similar to the full group of patients with diabetes.」	2:代替アウトカム	・「the number of patients with resident errors per total number of diabetes admissions before and after the intervention」 「Resident pathway error types:insulin, communication, intravenous fluids, nutrition, discharge delay」 ・「four major types of insulin errors: incorrect type, dose, timing, failure to order.」「data on diabetes-related errors were obtained from the CNMC Incident Report System, an online tool to document medical errors. Diabetes-related errors are reported through this system by nurses, diabetes educators, and endocrinology faculty.」	・「An interactive learner-centered diabetes curriculum for pediatric residents can be effective in reducing inpatient diabetes errors in a tertiary children's hospital.」「Before the curricular intervention, resident errors occurred in 28 patients (19.4% of 144 diabetes admissions) over 9 months. After the intervention, resident errors occurred in 11 patients (6.6% of 166 diabetes admissions) over 10 months, representing a statistically significant (P = 0.0007) decrease in patients with errors from before intervention to after intervention. Throughout the study, the errors were distributed into the categories as follows: insulin, 43.8%; communication, 39.6%; intravenous fluids, 14.6%; nutrition, 0%; and discharge delay, 2.1%.」			[limitations] ・レジデントがonline moduleをどのくらい完遂したか不明 ・web-basedのインシデントレポート収集システムですべてのエラーをつかめているかが不明 ・RCTではない ・ホーソン効果

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E012	O'Connor, Patrick J and Sperl-Hillen, Joann M and Johnson, Paul E and Rush, William A and Asche, Stephen E and Dutta, Pradyumina and Biltz, George R. Simulated physician learning intervention to improve safety and quality of diabetes care: a randomized trial. Diabetes care 2009; 32(4): 585-90.	1:無作為化比較試験	無作為化比較試験 (RCT)	・「an innovative learning intervention designed to change physician behavior and improve safety and quality of diabetes care.」「three important clinical situations: 1) a newly diagnosed type 2 diabetic patient on no medications, 2) a patient with contraindications to insulin sensitizers (metformin and thiazolidinediones) who required insulin initiation and subsequent titration, and 3) a depressed individual with resulting low adherence who required insulin titration.」 ・「目的は教育成果の評価、フォーカスしたのは糖尿病の治療、対象はPCP、関連使用ツールはcase-basedのシミュレーション、「受けない群」「受けた群」「受けた後フィードバックがあった群」の3群」、実施時期はThe intervention was done in early 2002, and patient data to assess impact of the intervention included data from 1 January 2001 to 31 December 2003.、実施場所はアメリカ」		2:代替アウトカム	・「Four principal dependent variables were measured in actual patients: 1) change in A1C and LDL cholesterol testing rates, 2) change in A1C and LDL cholesterol levels, 3) rates of intensification of glucose or lipid medication when patients are not achieving recommended clinical goals, and 4) change in risky prescribing events related to glycemic control.」	・「A simulated, case-based learning intervention for physicians significantly reduced risky prescribing events and marginally improved glycemic control in actual patients. The addition of opinion leader feedback did not improve the learning intervention.」「Groups B and C had substantial reductions in risky prescribing of metformin in patients with renal impairment (P_0.03). Compared with groups A and C, physicians in group B achieved slightly better glycemic control (P _ 0.04), but physician intensification of oral glucose-lowering medications was not affected by interventions (P _ 0.41). Lipid management improved over time (P _ 0.001) but did not differ across study groups (P _ 0.67).」	・「The addition of opinion leader feedback did not improve the learning intervention.」		[limitations] ・特定のグループ ・他の項目におけるデータの欠如 ・血圧測定ができていない(自動的に測定できていないので) ・ベースラインが比較的良好な患者。もっと悪ければ別かも。 ・あくまでも3項目 [参考:論文] ・被検者にインセンティブあり:「Participating PCPs received compensation of $100 for group A, $200 for group B, or $600 for group C, predicated on the differential time commitment to each intervention.」 ・「This learning technology could be more effective if simulated cases were customized for each individual physician based on analysis of patterns of care in electronic health records. 」「Effective physician learning interventions such as these, which are brief, enjoyable, and scalable, may complement other care improvement strategies and may contribute to the essential goal of improving the safety

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E013	Gaupp, Rainer and Körner, Mirjam and Fabry, Götz. Effects of a case-based interactive e-learning course on knowledge and attitudes about patient safety: a quasi-experimental study with third-year medical students. BMC medical education 2016; 16(): 172.	3:対照群のある観察研究	前後比較研究	・「a case-based interactive e learning course:The mandatory online course was integrated into a more comprehensive curricular module on “health economics, the healthcare system and public health”.」(interactive online learning modules for each of the three subjects (teamwork, error management, situational awareness).) ・「目的は教育成果の評価、フォーカスしたのは医療安全(公衆衛生の科目のなかで)、対象は医学生、関連使用ツールはオンライン:a case-based interactive e learning course、評価は「前」と「後」、テスト、質問票、実施期間はOctober2015 and December 2015、実施場所はドイツ」	・「Participants were 321 third-year medical students who received online surveys before and after they participated in the mandatory e-learning course on patient safety. The online course was conducted between October 2015 and December 2015.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Primary outcome : levels of systems thinking and attitudes towards PS. Secondary outcome: the improvement of PS specific knowledge through the e-learning course.」(pre test, post test)	・「Levels of systems thinking showed significant improvement (58.72 vs. 61.27; p < .001) after the e-learning. Student’s attitudes towards patient safety improved in several dimensions: After the course, students rated the influence of fatigue on safety higher (6.23 vs. 6.42, p < .01), considered patient empowerment more important (5.16 vs. 5.93, p < .001) and realized more often that human error is inevitable (5.75 vs. 5.97, p < .05). Knowledge on PS improved from 36.27 % correct answers before to 76.45 % after the e-learning (p < .001).」		・「The development of the course including the development of specific learning material (i.e. videos, podcasts, interactive texts etc.) was done without external service providers to keep costs low, all developments were done by one research fellow (RG), for regular reviews of the course we used a team of 4 persons. In total, four months developing time was spent on the course.」	[limitations] ・自己申告である ・short termの効果の調査である ・一施設の医学生の調査である ・被検者のセレクションバイアス(熱心な学生の可能性) [参考:論文] ・「Our results suggest that e-learning technology and methodology can be used for knowledge acquisition on theoretical aspects of patient safety. In this way, face-to-face interventions that are more resource-intensive can be better targeted for action-based learning methodologies.」

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E014	Sherriff, Karen and Burston, Sarah and Wallis, Marianne. Effectiveness of a computer based medication calculation education and testing programme for nurses. Nurse education today 2012; 32(1): 46-51.	3:対照群のある観察研究	前後比較研究	・「a computer based medication calculation education and testing Programme」「"Nursing Calculations", was a computer-based medication calculation programme designed in 2002 by Educational Innovations™ to improve student nurses' math and dosage calculation skills. The programme was originally available as a CD-ROM for use in Universities and TAFE colleges across Australia, and was later developed into a web-based version for use by hospitals.」 ・「目的は、看護職向けのコンピューターを使った薬剤の計算に関する教育の評価、フォーカスしたのは薬剤の計算、関連使用ツールはコンピューター、対象は看護職(RNとEN(Meds)、評価は、満足度調査、計算に関するオンラインテスト、自己評価、「前と後」、実施時期は2011年？、実施場所はオーストラリア」	・「看護師98人(すべてに回答したのは41人):「Self efficacy questionnaire(1:92人、2:65人)」「Medication calculation online test2(58人)」「Medication calculation online test1(58人)とSatisfaction questionnaire(76人)」(onlineへの回答人数は毎回さまざま)」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Self efficacy questionnaire」「Medication calculation test results」「Satisfaction questionnaire」	・「Medication calculation scores at first test attempt showed improvement following one year of access to the programme. Two of the self-efficacy subscales improved over time and nurses reported satisfaction with the online programme.」 ・「Medication calculation test results: The proportion passing at first attempt increased over time from 26.3% to 43.1% (z=1.91; p=0.03). The proportion passing on second attempt decreased from 37.3% to 18.2%. The mean scores at first attempt increased from Time 1 to Time 2, however this difference did not reach statistical significance. The mean score at second attempt decreased from Time 1 to Time 2 and these differences were statistically significant. These results are presented in Table 4. At Time 1 the mean number of attempts required before mastery was achieved was 2.7 (s.d.=1.8, range=1-11) and the mean number of attempts required at Time 2 was 3.2 (s.d.=3.5, range=1-21).」			[limitations] ・汎用には注意 ・コントロール群がないことで様々な影響がルールアウトできていない [参考:論文] ・onlineにアクセスできるかどうかのバイアス排除ができていない可能性 ・onlineによるアンケートの回収率が低いこと ・学習効果の影響 ・回答できなかった途端止めてしまう可能性 ・年齢が高いとcomputer basedの方法には抵抗があるかも

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E015	Sloane, Philip D and Zimmerman, Sheryl and Reed, David and Beeber, Anna Song and Chisholm, Latarsha and Kistler, Christine and Khandelwal, Christine and Weber, David J and Mitchell, C Madeline. Antibiotic prescribing in 4 assisted-living communities: incidence and potential for improvement. Infection control and hospital epidemiology 2014; 35(): S62-8.	3:対照群のある観察研究	前後比較研究	・「The intervention consisted of 4 main components:①education of medical care providers/prescribers ② introduction of a standardized 1- Page medical care referral form(MCRF, available online) ③a series of staff training and quality improvement activities within each AL community ④family/patient education.」 ・「フォーカスしたのは抗生物質の処方への行動変容、対象はALの処方をする医療者、その医療者とコミュニケーションをとる医療者と患者、関連使用ツールとしてオンライン、毎月のミーティングも。 評価は「前」と「後(間)」、インタビューとエキスパートレビュー、実施時期は(August 2010-February 2011) (March 2011-March 2012)、実施場所はアメリカ」	・「All prescribers, all AL staff who communicate with prescribers, and all patients who had an infection during the baseline and intervention periods.」	2:代替アウトカム	・「antibiotic prescription rates」	・「The mean number of systemic antibiotic prescriptions was 3.44 per 1,000resident-days at baseline and 3.37 during the intervention, a nonsignificant change (P =.30). Few prescribers participated in online training. AL staff use of the standardized form gradually increased during the program. The pro portion of prescriptions rated as probably inappropriate was 26% at baseline and 15% during the intervention, a nonsignificant trend (P= .25). Drug selection was largely appropriate during both time periods.」			[参考:論文] ・結果はあまり変わらず:多職種による複雑なサービス構造:例えば構造施設としてプロジェクトには賛成でもオンライン研修に参加した個人は少数 ・加えてAL特有の課題:フォームの活用には何度も催促が必要、スタッフの入れ替わりが多いので頻回に研修することが必要、根強い抗生物質への認識が必要(咳が出てきたら(ひどくなったら)投与、尿路感染症への投与等)
E016	Chao, Coline and Chalouhi, Gihad E and Bouhanna, Philippe and Ville, Yves and Dommergues, Marc. Randomized Clinical Trial of Virtual Reality Simulation Training for Transvaginal Gynecologic Ultrasound Skills. Journal of ultrasound in medicine : official journal of the American Institute of Ultrasound in Medicine 2015; 34(9): 1663-7.	1:無作為化比較試験	無作為化比較試験(RCT)	・「40 minutes of virtual reality simulation training using a haptic transvaginal high-fidelity simulator (ScanTrainer; Medaphor, Cardiff, Wales). 」 ・「目的はVRの教育効果の評価、フォーカスしたのはGYNEの超音波、対象はレジデント、関連使用ツールはVR(a haptic transvaginal high-fidelity simulator) (ScanTrainer; Medaphor, Cardiff, Wales).「VR」と「オーソドックス(講義、スライ、ビデオ)」との比較、評価はエキスパートレビュー、実施時期はNovember 9,2013.、実施場所はフランス」	・「トレーニンプログラムを開始したレジデント」「34人の first-year obstetric and gynecologic trainees and general practice trainees : (シミュレーション群(16人) :40 minutes of virtual reality simulation training using a haptic transvaginal simulator、コントロール群(18人) :40 minutes of conventional teaching including a conference with slides and videos and answers to the students' questions.)	3:安全と間接的に関係するその他の測定可能なアウトカム	・「a 19-point image quality score calculated from a set of 4 images (sagittal and coronal views of the uterus and left and right ovaries)」	・「The mean score was significantly greater in the simulation group (n = 16; mean score, 12; SEM, 0.8) than the control group (n = 18; mean score, 9; SEM, 1.0; P= .0302).」			[limitations] ・器械と操作に慣れている方が有利かも ・患者もヴァーチャル(注意) ・優秀な成績は追加のトレーニングで獲得された可能性がある ・差が比較的小さかったのにはコントロール群の3件の成績が影響している可能性がある ・サンプルサイズが小さい ・結果が維持するかの検証ができていない

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E017	Shaw, Tim J and Pernar, Luise I and Peyre, Sarah E and Helfrick, John F and Vogelgesang, Kaitlin R and Graydon-Baker, Erin and Chretien, Yves and Brown, Elizabeth J and Nicholson, James C and Heit, Jeremy J and Co, John Patrick T and Gandhi, Tejal. Impact of online education on intern behaviour around joint commission national patient safety goals: a randomised trial. BMJ quality & safety 2012; 21(10): 819-25.	1:無作為化比較試験	無作為化比較試験(RCT)	・「online education: an online Spaced Education (SE) programme consisting of cases and questions that reinforce over time, or a programme consisting of an online slide show followed by a quiz (SQ) consisting of cases and questions that reinforce over time, or a programme consisting of an online slide show followed by a quiz (SQ).」 ・「目的は教育効果の評価、フォーカスしたのはJCのNPSG、対象はBWHとMGHのインターン、関連使用ツールはオンライン、評価はテストと質問票、前後比較、職種間比較も、実施時期は2010年、実施場所はアメリカ」	・「Incoming interns in 2010 at Massachusetts General Hospital and Brigham and Women's Hospital (BWH) in Boston USA.(BWH:SE(62人)SQ(85人)、MGH:SE(58人)None(70人))」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「NPSG-knowledge improvement, NPSG compliant behaviours in a simulation scenario, selfreported confidence in safety and quality, programme acceptability and programme relevance.」	・「Both online learning programmes improved knowledge retention. On four out of seven survey items measuring satisfaction and self-reported confidence, the proportion of SE interns responding positively was significantly higher ($p<0.05$) than the fraction of SQ interns. SE interns demonstrated a mean 4.79 (36.6%) NPSG-compliant behaviours (out of 13 total), while SQ interns completed a mean 4.17 (32.0%) (p¼0.09). Among those in surgical fields, SE interns demonstrated a mean 5.67 (43.6%) NPSG compliant behaviours, while SQ interns completed a mean 2.33 (17.9%) (p¼0.015). Focus group data indicates that SE was more contextually relevant than SQ, and significantly more engaging.」			[limitations] ・コントロール群がない(インターンが対象だと止むをえない) ・外科系のインターンが少ない [参考:論文](調査から) ・なぜSEプログラムは外科領域でインパクトがあったのか ・シミュレーションでもたらされた変化は現場に活かされるか

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E018	Gordon, Morris and Chandratilake, Madawa and Baker, Paul. Improved junior paediatric prescribing skills after a short e-learning intervention: a randomised controlled trial. Archives of disease in childhood 2011; 96(12): 1191-4.	1:無作為化比較試験	無作為化比較試験 (RCT)	・「The authors set out to develop a short, educationally sound, low cost e-learning resource for paediatric prescribing to improve junior doctors' prescribing skills and to evaluate its effectiveness.」「On study entry, participants were assessed on prescribing skill, prescribing habits and confi dence. The intervention group completed the e-learning course designed for the study, which took 1 -2 h.」 ・「目的は短いe-learningの教育効果、フォーカスしたのは薬剤の処方、関連使用ツールはe-learning、対象は小児科のjunior doctor、評価はテスト、「e-learning群とコントロール群」、実施時期はJuly and August 2010.、実施場所はイギリス」	・「162 volunteer foundation (junior) doctors randomised into control (86) and intervention (76) groups.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Total score (expressed as a percentage) on prescribing assessments, confi dence and satisfaction scores.」	・「There were no preintervention differences in prescribing assessments (67% vs 67%, p=0.56). Postintervention, the e-learning group scored signifi cantly higher than the control group (63% vs 79%, p<0.0001). At 3 months, the e-learning group still scored signifi cantly higher (69% vs 79%, p<0.0001), with improved confi dence scores (p<0.0001). This short e-learning resource signifi cantly improved the paediatric prescribing skills of junior doctors. Outcomes were maintained at 3 months, suggesting the utility of low cost, low fi delity, educationally sound e-learning interventions. However, the direct impact on patient outcomes following this intervention has yet to be determined.」		・「In summary, a short e-learning module, taking less than 2 h, is able to improve paediatric prescribing skills signifi cantly. The intervention uses simple and low cost production tools with a sound educational grounding and should be reproducible by others.」「The authors set out to develop a short, educationally sound, low cost e-learning resource for paediatric prescribing to improve junior doctors' prescribing skills and to evaluate its effectiveness.」とあるがコストの計算などはなし	[limitations] ・参加者がボランティア(バイアス) ・多くの脱落者 ・教育の成果で現場の成果になるかは不明

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E019	Lerner, Catherine and Gaca, Ana M and Frush, Donald P and Hohenhaus, Sue and Ancarana, Anjanette and Seelinger, Terry A and Frush, Karen. Enhancing pediatric safety: assessing and improving resident competency in life-threatening events with a computer-based interactive resuscitation tool. Pediatric radiology 2009; 39(7): 703-9.	1:無作為化比較試験	無作為化比較試験(RCT)	・「two simulated 5-min anaphylaxis scenarios involving 18-month-old and 8-year-old mannequins (order randomized).」「Videotaped during two simulated 5-min anaphylaxis scenarios involving 18-month-old and 8-year-old mannequins (order randomized). 」 ・「目的はコンピューターベースの教育効果の測定、フォーカスしたのはアナフィラキシーショック対応、関連使用ツールはコンピューターベース、マネキン使用、対象は放射線科レジデント、評価はアセスメント、「ツール使用群と不使用群」、実施時期、実施場所は、その他	・「Radiology residents (n=19; 14 male, 5 female; 19 certified in basic life support/advanced cardiac life support; 1 certified in pediatric advanced life support)」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Competency measures included: calling a code, administering oxygen and epinephrine, and correctly dosing epinephrine.」	・「Residents performed significantly more essential interventions with the computer-based resuscitation tool than without (72/76 vs. 49/76, P<0.001). Significantly more residents appropriately dosed epinephrine with the tool than without (17/19 vs. 1/19; P<0.001). More residents called a code with the tool than without (17/19 vs. 14/19; P=0.08). A learning effect was present: average times to call a code, request oxygen, and administer epinephrine were shorter in the second scenario (129 vs. 93 s, P=0.24; 52 vs. 30 s, P<0.001; 152 vs. 82 s, P=0.025, respectively). All the trainees found the resuscitation tool helpful and potentially useful in a true pediatric emergency.」			[limitations] ・サンプルサイズ ・評価の難しさ ・レジデントの専門性の不足
E020	Feudner, Elisabeth M and Engel, Corinna and Neuhann, Irmingard M and Petermeier, Katrin and Bartz-Schmidt, Karl-Ulrich and Szurman, Peter. Virtual reality training improves wet-lab performance of capsulorhexis: results of a randomized, controlled study. Graefe's archive for clinical and experimental ophthalmology = Albrecht von Graefes Archiv fur klinische und experimentelle Ophthalmologie 2009; 247(7): 955-63.	1:無作為化比較試験	無作為化比較試験(RCT)	・「the EYESi surgical simulator 」 ・「目的は、フォーカスしたのは眼科capsulorhexisに関するVRトレーニングの評価(VRはwetlabでも効果があるか)、関連使用ツールはEYESI、対象者は医学生とレジデント、評価は自己評価、wetlabでのテスト、「コントロール群とVRトレーニング群」「医学生とレジデント」、実施時期は2008年、実施場所はドイツ」	・「Thirtyone medical students and 32 ophthalmological residents were randomized to either virtual reality (VR) training, or control.(students(1人脱落):VR(15人)、コントロール(15人)、residents:VR16人、コントロール16人)」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「five criteria (circularity, size, centering, time, tissue protection) 」	・「Compared to control groups, VR-trained students and residents showed significant improvement in their median wet-lab capsulorhexis overall performance score compared to controls (+3.67 vs +0.33 points, P=0.001 and +3.33 vs ±0.00 points, P<0.0001). The capsulorhexis performance of VRtrained students and residents was also more consistent with a lower standard deviation of scores compared to controls (SD 1.3 vs 2.1 and 1.2 vs 1.7 points respectively).」 ・「In our study, the performance of students and residents was similar. We originally hypothesized that residents would outperform students due to their advanced theoretical knowledge and due to having observed more operative procedures. Our results now indicate that previous microsurgical experience might be more important than theoretical knowledge for the performance of a relatively straightforward task such as capsulorhexis.」		・「However, traditional surgical training on real patients in the operating room (OR) suffers from several drawbacks: high financial costs, time onstraints, limited availability and repeatability, heterogeneity of anatomic situations, and an unstructured curriculum dependent on patient flow. 」の記載はあるも論文のなかに具体的な計算はなし。	[limitations] ・教育ツールとしてのEYESiの限界:感触、感触によるfeedbackの限界、修練できる技術の限界 [参考:論文] ・知識と技術の双方が必要 ・「Once it is clear that VR simulation allows for competency-based, standardized surgical skills training and assessment, it might help to meet the growing societal demands for greater accountability in medical performance and professional requirements for uniformity.」

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E021	Ahlberg, Gunnar and Enochsson, Lars and Gallagher, Anthony G and Hedman, Leif and Hogman, Christian and McClusky, David A and Ramel, Stig and Smith, C Daniel and Arvidsson, Dag. Proficiency-based virtual reality training significantly reduces the error rate for residents during their first 10 laparoscopic cholecystectomies. American journal of surgery 2007; 193(6): 797-804.	1:無作為化比較試験	無作為化比較試験(RCT)	・「The LapSim (Surgical Science Inc., Göteborg, Sweden): Proficiency-based virtual reality training」 ・「目的はVRの教育効果の評価、フォーカスしたのは外科系レジデントのラパロ、対象は外科系レジデント、関連使用ツールはVR:LapSim、「コントロール群」と「VR群」、評価はビデオに撮って評価、実施時期の記載なし？2005年？、実施場所はスウェーデン」	・「Thirteen laparoscopically inexperienced residents: (1) VR training until a predefined expert level of performance was reached(7人) or (2) the control group(6人).」	2:代替アウトカム	・「the outcome of the first 10 entire cholecystectomies: Frequency of error」(VRトレーニング後の最初の腹腔鏡胆のう摘出術10症例におけるエラー発生率)	・「The VR-trained group consistently made significantly fewer errors (P =.0037). On the other hand, residents in the control group made, on average, 3 times as many errors and used 58% longer surgical time.」	・「(先行研究の方法ではトレーニングと評価に時間がかかるので) For the purposes of this investigation, we have chosen a simple operative task that emphasizes technical skills.」 ・「It must be emphasized that many more skills are incorporated into the technical training of a surgeon (including the cognitive skills of anatomical recognition, decision making, alternate planning, and so forth), and that the simulators are but one part that can contribute to the overall improvement of performance and assessment of proficiency.」		[limitations] ・評価を手術室で9人の異なる評価者によって行っていること ・LapSimは単なるツールであること。本研究ではProficiency-basedなプログラムを採用した(その理由についての記載あり)

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E022	Seymour, Neal E and Gallagher, Anthony G and Roman, Sanziana A and O'Brien, Michael K and Bansal, Vipin K and Andersen, Dana K and Satava, Richard M. Virtual reality training improves operating room performance: results of a randomized, double-blinded study. Annals of surgery 2002; 236(4): 458-63; discussion 463-4.	1:無作為化比較試験	無作為化比較試験(RCT)	・「「the Minimally Invasive Surgical Trainer-Virtual Reality (MIST VR) system (Mentice AB, Gothenburg, Sweden)」 ・「目的はVRによるトレーニングが実際にORでエラーを減らすことができるか、フォーカスをあてたのは腹腔鏡、対象は外科レジデント、関連使用ツールはVR (the Minimally Invasive Surgical Trainer-Virtual Reality (MIST VR) system (Mentice AB, Gothenburg, Sweden)、「VR群」と「Non VR群」、評価はエキスパートレビュー、実施時期は2002年？、実施場所はアメリカ」	・「Sixteen surgical residents (11 male, 5 female) in postgraduate year (PGY) 1 to 4 in the Yale University School of Medicine Department of Surgery participated in this study. 」「Sixteen surgical residents (PGY 1-4) had baseline psychomotor abilities assessed, then were randomized to either VR training (MIST VR simulator diathermy task) until expert criterion levels established by experienced laparoscopists were achieved (n=8), or control non-VR-trained (n = 8).」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「The duration of the dissection」 ・「eight events associated with the excisional phase of the procedure were defined as errors and chosen as the study measurements : ① LACK OF PROGRESS ② GALLBLADDER INJURY ③LIVER INJURY ④ INCORRECT PLANE OF DISSECTION ⑤ BURN NONTARGET TISSUE ⑥TEARING TISSU ⑦ INSTRUMENT OUT OF VIEW ⑧ ATTENDING TAKEOVER」	・「Gallbladder dissection was 29% faster for VR-trained residents. Non-VR-trained residents were nine times more likely to transiently fail to make progress (P < .007, Mann- Whitney test) and five times more likely to injure the gallbladder or burn nontarget tissue (chi-square = 4.27, P < .04). Mean errors were six times less likely to occur in the VR-trained group (1.19 vs. 7.38 errors per case; P< .008, Mann- Whitney test).」	・「(先行研究の方法ではトレーニングと評価に時間がかかるので) For the purposes of this investigation, we have chosen a simple operative task that emphasizes technical skills.」「It must be emphasized that many more skills are incorporated into the technical training of a surgeon (including the cognitive skills of anatomical recognition, decision making, alternate planning, and so forth), and that the simulators are but one part that can contribute to the overall improvement of performance and assessment of proficiency.」	・(discssionに対談形式で記載あり)「Cost issues (i.e., OR time, surgeon teaching time, etc.) need to be integrated with the cost of the simulators, how we create the software and how it gets disseminated and need to be integrated into use. These two cost issues need integration with the ways in which we as surgical educators reframe residency programs to deal with modern constraints」「I am probably not the best person to address the issue of cost of VR training, although I am aware of the considerable cost of the machines that we are using. It is not clear who is best	[参考:論文] ・トレーニングの方法が洗練されても現場のパフォーマンスを改善しなければだめ ・いくらよくてもこれまでの調査方法はトレーニングや評価に時間がかかる ・ブリストル事件やIOMレポートについての記載あり:「The "Bristol Case"4 in the U.K. and the "To Err is Human"5 report published by the Institute of Medicine in the United States suggested that better training and objective assessment would be key strategies in attaining the goal of reduced medical errors. Surgeons were already sensitive to these issues and have accepted the idea that new and better evidence-based training is necessary and achievable.」 ・今後のVRの活用についての記載あり:「In the immediate future surgical trainees will be able to train whenever they choose, with their performance continuously assessed by the simulator until proficiency in the selected task is

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E023	Gonsenhauser, Iahn and Beal, Eliza and Shihadeh, Fadi and Mekhjian, Hagop S and Moffatt-Bruce, Susan D. Development and assessment of quality improvement education for medical students at The Ohio State University Medical Center. Journal for healthcare quality : official publication of the National Association for Healthcare Quality 2012; 34(6): 36-42.	3:対照群のある観察研究	前後比較研究	・「a quality improvement (Ol) program: the OSUMC Institute for Healthcare Improvement (lHI) Open School Chapter, a campuswide student organization that focuses on QI research and educational activities, and included first and second year medical students as well as some students from the colleges of pharmacy, public health, and nursing. Medical students assessed the use of the Surgical Safety Checklist at The Ohio State University Medical Center. Before performing audits students were required to complete a self-paced online program that provided preliminary education in QI, patient safety, leadership, teamwork, and patient-centered care. A 2.5-hr orientation introduced basic operating room protocol, and the surgical checklist audit tool. Orientation included a multimedia simulation of checklist usage and a role-playing exercise simulating its use. Students completed pre- and postparticipation assessments.」 ・「目的はQIカリキュラムの評価、フォーカスしたのはQIとPS、関連使用ツールはon-line（IHIのオープンスクールと現場の取り組み等の複合的プログラム）、対象	「Sixty students were initially identified for participation in this study and consented. Thirty-two students completed their preassessment survey and took part in orientation and education to varying extents. Of the initial 32 students, 25 fulfilled all requirements: orientation, educational modules, audits, and postassessment and a few additional students completed all aspects of the study, but never completed their postassessment survey. Each student participant completed three audits, a total of 75 procedures were audited.」 （主としてfirst and second year medical students、最終的に25人、それぞれ3件の手術のチェックリストを使ったタイムアウトの実施状況を評価、全部で75件、手術は様々（ENT, Vascular, Thoracic, General Surgery）	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Pre- and Postassessment Ouestionnaire:「IHI Related Questions」「QI Perspective Questions」「QI Competency Perspectives」「Operating Room Perspective Questions」	・「Results included an increased knowledge of QI methodology, an improved understanding of the evidence supporting the need for QI projects within health systems, and a greater awareness of available QI projects. Students' perspectives changed to indicate an increased belief that QI is the responsibility of all health professionals including physicians, administrators and other staff. This study concluded that QI education can be effectively disseminated to medical students early in their education using existing online tools and experiential QI projects, and can result in actionable QI data supporting hospital improvement initiatives.」（本文に前後比較の記載あり） ・「例:Participant scores on the QI knowledge section of the postassessment survey improved by l8%. The average preassessment score was 72%± 21 versus 90%± 13 postassessment. Participation in the study protocol significantly improved knowledge of quality improvement methods and evidence (P<.001; Table 1).」		・「This study used resources available at no cost to any student in a health professions program and allowed students to work at a self-directed pace.」	［参考:論文］ ・「In short, QI information can be effectively disseminated to medical students early their education using existing online tools coupled with experiential QI projects and can result in actionable QI data supporting hospital improvement initiatives.」

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E024	Katz, Aric and Shtub, Avraham and Solomonica, Amir and Poliakov, Adva and Roguin, Ariel. Simulator training to minimize ionizing radiation exposure in the catheterization laboratory. The international journal of cardiovascular imaging 2017; 33(3): 303-310.	3:対照群のある観察研究	前後比較研究	・「the WOZ-based simulator.」「The Wizard of Oz (WOZ) method is an evolving method for simulating functionality and user experience in which the interaction is mediated by a human operator, the wizard [15]. The simulator, which we built for teaching good operating practices to interventional cardiologists, is a low-fidelity web-based application developed on Microsoft SharePoint 2010 technology. 」 ・「目的はシミュレーションの教育効果の評価、フォーカスしたのは放射性被ばくの低下、対象はinterventional cardiologists、関連使用ツールはシミュレーション、評価はテストとアンケート、「前と後とフォローアップ」、実施時期は2016年？、実施場所はイスラエル」	・「20 interventional cardiologists」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「an objective knowledge examination before, immediately following, and 12 weeks after simulator-based learning and training」「a subjective Likert questionnaire on satisfaction」	・「The average scores of the knowledge examination pre-simulator training was 54 ± 15% (mean ± standard deviation), and this score significantly increased after training to 94 ± 10% ($p < 0.001$). 」「The evaluators also reported high levels of satisfaction following simulation-based learning and training according to the results of the subjective Likert questionnaire.」			[limitations] ・C-armについては2機種の3モデルしか使っていない ・評価者がinvasive cardiologistsである ・real world dataが評価できていない (今後の課題) ・シミュレーターを使った群と使わなかった群の比較 ・the same operatorの前後の比較

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E025	Gerolemou, Louis and Fidellaga, Amelita and Rose, Keith and Cooper, Scott and Venturanza, Majella and Aqeel, Adnan and Han, Qifa and Jones, James and Shapiro, Janet and Khouli, Hassan. Simulation-based training for nurses in sterile techniques during central vein catheterization. American journal of critical care : an official publication, American Association of Critical-Care Nurses 2014; 23(1): 14824.	3:対照群のある観察研究	前後比較研究	・「simulation-based training of critical care nurses in sterile techniques」 ・「目的はシミュレーションを使った教育効果の評価、フォーカスしたのは中心静脈カテーテル無菌操作、対象はCCUのCCN、関連使用ツールはICUのように作られたシミュレーションラボでマネキン(Laerdal SimMan full body mannequin (Laerdal Medical)を使用したトレーニング)、評価はパフォーマンススコア、二人のオブザーバーが一致するまで、「phase Ⅰとphase Ⅱとフォローアップ」、感染症の発生率の経時的変化、実施時期は2008年～？、実施場所はアメリカ」	「Forty-six critical care nurses 」	2:代替アウトカム	・「Sterile techniques (ST) assessment tool: Nonsterile preparation, Hand washing, Sterile field/supply preparation, Sterile gowning, Sterile gloving, Sterile draping」「Follow-up period(May 2008-June 2010): Rates of catheter-related bloodstream infections in critical care unit」	・「Simulation-based training of critical care nurses in sterile technique is an important component in the strategy to reduce the occurrence of such infections and promote patient safety.」「After simulation-based training, nurses' median scores in each ST category and their total scores improved significantly, with the median total score increasing to 23 (P < .01; median difference, 15; 95% CI, 14-16). After completion of the simulation-based training intervention, the mean infection rate in the unit was reduced by 85% from 2.61 to 0.4 infections per 1000 catheterdays (P= .02). The incidence rate-ratio derived from the Poisson regression (0.15; 95% CI, 0.03-0.78) indicates an 85% reduction in the incidence of catheter-related bloodstream infections in the unit after the intervention.」		・「However simulation-based training can be provided in less formal and costly settings with access to audiovisual equipment and mannequins.」とあるが具体的な計算はなし	[limitations] ・シミュレーションのラボがあったので有利 ・RCTではない ・skillsの維持については評価できていない ・結果にはレジデントのトレーニングの影響等、他の要因も関係している可能性がある [参考:論文] ・先行研究の多くが医師を対象にしている。看護職を対象にすることも重要:「Most prior studies8,11,13,14 have emphasized training physicians in CVC and sterile techniques. However, an important and often overlooked part of the central catheter bundle in many institutions involves empowering CCNs to stop a procedure if they observe a breach in sterile technique.」「Although we did not collect data regarding CCNs speaking up if a breach of sterile techniques was observed, we received feedback from ICU fellows, attending physicians, and CCNs that this practice is occurring commonly and consistently.」

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E026	Carlton Jones, A L and Roddie, M E. Implementation of a virtual learning from discrepancy meeting: a method to improve attendance and facilitate shared learning from radiological error. Clinical radiology 2016; 71(6): 583-90.	3:対照群のある観察研究	前後比較研究	・「a virtual learning from discrepancy meeting」 ・「Sets of anonymised discrepancy cases were added to an OsiriX database available for viewing on iMacs in all radiology reporting rooms. Radiologists were given a 3-week period to review the cases and send their feedback to the LDM convenor. Group learning points and consensus feedback were added to each case before it was moved to a permanent digital LDM library. Participation was recorded and compared with that from the previous 4 years of conventional LDMs. Radiologist feedback comparing the two types of LDM was collected using an anonymous online questionnaire.」 ・「目的は「conventional training (Group 1)」と「VR training (Group 2) 」の比較、フォーカスしたのは歯科の齲歯、対象は歯学性、各グループ21人計42人、関連使用ツールはVR、評価は「conventional training (Group 1)」と「VR training (Group 2) 」、実施時期は、2013年11月から始めて一年後の2014年11月に評価、実施場所はイギリス」	・「Imperial College Healthcare NHS Trust comprises three large London teaching hospitals at sites separated by approximately 5 miles across which there are 60 consultants and 50 specialist registrars (SpRs).」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Radiologist participation in the LDM process」「Discrepancy case submission」「Questionnaire」	・「Numbers of radiologists attending increased significantly from a mean of 12 ±2.9 for the conventional LDM to 32.7 ±7 for the virtual LDM ($p<0.0001$) and the percentage of radiologists achieving the UK standard of participation in at least 50% of LDMs annually rose from an average of 18% to 68%. The number of cases submitted per meeting rose significantly from an average of 11.1±3 for conventional LDMs to 15.9±5.9 for virtual LDMs ($p<0.0097$). Analysis of 35 returned questionnaires showed that radiologists welcomed being able to review cases at a time and place of their choosing and at their own pace.」			[limitations] ・回答率の低さ ・(VRの欠点として)これまでやってきた対面のミーティングやsグループディスカッションを惜しむ声もある

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E028	Quinn, Frank and Keogh, Paul and McDonald, Ailbhe and Hussey, David. A study comparing the effectiveness of conventional training and virtual reality simulation in the skills acquisition of junior dental students. European journal of dental education : official journal of the Association for Dental Education in Europe 2003; 7(4): 164-9.	1:無作為化比較試験	無作為化比較試験(RCT)	・「Virtual mouth with anatomical representation of tooth layers」 ・「目的は「conventional training (Group 1)」と「VR training (Group 2) 」の比較、フォーカスしたのは歯科の齲歯、対象は歯学性、各グループ21人計42人、関連使用ツールはVR、評価は「conventional training (Group 1)」と「VR training (Group 2) 」、実施時期は明確な記載なし2003？　実施場所はイギリス」	・歯学性、「conventional training (Group 1)」と「VR training (Group 2) 」各21人	3:安全と間接的に関係するその他の測定可能なアウトカム	・「At the completion of these training periods, both groups produced two class 1 cavities on the lower left first molar, which were subsequently coded and blindly scored for the traditional assessment criteria of outline form, retention form, smoothness, cavity depth and cavity margin angulation.」 ・「comparisons of assessors scoring agreement」「the questionnaire results」	9. 主な結果 ・「Wilcoxon Tests for the semi quantitative scores indicated significant differences between the VR and conventional training groups for outline form, depth and smoothness but not for retention or cavity margin angulation at P < 0.05 level, with the VR group receiving the higher, i.e. worse, scores. Cavity margin angulation approached significance with a P-value of 0.0536. The results indicated that VR-based skills acquisition is unsuitable for use as the sole method of feedback and evaluation for novice students.」			

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E029	Potts, Stacy and Shields, Sara and Upshur, Carole. Preparing Future Leaders: An Integrated Quality Improvement Residency Curriculum. Family medicine 2016; 48(6): 477-81.	3:対照群のある観察研究	その他	・「WFMR developed an integrated model of QI education across all years of residency in 2011. The study's objective is to develop and evaluate a longitudinal curriculum that meets the ACGME requirement for QI and patient safety training and links to patient-centered medical home (PCMH) practices. The curriculum included monthly meetings on foundational concepts in QI and PCMH as well as projects in the three residency health centers. 」 ・「The Institute of Healthcare Improvement (IHI) Open School course modules14 were used, with faculty-facilitated group discussions.」 ・カリキュラムのなかには配属先のQI委員会に参加することやQI活動の評価なども。 ・「目的はAn Integrated Quality Improvement Residency Curriculumの評価、フォーカスしたのはQI、対象は2011年のレジデントPGY2、PYG3、各学年の11人、自己評価、関連使用ツールとしてIHIオープンスクールも利用(講義やQI実務も)、評価は「PGY2」と「PYG3」、自己評価、実施時期は2011年、実施場所はアメリカ」	・「Worcester Family Medicine Residency (WFMR) trains 36 residents (12 a year, across three clinical sites).」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Chronic care management skills」「Quality improvement skills」「Patient safety skills」 ・「They completed self-evaluations of knowledge and use of curricular activities annually and at graduation, and comparisons were made between two graduating classes, as well as comparison of end of PGY2 to end of PGY3 for one class.」	・「Graduating residents who completed the full 3 years of the curriculum rated themselves as significantly more skilled in nine of 15 areas assessed at end of residency compared to after PGY2 and reported confidence in providing future leadership in a focus group. Five areas were also rated significantly higher than prior-year residents.」			[limitations] ・サンプルサイズ ・自己評価 ・患者に関する指標を使ったデータではないこと

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E030	Tan, Apphia Jia Qi and Lee, Cindy Ching Siang and Lin, Patrick Yongxing and Cooper, Simon and Lau, Lydia Siew Tiang and Chua, Wei Ling and Liaw, Sok Ying. Designing and evaluating the effectiveness of a serious game for safe administration of blood transfusion: A randomized controlled trial. Nurse education today 2017; 55(): 38-44.	1:無作為化比較試験	無作為化比較試験(RCT)	・「The serious game was created using a game design platform known as 3DHive by a team comprised of an undergraduate student, a faculty educator, a researcher, and a game developer.」 ・「The game is designed to enable players to go through the process of checking and administering blood to a patient who requires it. The game goal is to enable its players to experience and understand the blood transfusion procedure.」 ・「目的はa serious gameを使った教育プログラムの評価、フォーカスしたのは輸血、対象は看護学生、103人、関連使用ツールはa serious game 、評価は、介入群と非介入群、それぞれpre-testとpost-testも、実施時期は2015年、実施場所はシンガポール(国立シンガポール大学)」		3:安全と間接的に関係するその他の測定可能なアウトカム	・「Knowledge Questionnaire」「Confidence Scale」「Performance Tool. Perception Scale」	・「The post-test knowledge and confidence mean scores of the experimental group improved significantly ($p < 0.001$) after the serious game intervention compared to pre-test mean scores and to post-test mean scores of the control group ($p < 0.001$). However, no significance difference ($p=0.11$) was found between the experimental and control groups on the post-test performance mean scores. The participants evaluated the serious game positively.」 ・「Knowledge Questionnaire」については「After the intervention, there was significant improvement in the pre-test ($M =12.02$, $SD = 2.74$) and post-test ($M =16.46$, $SD = 1.86$) mean scores within the experimental group ($t= -10.73$, $p < 0.001$). No significant difference ($t= -1.05$, $p= 0.30$) between the pre-test ($M = 11.39$, $SD = 2.23$) and post-test ($M =11.76$, $SD =2.26$) mean scores was found within the control group. Between-group comparison using ANCOVA indicated that the experimental group ($M = 16.46$, $SD = 1.86$) had significantly higher post-test mean scores ($F= -11.46$, $p < 0.001$) than the control group ($M = 11.76$, $SD =2.26$).」				[limitations] ・RCTではあるけれど非ゲーム群との比較のみ。シミュレーションなどとの比較も必要 ・テストは時間の制限から直後と2週間後。long-term検証が必要 ・評価ツールが限定されているため評価はknowledge, confidence, performanceのみ。thinking skillは測定されていない。 ・多勢の評価者が関わったことによるバリエーション

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E031	Mira, José Joaquín and Carrillo, Irene and Guilabert, Mercedes and Lorenzo, Susana and Pérez-Pérez, Pastora and Silvestre, Carmen and Ferrús, Lena and Spanish Second Victim Research Team, [Collective Name]. The Second Victim Phenomenon After a Clinical Error: The Design and Evaluation of a Website to Reduce Caregivers' Emotional Responses After a Clinical Error. Journal of medical Internet research 2017; 19(6): e203.	3:対照群のある観察研究	前後比較研究	・「the Mitigating Impact in Second Victims (MISE) online program was based on a literature review, and its contents were selected by a group of 15 experts on patient safety」 ・「The website was structured around two menus: the main menu contained general information on the second victim phenomenon regarding the different actors involved (with sections entitled "Professionals," "Patients and Family," "Health Managers," "Safety Coordinators," and "Insurers"), and a secondary menu with information related to the project and its outcomes, in addition to international studies (sections entitled "Presentation," "Who we Are," "Project Timetable," "Definitions," "News," "Publications of Interest," "Reviews and Comments," and "Project Outcomes").」 ・「 Access to MISE was gained by clicking on the upper right-hand corner on all website pages」 ・「目的はonline教育プログラムの評価、フォーカスしたのはsecond victim、対象は医療職:プログラムの評価は26人の医療安全の専門家による評価、基準に照らしたセルフテスト、実施評価は266人の医療職による評		3:安全と間接的に関係するその他の測定可能なアウトカム	・「Evaluation by National Patient Safety Experts」「Participation and Evaluation of the Activity」「Postmeasures on the Program's Effectiveness: Pre-Post Comparisons」「Knowledge Test Error Analysis」 ・「Evaluation by National Patient Safety Experts」については「Website Certification (External Assessment) として the quality standards of the Andalusian Agency for Healthcare Quality : It was then evaluated externally following the accreditation program for health-related websites of this agencyを活用」 ・「Postmeasures on the Program's Effectiveness: Pre-Post Comparisons」については、knowledge on patient safety terminology (near misses, adverse events, and sentinel events), prevalence and impact of adverse events and errors (first, second, and third victims),	・「Postmeasures on the Program's Effectiveness: Pre-Post Comparisons」については、There was a significant difference in the pre- and postmeasures of the knowledge test of information about basic patient safety concepts, prevalence and nature of adverse events, and second victims (informative package). Out of a maximum of 12, the premeasure mean was 6.9 (SD 2.0) and the postmeasure mean was 8.8 (SD 1.6; t265=-10.0, P<.001). There was also a significant difference in the pre- and postmeasures of the knowledge test of what to do after an adverse event or error (demonstrative package). Out of a maximum of 8, the premeasure mean was 6.3 (SD 1.5) and the postmeasure mean was 7.2 (SD 1.0; t265=-6.2, P<.001). The correct answers on the knowledge tests did not vary between physicians and nurses in all cases (general knowledge test: P=.27; informative test package, MISE: P=.13; and demonstrative test package, MISE: P=.89).」		・「Mitigating Impact in Second Victims is easily accessible to a large number of professionals. It is a low-cost program that can be accessed from work or home with ease.」の記載はあるも具体的な計算はなし	[limitations] ・MISEに参加する医療職は他の医療職に比べて本課題に興味がある可能性があること ・サンプルサイズ ・評価はknowledge testsと self-test に基づいていること ・実際の状況はビデオとは異なるだろうこと ・effect on secondary prevention of posttraumatic stress について評価をしていないこと

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E032	Wang, Carolyn L and Chinnugounder, Sankar and Hippe, Daniel S and Zaidi, Sadaf and O'Malley, Ryan B and Bhargava, Puneet and Bush, William H. Comparative Effectiveness of Hands-on Versus Computer Simulation-Based Training for Contrast Media Reactions and Teamwork Skills. Journal of the American College of Radiology : JACR 2017; 14(1): 103-110.e3.	1:無作為化比較試験	無作為化比較試験 (RCT)	・「Hands-on Training Methods:Each interprofessional team underwent a 2-hour training session at the simulation laboratory, starting with a 3-minute presentation reviewing teamwork skills to be emphasized during the session, followed by four adverse contrast reactions utilizing a high-fidelity manikin (SimMan; Laerdal, Wappingers Falls, NY). A confederate technician also played various roles in each scenario to help facilitate and ensure that the learning points were covered. To replicate a real contrast reaction, participants interacted with the manikin like a real patient and were required to perform any required intervention, including drawing up and administering medications. The manikin displayed physiological and physical changes based on the participants' actions.」 ・「Computer-Based Training Methods: Participants randomized to the computer-based simulation training were given access to a research website, which included the written pre-test, followed by the TeamSTEPPS video and five computer-based		3:安全と間接的に関係するその他の測定可能なアウトカム	・「contrast reaction management (CR)」「teamwork skills (TS)」のそれぞれにテスト	・「HO and CB groups scored similarly on all written tests and each showed provement after training (P = .002 and P = .018, respectively). During the final scenario test, HO teams tended to receive higher grades than CB teams on CR (95% versus 81%, P = .17) and made fewer errors in epinephrine administration (0/6 versus 2/5, P= .18). HO and CB teams scored similarly on TS (51% versus 52%, P= .66), but overall scores were lower for TS than for CR skills in both the HO (P= .03) and CB teams (P= .06). HO training was more highly rated than CB as an effective educational tool (P= .01) and for effectiveness at teaching CR and team communication skills (P= .02). 」		・「However, simulation training is more expensive and time-consuming than standard didactic lecture [15,16]. Insufficient availability, access, cost, lack of training, and lack of time have also prevented widespread adoption in radiology [13,17].」の記載はあるが先行文献からの引用。具体的な計算はなし。	[limitations] ・サンプルサイズ ・テクノロジストのリクルート ・RCTだけれどベースラインの評価ができていない ・バイアスが排除しきれていない

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E033	Johnson, Maree and Kelly, Linda and Siric, Katica and Tran, Duong Thuy and Overs, Bronwyn. Improving falls risk screening and prevention using an e-learning approach. Journal of nursing management 2015; 23(7): 910-9.	3:対照群のある観察研究	前後比較研究	・「the e-learning programme was a 60 minute interactive, online education programme, developed by the Centre for Education and Workforce Development. The content of the programme focused on four key elements of the Falls Policy, including falls risk screening using the STRATIFY, falls prevention strategies, post-fall assessment and management procedures, and documentation and accountability of falls-related clinical issues」 ・「The programme was available on-line for nursing staff in the participating wards between November 2010 and May 2011. The material was distributed to nursing staff by e-mail or by verbal instruction by nurse educators.」 ・「The falls audits were conducted one to three months prior to the introduction of the E-learning programme (pre-test) (June 2010 [hospital 1]; July-October 2010 [hospital 2]) and between 3-5 months after staff completed the education programme (post-test) (June 2011 [hospital 1]; June-July 2011 [hospital 2]). The e-learning programme was	・「Seventy-one nurses (50/63, hospital 1 [79%]; 21/37, hospital 2 [56%]) participated. Most nurses were RNs (55% RNs, 27% ENs, 10% AINs).」 ・監査の対象は119 (pre) and 99 (post) patients,	2:代替アウトカム	・「Patients' health care records」「Falls risk assessment」「Falls risk prevention」「Post-fall management」	・「Interventions such as a falls risk flag in the records/on beds, supervision when the patient is mobilising or in the bathroom, area clear of hazards, use of chair/bed alarms, and referral to allied health staff were significantly improved.」 ・「Falls risk assessment」については、「a falls risk flag in the records (47.9% pre, 63.64% post; v2 = 5.99, P = 0.01), and on beds (4.20% pre, 15.15% post; v2 = 7.78, P < 0.01), supervision when the patient is mobilising (41.0% pre, 74.75% post; v2 = 14.39, P < 0.01) or in the bathroom (31.00% pre, 75.76% post, v2 = 23.98, P < 0.01), area clear of hazards (27.73% pre, 71.72% post, v2 = 41.91, P < 0.01), use of chair/bed alarms (0.00% pre, 4.04% post, v2 = 4.90, P 0.04), and referral to allied health staff (58.82% pre, 81.82% post, v2 = 13.42, P < 0.01)」		・「The programme, at a cost of approximately AU $10000, was inexpensive to develop and deliver and will be made available to nurses across two local health services (11000 nurses) making this a cost effective approach to falls education (<1 dollar per nurse). An exact costing was not undertaken. 」の記載あり	[limitations] ・亜急性期での実施であること ・65歳以上の患者の割合が低いこと ・コントロール群がないこと(行動変容には別の要因がある可能性があること) [参考:論文] ・「the Falls Chart Audit Tool」「the Modified Ontario Stratify Scale」」「the Modified Ontario Stratify Scale (hereafter referred to as the STRATIFY) with Sydney scoring」等を活用している

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E034	Støre-Valen, Jakob and Ryum, Truls and Pedersen, Geir A F and Pripp, Are H and Jose, Paul E and Karterud, Sigmund. Does a web-based feedback training program result in improved reliability in clinicians' ratings of the Global Assessment of Functioning (GAF) Scale? Psychological assessment 2015; 27(3): 865-73.	3:対照群のある観察研究	前後比較研究	・「a Web-based GAF training program designed to improve interrater reliability in routine clinical practice. 」 ・「Clinicians rated up to 20 vignettes online, and received deviation scores as immediate feedback (i.e., own scores compared with expert raters) after each rating.」「Module1～Module6」 ・「The training progam was made available at the public Web site for The Norwegian Network of Personality-Focused Treatment Programs (NNPFTP; Pedersen, 1999). 」 ・「The 19 experts rated all vignettes independently according to the split-version format of the GAF. The experts' GAF ratings were found to be in excellent agreement among themselves, with ICC values of .96 (95% CI [.92, .98] on GAF symptoms, and .95 (95% CI[.91, .98]) on GAF functioning (Pedersen, Hagtvet, & Karterud, 2007). These expert reliability estimates are congruent with previous research, demonstrating that experienced and calibrated raters can rate the GAF reliably (Hilsenroth et al., 2000; Tracy et al., 1997). The average expert rating for	・「Mental health workers from all of Norway use this site. During the years 1999-2006 a total of 1,230 clinicians registered and each of them rated 1-20 of the vignettes. Respondents (N : 230) who submitted a group raring (N : 182), completed less than three ratings, or provided the same numerical rating for all vignettes were excluded from analysis, while the remaining 1,000 were included in the analysis.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Reliability」 ・「After each rated vignette, the participants received feedback in the form of a graphic presentation of his or her scores, displaying the distance between their scores and experts' scores (described below in Materials), expressed in SDs. The participants could quit at any time. If they retumed, the next sequential vignette was shown until all 20 were rated. A graphical presentation of all of their combined scores was available at any time as an evaluation of their own progress。」	・「that training in rating the GAF scale with feedback significantly improved reliability with successive cases for raters: (a) with no or some prior experience with the GAF scale, (b) from other professions than nursing, psychology, or medicine, and (c) with no postgraduate specialization.」 ・「The results support the use of Web-based training with feedback routines as a means to improve the reliability of GAF ratings performed by clinicians in mental health practice. These results especially pertain to clinicians in mental health practice who do not have a masters or doctoral degree.」			[limitations] ・selection bias ・vignettesの提供方法 ・最初にGAF-typeのアセスメントを行う際との差

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E035	Leblanc, Fabien and Delaney, Conor P and Ellis, Clyde N and Neary, Paul C and Champagne, Bradley J and Senagore, Anthony J. Hand-assisted versus straight laparoscopic sigmoid colectomy on a training simulator: what is the difference? A stepwise comparison of hand-assisted versus straight laparoscopic sigmoid colectomy performance on an augmented reality simulator. World journal of surgery 2010; 34(12): 2909-14.	1:無作為化比較試験	無作為化比較試験 (RCT)	・The ProMIS simulator is composed of a real scaled plastic manikin linked to a laptop computer (http://www.haptica.com).」 ・「The study took place during two laparoscopic training courses at two international colorectal surgery meetings in 2009-2010. All 38 surgeons enrolled in the courses agreed to participate in the study. Trainees performed both SL and HAL sigmoid colectomies on an augmented reality simulator (ProMIS 2.5, Haptica, Dublin, Ireland). 」 ・「Both approaches were compared according to simulator-generated metrics, and intraoperative errors were collected by faculty.」 ・「目的はa Training Simulatorを使ったHand-Assisted と Straight Laparoscopic Sigmoid Colectomyの比較、フォーカスしたのはLaparoscopic Sigmoid Colectomy、対象は医師、38人、関連使用ツールはa Training Simulator (AR: ProMIS) 、評価は「hand-assisted laparoscopic (HAL) 」と「straight laparoscopic (SL) 」approaches、実施時期は2009－2010、実施場所はアメリカ」	・「Thirty-eight trainees performed two laparoscopic sigmoid colectomies on an augmented reality simulator, randomly starting by a SL (n = 19) or HAL (n = 19) approach.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「simulator-generated metrics」「intraoperative errors」(were collected by faculty.)	・「Sixty-four percent of surgeons were experienced ([50 procedures) with open colon surgery. Fifty-five percent and 69% of surgeons were inexperienced (＜10 procedures) with SL and HAL colon surgery, respectively. Time (P＜0.001), path length (P＜0.001), and smoothness (P＜0.001) were lower with the HAL approach. Operative times for sigmoid and splenic flexure mobilization and for the colorectal anastomosis were significantly shorter with the HAL approach. Time to control the vascular pedicle was similar between both approaches. Error rates were similar between both approaches. Operative time, path length, and smoothness correlated directly with the error rate for the HAL approach. In contrast, error rate inversely correlated with the operative time for the SL approach. 」 ・「A HAL approach for sigmoid colectomy accelerated colonic mobilization and anastomosis. The difference in correlation between both laparoscopic approaches and error rates suggests the need for different skills to perform the HAL and the SL sigmoid colectomy. These findings may explain the preference of some surgeons for a HAL approach early in the learning of laparoscopic colorectal surgery.」			

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E036	Durham, Marianne L and Egan, AnnMarie and Jankiewicz, Ann and Murphy, Marcia P and Nedved, Patricia and Luvich, Renee and Goh, Ann and Fogg, Louis. Addressing Safe Opioid Monitoring Practices Using an Interprofessional Approach. The Journal of nursing administration 2017; 47(11): 537-544.	3:対照群のある観察研究	前後比較研究	・「Phase 1:Development of the Interprofessional Module」「Phase 2: Module Delivery」「Phase 3: Evaluation and Sustainability」 ・「An interprofessional online module (assigned at the same time as annual mandatory training)」 ・「目的はInterprofessional Module の開発と評価、フォーカスしたのはSafe Opioid Monitoring Practices、対象は医療職、記録については看護職、総勢約3000人に配信、知識の評価については前が411人、後が316人、関連使用ツールはa serious game 、評価は前後のテスト、期間中の記録についてはスコアに関する適切な記載の変化、実施時期は2015年、実施場所はアメリカ」	・「An interprofessional online module (assigned at the same time as annual mandatory training)」として more than 3000 hospital clinicians」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Clinician knowledge:a preimplementation and postimplementation survey using the OKSA」 ・「Clinician practices:chart audits indicating appropriate use of the sedation scales for patients receiving opioids within a month″s period」	・「Opioid knowledge survey responses improved after the interventions. Audits showing improved appropriate documentation by RNs of the correct sedation scale were performed over 2 separate 3-month periods. 」 ・「(Opioid Knowledge Self-assessmentについては)Four hundred eleven clinicians (13%) completed the OKSA before implementation and 316 (10%) after (Table 1). An analysis of the preimplementation and postimplementation data using a likelihood ratio #2 analysis for statistical significance showed improvement in the accuracy of responses to 2 questions about monitoring sedation: question 6 (70.6% to 77.8%, P = .026) and question 7 (50.6% to 59.2%, P = .021). Marginal improvement was noted in responses to the question about sedation as the most important predictor of respiratory depression: question 2 (31.4% to 38%, P = .064). Improvements were found in answers to monitoring and response questions, but were not significant: question 10 (44.3% to 46.8%, P = .493) and question 11 (66.2%to 70.6%, P = .207). A decline in the accuracy of responses to question 5 regarding prescribing and monitoring was noted (82.0% to 78.2%, P = .199).」			[limitations] ・OKSAの結果があかり良くなかった要因 ・一施設の調査(opioid-induced sedation and respiratory depression were organization specific)・ [参考:論文] ・組織的なプロジェクト:The organization commissioned an interprofessional team including nursing, pharmacy, respiratory therapy, medicine, and information systems with a goal of improving opioid safety and care. For the prior year, naloxone use was audited without clear trends emerging regarding cause or practice setting for ADEs. Using the organization″s PI methodology, reviews of opioid processes, policies, and gaps in practice were conducted to identify and understand the problem using a standardized approach (Supplemental Digital Content 1, Process ImprovementMethodol

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E037	Frush, Karen and Hohenhaus, Susan and Luo, Xuemei and Gerardi, Michael and Wiebe, Robert A. Evaluation of a Web-based education program on reducing medication dosing error: a multicenter, randomized controlled trial. Pediatric emergency care 2006; 22(1): 62-70.	1:無作為化比較試験	無作為化比較試験(RCT)	・「The Broselow Pediatric Resuscitation Tape を正しく使うためのonlineトレーニング」 ・「目的はThe Broselow Pediatric Resuscitation Tape を正しく使うためのonlineトレーニングの評価、フォーカスしたのは薬剤、対象は医師、看護師、paramedics、89人、関連使用ツールはThe Broselow Pediatric Resuscitation Tape を正しく使うためのonlineトレーニング、評価は、教育を受けた群とコントロール群、それぞれ前後も実施時期については明確な記載なし2006年？実施場所はアメリカ」」	・「(3か所の医療関連機関の)医師、看護師、paramedics」89人(主に医師)	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Use of the Broselow Emergency Resuscitation Tape」「Comparison of Dosing Deviation」「Comparison of Dosing Time」	・「After the educational intervention the average (l2.6% vs. 24.9%) and median (7.1% vs. 20.1%) deviation summary were much lower in the education group than in control group. The difference in the median dosing deviation between the 2 groups was statistically significant (P=0.0002). Similar results were observed for the dosing time. The education group onstrated a lower average (16 vs. 20 seconds) and lower median (15 vs.18 seconds) dosing time summary than the control group. The differences in the median dosing time summary between the 2 groups was statistically significant (P= 0.02). Analysis of each medication prescribe indicated that the decrease in the dosing deviation and dosing time education group was most obvious for several specific medications.」			[limitations] ・実際の現場とは異なること ・シミュレーションを動かす研究者がブラインドになっていないこと ・独りが決めるのに要する時間を測定しているだけで、コミュニケーションやチームワークについては検討できていないこと ・multi tasking について検討できていないこと [参考:論文] ・「The Broselow Pediatric Resuscitation Tape has been shown to be effective in reducing medication dosing error in simulated pediatric emergency stabilization scenarios. This tape, developed Drs Broselow and Luten, assigns children to color zones based on a single length or weight measurement and enables access to appropriate precalculated medication dosing and formulations and predetermined equipment size necessary in the emergency setting. The tape has been

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E038	Degnan, B A and Murray, L J and Dunling, C P and Whittlestone, K D and Standley, T D A and Gupta, A K and Wheeler, D W. The effect of additional teaching on medical students' drug administration skills in a simulated emergency scenario. Anaesthesia 2006; 61(12): 1155-60.	1:無作為化比較試験	無作為化比較試験 (RCT)	・「15-min session in a high fidelity patient simulator (Human Patient Simulator, METI, Sarasota, FL). The teaching module is hosted by our university's clinical and biomedical computing unit and can be viewed at http://erweb.medschl.cam.ac.uk/erweb/drugdosage/index.asp?UserID=STGUE1 [8]. It consists of an interactive tutorial with 12 multiple choice questions and three case studies together with explanatory notes covering pharmacokinetics, adverse drug reactions and calculation of drug doses. Although the teaching module did not include the exact drug doses relevant to the scenario, it taught the generic skills required to convert ratios and percentages to mass concentration.」 ・「The candidate was given the role of a recently qualified hospital doctor working in the emergency medical admissions unit. A senior nurse, played by one of the investigators (LJM or TDAS) was available to assist them.」「At the end of the scenario, candidates underwent a 5-min debriefing.」 ・「目的はonlineのa simulated emergency scenario を使った教育プログラムの評価、フォーカスし	・「Forty-eight final year medical students were invited to participate; 44 (92%) attended but only nine of the 20 students (45%) directed to the extra teaching viewed it」.	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Ability of medical students to prescribe lidocaine under simulated conditions」「Administration of adrenaline by medical students under simulated conditions」「Influence of the teaching module on students' ability to calculate drug doses」 ・「a simulated critical incident scenario, during which they were scored on their ability to administer drugs in solution presented as a ratio (adrenaline) or percentage (lidocaine).」	・「Nevertheless, the teaching module significantly improved the students' ability to calculate the correct volume of lidocaine (p = 0.005) and adrenaline (p = 0.0002), and benefited each student's overall performance (p = 0.0007). Drug administration error is a very major problem and few interventions are known to be effective. We show that focusing on better teaching at medical school may benefit patient safety.」	・「High fidelity patient simulators are not widely available, and are expensive to establish and run [10]. Providing simulated scenarios for 44 medical students required a substantial commitment of time and personnel - the latter reflected in the author list of this research paper. These constraints mean that in our institution - and we suspect most others - it is not possible to offer regular simulator teaching sessions to clinical medical students. Instead, we should perhaps examine whether modern medical school curricula expose today's students to fewer practical procedures and medical emergencies than their predecessors, and address the causes.」の記載あり。		

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E040	Leonard, Michael S and Cimino, Michael and Shaha, Steven and McDougal, Sandra and Pilliod, Joanne and Brodsky, Linda. Risk reduction for adverse drug events through sequential implementation of patient safety initiatives in a children's hospital. Pediatrics 2006; 118(4): e1124-9.	3:対照群のある観察研究	前後比較研究	・「patient safety initiatives over a 1-year time frame at a pediatric tertiary care academic facility. The initiatives included an educational Web site with competency examination, distribution of a personal digital assistant-based standardized dosing reference, a zero-tolerance policy for incomplete or incorrect medication orders, prescriber performance feedback, and presentation of outcome data at citywide grand rounds.」 ・「それぞれを段階的に実施(2003年6月(学期末:ハウススタッフのベスト:これをベースラインにして)、2003年7月(新しいハウススタッフ)から2004年6月(新しいハウススタッフ)まで一年をかけたプロジェクト) ・「目的はPatient Safety Initiatives の評価、フォーカスしたのは薬剤(処方エラー、対象はhouse staff、期間中の処方データは8718件、関連使用ツールはweb-site、評価は期間中のpADEの発生率、それぞれ前後、実施時期は2003～2004年、実施場所はアメリカ(NY))		2:代替アウトカム	・「A relational database, referred to as Safe Prescriber Order Tracking (SPOT CHECKS), was designed to track order completeness and correctness. Data entry was performed by a registered nurse stationed within the inpatient pharmacy and supervised by a clinical pharmacist. Thirty-eight variables were assessed and evaluated per order reflecting both the cognitive aspects (ie, correctness) and the mechanics (ie, completeness). Questions regarding evaluation of an order were referred to a registered pharmacist.」	・「The absolute risk reduction from prescribing errors was 38 per 100 orders, with a relative risk reduction of 49%. Web-based education with point-of-care drug references and a zero-tolerance policy for incomplete or incorrect orders were most effective in decreasing potential adverse drug events. Documentation of appropriate weight-based dosing and indication for therapy increased by 24% and 42%, respectively.」 ・「Statistically significant reductions in pADEs were seen after 2 initiatives. First, a reduction in pADEs of 7.1% was documented versus the previous measurement period after hospital-wide clinical staff education and distribution of the PDA-based drug reference (t= 6.296; P= .001). Second, a dramatic reduction of 37.7% in pADEs was documented versus the previous measurement period after implementation of the zero-tolerance policy (t= 30.753; P= .001). A statistically significant increase was seen after the June 2004 new housestaff orientation. The absolute risk reduction achieved over the course of the study from June 2003 to June 2004 was 38 per 100 orders written (t= 25.735; P= .001). This yielded an overall relative risk reduction from prescribing errors of 49% (P= .001). The absolute risk reduction achieved comparing pADE rates at the start of each academic year (July 2003 versus June 2004) was 40 per 100 orders with a relative risk reduction of 50% (t = 25.991; P = .001).」			[limitations] ・評価バイアス(全部を一人で評価)

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E041	Kow, A W C and Ang, B L S and Chong, C S and Tan, W B and Menon, K R. Innovative Patient Safety Curriculum Using iPAD Game (PASSED) Improved Patient Safety Concepts in Undergraduate Medical Students. World journal of surgery 2016; 40(11): 2571-2580.	3:対照群のある観察研究	前後比較研究	・「A new innovation using mobile apps gaming system (PAtient Safety in Surgical EDucation—PASSED) to teach medical students on patient safety was created. Students were taught concepts of patient safety followed by a gaming session using iPad games created by us. This study aims to evaluate the outcome of patient safety perception using the PASSED games created.」 ・「An interactive iPad game focusing on patient safety issues was created by the undergraduate education team in the Department of Surgery, Yong Loo Lin School of Medicine at the National University of Singapore. The game employed the unique touched-screen feature with clinical scenarios extracted from the hospital sentinel events. Some of the questions were time sensitive, with extra bonus marks awarded if the student provided the correct answer within 10 s. Students could reattempt the questions if the initial answer was wrong. However, this entailed demerit points. Third-year medical students posted to the Department of Surgery experienced this gaming system in a cohort of 55-60 students. Baseline	・「total of 221」「3rd year medical students responded to the survey during the PASSED session.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「the Attitudes to Patient Safety Questionnaire III (APSQ-III) was performed to assess the perception of patient safety among the students [5]. The nine key factors that were assessed in the APSQIII included (a) patient training received (items 1-3); (b) error reporting confidence (items 4-6); (c) working hours as an error cause (items 7-9); (d) error inevitability (items 10-12); (e) professional incompetence as an error cause (items 13-16); (f) disclosure responsibility (items 17-19); (g) team functioning (items 20-21); (h) patient involvement in reducing error (items 22-23); and (i) importance of patient safety in the curriculum (items 24-26). Responses to each item were rated on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). 」	・「Majority of the students felt that the PASSED game had trained them to understand the processes of medical error ($p < 0.001$), that their understanding on patient safety issues improved ($p = 0.007$), and the training prepared them to prevent medical errors ($p < 0.001$). Many students also recognized the importance of error reporting, where they felt comfortable reporting errors committed by themselves (p¥0.001) or by other people ($p < 0.001$). They also felt comfortable discussing with the supervisor on medical errors ($p < 0.001$). Students responded that better teamwork will reduce medical errors ($p = 0.003$), and teaching teamwork skills will reduce medical errors ($p = 0.002$). After the PASSED session, students felt that patients could play an important role in preventing medical errors ($p < 0.001$). They felt that patient safety should be emphasized in undergraduate training ($p = 0.024$). The level of understanding about concepts of patient safety was also found to improve progressively from the 2nd posting to the 5th posting for both the pre-PASSED and post-PASSED intervention. The pre-PASSED scores for Posting 2 (3.59 ± 1.931), Posting 3 (4.11 ± 1.833), Posting 4 (4.84 ± 1.653), and Posting 5 (4.88 ± 1.642) were significantly higher than the post-PASSED scores for Posting 2 (4.46 ± 2.020), Posting 3 (5.17 ± 1.845), Posting 4 (5.88 ± 1.843), and Posting 5 (5.80 ± 1.843), respectively ($p < 0.001$).)			［参考:論文］ ・正解だとボーナス得点 ［参考:査読者メモ］ ・the Attitudes to Patient Safety Questionnaire III (APSQ-III)の活用 ・「the WHO Patient Safety Guidelines」を参考に作成 ・「Long work hour has always been cited as a cause of error in medical practice. Indeed, in the USA, the famous Libby Zion's Law was implemented after the New York State court ruled that the death of Libby Zion was a direct result of overworked resident physicians and intern physicians. In July 2003, the Accreditation Council for Graduate Medical Education (ACGME) adopted the 80-hour work week regulation for all accredited medical training institutions in the United States [10]. While long working hour was perceived by medical students from Singapore and Hong Kong as the major cause of medical error in an earlier study

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E042	Dankbaar, Mary E W and Roozeboom, Maartje Bakhuys and Oprins, Esther A P B and Rutten, Frans and van Merrienboer, Jeroen J G and van Saase, Jan L C M and Schuit, Stephanie C E. Preparing Residents Effectively in Emergency Skills Training With a Serious Game. Simulation in healthcare : journal of the Society for Simulation in Healthcare 2017; 12(1): 43359.	1:無作為化比較試験	非無作為化比較試験	・「As a preparation for instructor-led emergency skills training, we have developed a serious game (abcdeSIM), in which medical residents can stabilize patients in a virtual emergency department.」 ・「A residents from the December training group were treated as the control (reading) group and received (only) the course manual 6 weeks before the 2-week classroom training. Residents from the next March and September groups were treated as the intervention (reading and game) group and in addition received an account for the abcdeSIM game 6 weeks before training.」 ・「目的はa serious gameを使った教育プログラムの評価、フォーカスしたのはEmergency Skills Training、対象は2年目のレジデント、関連使用ツールはa serious game 、評価は「 ″reading″ group received a course manual before classroom trainingと「reading and game」、それぞれpreとpostも、実施施時期は明確な記載なし2017年？、実施場所はオランダ」	・「second-year family-practice residents :159 (76%) consented to participate in the study, 52 in the reading and 107 in the game and reading group.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「emergency care skills」「motivation」	・「1 groups had comparable important characteristics (eg, experience with acute care). Before training, the reading and game group felt motivated to play the game and spent more self-study time (+2.5 hours) than the reading group. Game-playing residents showed higher scores on objectively measured and self-assessed clinical competencies but equal scores on the global performance scale and were equally motivated for training, compared with the reading group. After the 2-week training, no differences between groups existed.」 ・(Assessment Results Emergency Care Skills)については、「Reliability of the scales (Cronbach α) was 0.92 for the 6-item clinical competency scale and 0.81 for the 3-item communication competency scale. Before training (after the game), the reading and game group performed better on clinical competency skills (P = 0.03, Table 3) with a medium-large effect size (Glass's d = 0.62) than the reading group. Improvements occurred particularly in the items on initial assessment (d = 0.82), treatment (d = 0.72), and requests for additional diagnostics (d = 0.50). The reading and game group also showed less variability in competency levels (more homogeneity, measured as smaller standard deviation scores; P = 0.02). There were no differences in communication competency skills or on global performance scores between groups before training. There was an association between assessment scores on the global performance scale with the clinical competencies scale (r = 0.74, P < 0.001) and with the communication competencies scale (r = 0.42, P = 0.006). At the end of the 2-week training, scores on the competency and global performance scales were		・「Once simulation games have been developed, they can be used for skills training for large numbers of trainees, with no extra costs for instructors or simulated patients, in contrast to simulation centers. 」「This would make the blended training design more cost-effective because online games are scalable to large numbers of health care professionals without extra costs (in contrast to simulation centers).」等の記載があるが具体的な計算はなし。	[limitations] ・ランダム化ではないこと ・サンプルサイズが小さいこと ・自己評価であること ・一つのシナリオでの評価であること等、 [参考:論文] ・「All family-practice residents in The Netherlands are required to do a 6-month traineeship in an emergency department of a hospital; before the start, residents must complete a 2-week general emergency care course. After passing this course, they are allowed to start their traineeship under the supervision of certified attending physicians.」とのこと [参考:査読者メモ] ・4年次医学生で同様の調査済。今回はレジデントで。「In a previous study of fourth-year medical students, we found that abcdeSIM and text-based cases were no better than an e-module (used by the control group) at improving their cognitive emergency care skills」「In the current study, we will

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E043	Agarwal, Amit and Marks, Nancy and Wessel, Valerie and Willis, Denise and Bai, Shasha and Tang, Xinyu and Ward, Wendy L and Schellhase, Dennis E and Carroll, John L. Improving knowledge, technical skills, and confidence among pediatric health care providers in the management of chronic tracheostomy using a simulation model. Pediatric pulmonology 2016; 51(7): 696-704.	3:対照群のある観察研究	前後比較研究	「The study was done in two phases: a pilot survey followed by a simulation-based training course 」 ・「The study intervention was a 2-hr simulation-based course which included a 60-min didactic session with slides to review the indications and contraindications of a tracheostomy, basic tracheostomy-related airway anatomy, different types of tracheotomy tubes and parts, speaking valve physiology, and management of tracheostomy complications and emergencies.」 ・「目的はsimulation-based courseの評価、フォーカスしたのはthe Management of Chronic Tracheostomy、対象は関連医療職（pediatrics、med-peds residents、fellows 、hospitalist faculty physicians, and APRNs）、合計32人、関連使用ツールはa Simulation Model, 評価はKnowledge, Technical Skills, and Confidence, 前後、最後にコースの評価も。実施時期は2013－2014年　実施場所はアメリカ」	・「Thirty-three subjects enrolled in the educational course」「including 22 (66%) pediatrics and med-peds residents, 3 (9%) fellows (two pediatric pulmonary and one critical care), 6 (18%) hospitalist faculty physicians, and 2 (6%) APRNs」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Knowledge」「Technical Skills」「Confidence」「Course Evaluation」 ・「self-assessment questionnaires」「objective multiple-choice tests」	・「Before the education and simulation, the subjects' comfort and confidence levels on a five-point Likert scale in performing routine tracheostomy tube care, routine tracheostomy tube change, and an emergency tracheostomy tube change were as follows (median (Q1, Q3)): 1 (1, 2), 1 (1, 2), and 1 (1, 2), respectively (n.28). The levels of comfort and confidence after completing the course improved significantly to 4 (4, 5), 4 (4, 5), 4 (4, 5), respectively (P<0.001) (n.20). For the knowledge assessment, the pre-course test mean score was 0.53_0.50, and the scores on the post-course test improved significantly with a mean score of 0.82_0.39 (P<0.001). During the educational intervention, specific deficiencies observed included a lack of understanding or familiarity with different types of tracheostomy tubes (e.g., cuffed versus uncuffed), physiological significance of the cuff, mechanism of action and physiological significance of the speaking valve, and the importance of the obturator in changing the tracheostomy tube」			[limitations] ・サンプルサイズ ・もともとレジデント用を他の職種にも展開したもの、職種間比較はできていない ・一部に問題のある結果が示されたが:「Closer evaluation indicated that learners confused the use of sterile water to inflate the tracheostomy cuff with the use of saline during suctioning. This observation shows the importance of ongoing course evaluation and feedback from learners and educators. This point will receive greater emphasis during future educational interventions」 ・臨床の評価をしているわけではない [参考:論文] ・「The Accreditation Council of Graduate Medical Education (ACGME) program requirements for pediatric residency education outline the need for training to include the Medical Home model of care with a focus on the long-term management of children with special

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E044	Wallace, L M and Spurgeon, P and Adams, S and Earll, L and Bayley, J. Survey evaluation of the National Patient Safety Agency's Root Cause Analysis training programme in England and Wales: knowledge, beliefs and reported practices. Quality & safety in health care 2009; 18(4): 288-91.	3:対照群のある観察研究	前後比較研究	・「The NPSA developed a 3-day RCA training programme delivered by pairs of the 34 Patient Safety Managers (PSMs) employed by the NPSA to work with local health boards in Wales and SHAs and their geographically associated NHS trusts in England. There are also internet-based self-study tools and materials to assist with the teaching of RCA and conduct of RCAsThe National Patient Safety Agency (NPSA) in England and Wales commissioned a survey evaluation of its national training programme which consisted of 3-day workshops and internet support materials.」 ・「The NPSA trained over 7000 staff in 2 years, offering at least eight fully funded places to each of the 607 trusts in England and Wales. The Department of Health's Patient Safety Research Programme commissioned an evaluation of the National Patient Safety Agencies' (NPSA) national programme known as the Networked RCA training over a 9-month period from January to September 2005.」 ・「目的はthe National Patient Safety Agency's Root Cause Analysis training programmeの評	・「Anonymous survey of 374 health professionals immediately after they attended the programme (T1), and a further 350 participants 6 months after the programme (T 2), who had attended courses in England and Wales in 2005.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Knowledge outcomes from RCA training」「Beliefs about RCA, training others in RCA and personal motivation to conduct RCA」「Personal beliefs about RCA practice」	・「T1 knowledge tests showed a greater understanding of the frameworks and techniques of RCA but with less accuracy in application to scenarios. Personal beliefs about conducting RCAs were consistently positive at both times, but many participants experienced personal barriers to conducting RCA in their current role and trust context, and some felt low confidence in undertaking cascade training of other staff in their trust. There was also low confidence in implementing RCA as standard practice at both times. At T2, 76.7% were confident the outcomes from their RCA had been implemented, but only 12.1% were aware if improvements had been shared outside the local organisation. Barriers to RCA at both times most often concerned time and resources to apply RCA. At T1, there was particular concern for personal development, at T2 greater concern for organizational impediments.」 ・「The RCA programme enhanced knowledge of RCA, and participants valued the programme, but further personal development and organisational support are required to achieve continued improvement in practice and sustained organisational learning.」			［参考:査読者メモ］ ・「Ranked frequency of most often endorsed barriers to Root Cause Analysis (RCA) at time 1 and time 2」の記載あり。「Lack of time to do RCA properly 1/3」「No time for staff to attend the in-Trust cascade RCA training 2/8」「Difficulty in getting people to agree to undertake the role of lead for each RCA 3/12」「Conflict between improving patient safety by RCA and meeting performance targets 4/13」「Staff will (not) have time to do RCA properly 5/1」とT1とT2で順位が入れ替わる

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E045	Simonsen, Bjoerg O and Daehlin, Gro K and Johansson, Inger and Farup, Per G. Improvement of drug dose calculations by classroom teaching or e-learning: a randomised controlled trial in nurses. BMJ open 2014; 4(10): e006025.	1:無作為化比較試験	無作為化比較試験(RCT)	・「One group was assigned to a self-directed, interactive internet-based e-learning course developed at a Norwegian university college. The other was assigned to a 1-day conventional classroom course and a 1-day self-study. 」 ・「目的は「classroom teaching」と「 e-learning」の評価、フォーカスしたのは薬剤の計算、対象は看護師、212人、関連使用ツールはonline、評価は計算のテスト、「classroom teaching」と「 e-learning」のぞれぞれで前後、最後に質問票も。実施時期は2007－2009年、実施場所はノルウェー」	・「nurses from hospitals and primary healthcare: 最終的に212人」「Registered nurses working in two hospitals and three municipalities in Eastern Norway were recruited to participate in the study.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Drug dose calculation test and certainty in calculations」「Risk of error」「Course evaluation」	・「The number of correct answers after e-learning was 11.6 (2.0) and after classroom teaching 11.9 (2.0) (p=0.18, NS); improvement were 0.5 (1.6) and 0.9 (2.2), respectively (p=0.07, NS). Classroom learning was significantly superior to e-learning among participants with a pretest score below 9. In support of e-learning was evaluation of specific value for the working situation. There was no difference in risk of error between groups after the course (p=0.77).」			[limitations] ・看護職を代表するだけのサンプルではないこと ・教育コースのクオリティ(ただし本研究は二つの方法の比較。同じメンバーが両方の教育の機会に関与することで担保) ・テストの実施環境(時間に追われておらず中断もない環境)が実際の環境と異なるのでテストの成績がいい成績になっている可能性 ・GHQ30の使い方 [参考:論文] ・「the General Health Questionnaire (GHQ 30).」や「The nurses performed a multiple choice (MCQ) test in drug dose calculations.」の活用に関する記載あり。

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E046	Omaki, Elise and Rizzutti, Nicholas and Shields, Wendy and Zhu, Jeffrey and McDonald, Eileen and Stevens, Martha W and Gielen, Andrea. A systematic review of technology-based interventions for unintentional injury prevention education and behaviour change. Injury prevention : journal of the International Society for Child and Adolescent Injury Prevention 2017; 23(2): 138-146.	1A:システマティックレビューまたはメタアナリシス	システマティックレビュー	・「Studies included in this systematic review were education and behaviour change intervention trials and programme evaluations in which the intervention was delivered by either a computer or mobile technology and addressed an unintentional injury prevention topic. Articles were limited to those published in English and after 1990.」	・「The search was conducted in six databases: Pubmed, Psychinfo, Cochrane, EMBASE, SCOPUS and Academic Search Complete. An initial search was conducted in February 2014. A weekly email alert was created to notify the research team if there were any newly published articles that matched their search query through March 2015. Review articles and the reference lists of included articles were examined for additional articles.」 ・「Based on a review of titles, we reviewed 190 abstracts, and 99 full-text manuscripts were downloaded for review. Of these, 50 articles representing 44 studies met the inclusion criteria (see figure 1). Although our search included articles published since 1990, all eligible studies were published in 2002 or later. A total of 17 articles representing 16 studies were identified that delivered an intervention via locally hosted software, 6 articles described four kiosk-based programmes, 11 studies	3:安全と間接的に関係するその他の測定可能なアウトカム	・Studies organised by target populationにおいては: ・一覧表の項目は「Technology」「Target population」「Injury topic」「Knowledge Impact」「Behaviour impact」 ・大きく「children」「parents」「professional caring for adults and children」 ・Assessment of methodological quality and risk of biasにおいては: ・一覧表の項目は「Reporting 」「Internal validity」「External validity」「 Power 」「Total score」 ・大きく「Locally hosted software programmes」「Kiosk-based programmes」「Remotely hosted internet programmes」「Programmes using mobile technology or portable device」「Virtual-reality environments」	・「Among the 44 technology-based injuryprevention studies included in this review, 16 studies evaluated locally hosted software programmes, 4 studies offered kiosk-based programmes, 11 evaluated remotely hosted internet programmes, 2 studies used mobile technology or portable devices and 11 studies evaluated virtual-reality interventions. Locally hosted software programmes and remotely hosted internet programmes consistently increased knowledge and behaviours. Kiosk programmes showed evidence of modest knowledge and behaviour gains. Both programmes using mobile technology improved behaviours. Virtual-reality programmes consistently improved behaviours, but there were little gains in knowledge. No studies evaluated text-messaging programmes dedicated to injury prevention.」			［limitations］ ・関連論文が入っていない可能性があること ・レビューで落としてしまっている可能性があること ・英語の文献のみであること ［参考:論文］ ・「We could find only one programme evaluating a smartphone app for injury prevention in the literature.70 There are a number of apps that supply tools and information for injury prevention, and while some are produced by reputable groups such as the American Academy Pediatrics (Car Seat Check),」等、スマートフォンやアプリに関する記載あり。 ［参考:査読者メモ］ ［報告書用メモ］ ・検索用語についての検討が必要？「Search terms included: intervention or evaluation, injury prevention, safety, safety behaviour, accident prevention, bite, sting, cut, fall, burn, overexertion, poisoning, suffocate, motor vehicle, cyclist, bicycle, pedestrian,

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E047	Barsuk, Jeffrey H and Cohen, Elaine R and Mikolajczak, Anessa and Seburn, Stephanie and Slade, Maureen and Wayne, Diane B. Simulation-Based Mastery Learning Improves Central Line Maintenance Skills of ICU Nurses. The Journal of nursing administration 2015; 45(10): 511-7.	3:対照群のある観察研究	前後比較研究	・「a simulation-based mastery learning (SBML) curriculumThe intervention included 5 tasks: (a) medication administration, (b) injection cap (needleless connector) changes, (c) tubing changes, (d) blood drawing, and (e) dressing changes. All participants underwent a pretest, engaged in deliberate practice with directed feedback, and completed a posttest. We compared pretest and posttest scores and assessed correlations between demographics, self-confidence, and pretest performance.」 ・「目的はSimulation-Based Mastery Learningの評価、フォーカスしたのはCentral Line Maintenance Skills、対象はICU Nurses、49人、関連使用ツールはSimulation-Based Mastery Learning 、評価は「conventional training (Group 1)」と「VR training (Group 2) 」、実施時期は明確な記載なし2015年？　実施場所はアメリカ」	・「The number of nurses passing each task at pretest varied from 24 of 49 (49%) for dressing changes to 44 of 49 (90%) for tubing changes」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「All participants underwent a pretest, engaged in deliberate practice with directed feedback, and completed a posttest. We compared pretest and posttest scores and assessed correlations between demographics, self-confidence, and pretest performance.」 ・「The checklist was developed by 8 ICU nurse educators using a modified Delphi technique, step-by-step guidelines, and dichotomized scoring (each step erformed correctly or incorrectly): 「Medication administration 13問」「Injection cap change 13問」「Tubing change 7 問」「Blood draw 23問」「Dressing change 16問」」	・「At pretest, scores ranged from a median of 0.0% to 73.1%. At posttest, all scores rose to a median of 100.0%. Total years in nursing and ICU nursing had significant, negative correlations with medication administration pretest performance (r = j0.42, P = .003; r = j0.42, P = .003, respectively).」 ・「 ICU nurses displayed large variability in their ability to perform central line maintenance tasks. After SBML, there was significant improvement, and all nurses reached a predetermined level of competency.」			[limitations] ・一施設、サンプルサイズ ・同じモデルを使っているのでpost scoreが高くなっている可能性 ・CLABSIの減少につながっているかを測定していない [参考:論文] ・「Study participants were assessed using Simulab's CentraLineMan Seattle,Washington) and Gaumard's Peter PICC (Waco, Texas).」

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E048	Sullivan, Mary M and O'Brien, Colette R and Gitelman, Stephen E and Shapiro, Susan E and Rushakoff, Robert J. Impact of an interactive online nursing educational module on insulin errors in hospitalized pediatric patients. Diabetes care 2010; 33(8): 1744-6.	3:対照群のある観察研究	前後比較研究	・「mandatory online educational module teaching insulin pharmacokinetics and the insulin order form, using diluted insulin and finishing with 15 interactive cases.」 ・「A chart audit to determine all possible insulin errors of patients receiving insulin was done before and 2-6 months after the educational module.」 ・「目的はan Interactive Online Nursing Educational Moduleの評価、フォーカスしたのはインシュリン、対象は小児科の看護師、前24人、後22人、関連使用ツールはonline、評価はエラーの発生率をチャートレビューで評価、前後、実施時期は2006－2008年、実施場所はアメリカ」	・「Pediatric nursing staff (前24人、後22人)	2:代替アウトカム	・「the number of possible and actual insulin-related medication errors.」 ・「Using a comprehensive audit tool created by the research team, retrospective chart audits were conducted for a period of 6 months before implementing the module and 2-6 months postimplementation」	・「All of the medical center's 283 pediatric nurses successfully completed the educational module. A total of 24 charts were audited in the preintervention phase and 22 in the postintervention phase. The preintervention insulin error rate was 14.8%, reduced to 1.7% (P＜0.001) postintervention. Improvement occurred in correct insulin dosing and type, timing of administration, and timely blood glucose monitoring and documentation.」			[limitations] ・一施設の調査であること ・評価者バイアスの可能性があること ・チャートレビューの対象である看護記録が適切に記載されていない可能性があること

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E049	Franklin, B D and O'Grady, K and Parr, J and Walton, I. Using the internet to deliver education on drug safety. Quality & safety in health care 2006; 15(5): 329-33.	3:対照群のある観察研究	前後比較研究	・「an internet-based educational package on drug safety, 」 ・「We initially developed 11 modules (table 1) on the subject of drug safety for delivery using this software, aimed at nursing and pharmacy staff in secondary care. Each took about 30 min to complete 」 ・(11 modules):「Medication safety—why is it important?」「Using the drug chart 」「Drug omissions」「One-stop dispensing」「 Medication and blood transfusion incident reporting」「Drug calculations 」「Blood」「Warfarin 」「Vancomycin and gentamicin」「Infusion pumps」「 Teamwork and systems」 ・「目的は教育プログラムの評価、フォーカスしたのは薬剤MAE、対象はロンドンのチーチングホスピタルの一病棟の看護師、19人、関連使用ツールはインターネット、評価はエラーの発生率、前後、質問票による評価もあり、実施時期は2004年、実施場所はイギリス」	・「The 19 nurses who administered drugs on the study ward all agreed to participate. Of these, 12 (63%) nurses completed all 11 modules.」	2:代替アウトカム	・「medication administration error identified」「Staff views」	・「Pre-education, 82 (6.9%) errors were identified in 1188 opportunities for error. Afterwards, 66 (5.0%) errors were identified in 1397 opportunities for error (95% confidence interval (CI) for the difference 23.8% to 0%). The MAE rate for non-intravenous drugs was 6.1% pre-education and 4.1% afterwards (95% CI for the difference 23.8% to 20.2%). Most errors with regard to intravenous doses were due to fast administration of bolus injections」			[limitations] ・コントロールがないこと ・(時間がかかる方法であることもあり)一病棟の観察であること ・評価にかける時間が同じではないこと ・エラーの深刻さ(患者に与える影響)まで評価できていないこと

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E050	DeVita, M A and Schaefer, J and Lutz, J and Wang, H and Dongilli, T. Improving medical emergency team (MET) performance using a novel curriculum and a computerized human patient simulator. Quality & safety in health care 2005; 14(5): 326-31.	3:対照群のある観察研究	前後比較研究	・「Each course had four components: (1) a web based presentation and pretest before the course; (2) a brief reinforcing didactic session on the day of the course; (3) three of five different simulated scenarios; each followed by (4) debriefing and analysis with the team. Three of five simulator scenarios were used; scenario selection and order was random. Trainees did not repeat any scenario or role during the training. Participants were video recorded to assist debriefing. Debriefing focused on reinforcing organizational aspects of team performance: assuming designated roles independently, completing goals (tasks) assigned to each role, and directed communication.」 ・「目的はmedical emergency team (MET) performance に関するカリキュラムの評価、フォーカスしたのはmedical emergency team (MET) performance、対象は医師、看護師、呼吸管理士、138人、関連使用ツールはシミュレーション、評価はテスト、前後、実施時期は2002-2003年、実施場所はアメリカ」	・「138 clinically experienced individuals were trained (69 critical care nurses, 48 physicians, and 21 respiratory therapists). All participants were ACLS trained and experienced in responding to cardiac arrest situations.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「The primary outcome in this study was successful crisis management resulting in mannequin ‘‘survival’’」「secondary outcomes were completion of organizational and patient care tasks.」 ・「Crisis management goals」「Organization goals Scenario outcomes:(1) ‘‘survived’’; (2) ‘‘survival’’;(3) ‘‘died’’」「Process measures of performance:The secondary outcome was the crisis task completion rate (TCR). By consensus of the course authors, a set of 29 tasks was defined for each scenario in each of three domains」「Debriefing sessions」	・「Simulated survival (following predetermined criteria for death) increased from 0% to 89%. The initial team task completion rate was 10-45% and rose to 80-95% during the third session」 ・「Overall simulator ‘‘survival’’ improved from 0% to 90%across the three sessions in a day’s course. This difference was statistically significant (Cochran’s Q=12.6, p=0.002). Post hoc analysis showed that most of the improvement in survival was observed between the first and second sessions (p=0.014) rather than between the second and third sessions (p=0.180).」 ・「The mean TCR improved overall from 31% to 89%, and each simulator role improved from 10-45% during the first session to 80-95% during the third session (fig 1). The improvement in overall TCR was statistically significant (Kendall’s W=0.91, p,0.001). Post hoc analyses revealed improvement of overall TCR between both the first and second sessions (p=0.002) and between the second and third sessions (p=0.011). In addition, with training the TCR appeared to improve for each role」			[limitations] ・コントロールがない ・評価方法(なお本研究では客観的な評価を実施) ・現場での成果測定 [参考:査読者メモ] ・大規模施設での実施「The University of Pittsburgh Medical Center (UPMC) Winter Institute for Simulation Education and Research (WISER) is a medical education center equipped with 12 full body Laerdal SimMan simulators as well as many partial task trainers (described below).」
E051	Gantt, Laura T and Webb-Corbett, Robin. Using simulation to teach patient safety behaviors in undergraduate nursing education. The Journal of nursing education 2010; 49(1): 48-51.	3:対照群のある観察研究	前後比較研究	・「Simulation: five critical thinking scenarios for use in evaluating graduating senior nursing student competency :「blood administration」「tracheostomy」「suctioning」「intravenous therapy」 ・「目的はsimulationの評価、フォーカスしたのは安全行動、対象は看護学生、関連使用シミュレーション(SimMan)、評価はチェックリスト、前後、2006年(84)、2007年(110)、実施時期は2006年、2007年、実施場所はアメリカ」	・看護学生(2006年(84)、2007年(110))	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Simulation: five critical thinking scenarios for use in evaluating graduating senior nursing student competency :「blood administration」「tracheostomy」「suctioning」「intravenous therapy」に関するチェックリスト	・「In the first semester in which data were collected, students did not demonstrate satisfactory performance of either hand hygiene or patient identification 61% of the time. After instruction, students still did not perform these procedures consistently 38% of the time. Lessons learned and future plans for addressing」these problems with basic patient safety behaviors are discussed.			[参考:論文] ・「Some studies in practice arenas have shown that compliance rates may never improve at all, even after the introduction of a new program or intervention.」の記載もあり。 [参考:査読者メモ] ・短報のせいか、統計的な分析に関する詳細な記載なし。

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E052	Dawe, Susan R and Windsor, John A and Broeders, Joris A J L and Cregan, Patrick C and Hewett, Peter J and Maddern, Guy J. A systematic review of surgical skills transfer after simulation-based training: laparoscopic cholecystectomy and endoscopy. Annals of surgery 2014; 259(2): 236-48.	1A:システマティックレビューまたはメタアナリシス	システマティックレビュー	・「This systematic review was limited to the literature relating to laparoscopic cholecystectomy and endoscopy (colonoscopy, sigmoidoscopy, or esophagogastroduodenoscopy). The comprehensive Australian Safety and Efficacy Register of New Interventional Procedures—Surgical reports 61 and 80 which include additional procedures investigated, and can be found online at http://www .surgeons.org/asernip-s/.」	・「All randomized controlled trials (RCTs) and nonrandomized comparative studies (non-RCTs) reporting on the use of simulation-based training and the transfer of these skills to the operative setting were included for review. The literature search was performed in MEDLINE, EMBASE, CINAHL, PubMed, The Cochrane Library and Current Contents databases, originally in December 2006,3 and the update in September 2011.4 The Clinical Trials Database (US), the NHS Centre for Research and Dissemination Databases (UK), the National Research Register (UK), the Meta Register of Controlled Trials, and the Australian Clinical Trials Registry were also searched in December 20063 and September 2011.4 Searches were conducted without language restrictions. The search terms used were (surg* and simulat*) and (skill* or train*). Pearling was then undertaken to locate articles that may have been missed by the	2:代替アウトカム	・一覧表の項目は「LOE」「Participants」「Training Method(シミュレーションなので活用したソフト等の名称なども）」「Procedure」「Assessment」「Results」 ・大きく「Comparison simulation training versus no simulation training」と「Comparison simulation training versus patient-based simulation training」	・「Seventeen randomized controlled trials and 3 nonrandomized comparative studies were included in this review. In most cases, simulation-based training was in addition to patient-based training programs. Only 2 studies directly compared simulation-based training in isolation with patient-based training. For laparoscopic cholecystectomy (n = 10 studies) and endoscopy (n = 10 studies), participants who reached simulation-based skills proficiency before undergoing patient-based assessment performed with higher global assessment scores and fewer errors in the operating room than their counterparts who did not receive simulation training. Not all parameters measured were improved. Two of the endoscopic studies compared simulation-based training in isolation with patient-based training with different results: for sigmoidoscopy, patient-based training was more effective, whereas for colonoscopy, simulation-based training was equally effective.」 ・「Skills acquired by simulation-based training seem to be transferable to the operative setting for laparoscopic cholecystectomy and endoscopy. Future research will strengthen these conclusions by evaluating predetermined competency levels on the same simulators and using objective validated global rating scales to measure operative performance」			［limitations］ ・Limitations of the Evidenceに、システマティックレビューそのもののlimitationのみならず、研究方法に共通するlimitationや、論文そもそもの不備などについての評価等、参考になる記載あり ［報告書用メモ］ ・Limitations of the Evidenceに、システマティックレビューそのもののlimitationのみならず、研究方法に共通するlimitationや、論文そもそもの不備などについての評価等、参考になる記載あり ・システマティックレビューの文献と本調査の文献のチェック？ ・先行に加えてのupdate研究？ ・対象を絞らないとまとめ方が大変？ ・「result」の簡潔さの標準化

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E053	Johnson, David P and Zimmerman, Kanecia and Staples, Betty and McGann, Kathleen A and Frush, Karen and Turner, David A. Multicenter development, implementation, and patient safety impacts of a simulation-based module to teach handovers to pediatric residents. Hospital pediatrics 2015; 5(3): 154-9.	3:対照群のある観察研究	前後比較研究	・「Case-based computer simulation modules were developed. In these modules, trainees care for a virtual patient in a time-lapsed session, followed by real-time synthesis and handover of the clinical information to a partner who uses this information to continue caring for the same patient in a simulated night scenario, with an observer tallying included handover components. The process culminates with evaluator feedback and structured handover education. Surveys were used pre- and post-module implementation to allow the interns to rate the quality of handover provided and record rapid responses and transfers to the intensive care unit (ICU).」 ・「Each exercise is done in pairs. The first trainee (Trainee A) completes the initial component of the case while the second trainee (Trainee B) waits, and then provides verbal and written handover of this simulated patient to a Trainee B as she/he would during an actual patient handover. Trainee B then uses only the information obtained from the handover to complete a similar computerized, time-lapsed clinical scenario representing the continued	・「小児科レジデント合計52人:30人:pediatric and pediatric/internal medicine interns at Monroe Carell Jr. Children's Hospital at Vanderbilt、22人:Duke Children's Hospital」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Using expert review and the modified Delphi technique, 11 key points were identified as crucial elements for each module and included elements of past medical history (2), problem list (4), pending tests (1), anticipatory guidance (2), and overnight tasks (2). 」 ・「During the face-to-face handover, a facilitator tallies the 11 item checklist in real time, followed by a debriefing during which they facilitate peer-to-peer feedback and provide structured education.」	・「There were no significant differences in the proportion of nights with rapid response calls (7.24%vs 12.79%, p = 0.052) or transfers to the ICU (7.76% vs 11.27%, p = 0.21) pre- and post-module implementation」			[limitations] ・実際との差 ・一人の患者を対象 ・バーチャルのシナリオ ・長期間にわたってのデータ収集 [報告書用メモ] ・handoverというテーマ ・onlineも教育に活用している場合と回答の回収にのみに活用している場合あり

文献番号	執筆者、題名、雑誌・書籍名、出版日	研究デザインのレベル	研究デザイン	介入の内容	対象者	アウトカムのレベル	アウトカムの指標	主な結果	活動・対策の短所	費用	その他
E054	Karabağ Aydin, Arzu and Dinç, Leyla. Effects of Web-Based Instruction on Nursing Students' Arithmetical and Drug Dosage Calculation Skills. Computers, informatics, nursing : CIN 2017; 35(5): 262-269.	3:対照群のある観察研究	前後比較研究	・「A Web site was then constructed, which included audio presentations of lectures, quizzes, and online posttests. Students had Web-based training for 8 weeks and then they completed the posttest.」 ・「目的はWeb-Based Instruction の評価、フォーカスしたのはArithmetical and Drug Dosage Calculation Skills、対象は看護師、63人、関連使用ツールはうweb、評価はスコア、前後、2012－1023年、実施場所はトルコ」	・「63 (52.5%) students (20, 18,and 25 students from the second, third, and fourth years, respectively) completed the Web-based teaching program.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「The primary study purpose is to assess the effects of Webbased teaching on the arithmetic and drug dosage calculation skills of nursing students. 」 ・「A secondary purpose was to analyze the relationship between the scores on the Arithmetic Skill (AST) and Drug Dosage Calculation Skill (DDCST) tests」	・「In the arithmetic skill pretest, only five (7.9%) students had scores above 90, which rose to 12 (19.1%) in the posttest. In the drug dosage calculation skill pretest, no student scored above 90; in the posttest, there were 26 (41.2%). The mean score on the arithmetic skill pretest was 74.98 ± 12.14; in the posttest, it increased to 82.03 ± 9 (P = .000). Similarly, the drug dosage calculation skill pretest mean score was 71.55 ± 12.29, and this increased 14.42 points and reached 82.03 ± 9 in the posttest (P = .000)」 ・「A linear positive but weak association was found between the pretest scores in arithmetic skill and drug dosage calculation skill (r = 0.321, P = .010). For posttest scores, the association was linear, positive, and midlevel (r = 0.412, P = .001) 」			[limitations] ・コントロールがない ・ASTとDDCSTに関するreliabilityの評価が低い ・onlineによる回答の精度 ・回答に用いる個人のPCの技術的な問題 ・調査期間中に他の教育を受けている可能性

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E055	Lange, L L and Haak, S W and Lincoln, M J and Thompson, C B and Turner, C W and Weir, C and Foerster, V and Nilasena, D and Reeves, R. Use of Iliad to improve diagnostic performance of nurse practitioner students. The Journal of nursing education 1997; 36(1): 36-45.	1:無作為化比較試験	無作為化比較試験(RCT)	・「Iliad: a computerized diagnostic reasoning expert system」 ・「Students were randomly assigned in a2 x2 (Training Domain x Test Domain) to be trained either on Chest Pain or Abdominal Pain diagnoses.」 ・「目的はIliad の評価、フォーカスしたのはChest Painと Abdominal Pain diagnoses、 対象はNP学生、9人、関連使用ツールはIliad、評価は「Iliadトレーニング群」と「非トレーニング群」、2×2、2×2×2、実施時期は1994年、実施場所はアメリカ」	・「nine NP students」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Test Case Experience」「Case specific experience」 ・「Diagnostic errors」「Posterior probability」「The cost」「Average findings score」 (注)コスト:「値が高い場合(検査を多く必要としている場合)、診断レベルが低いことが多いという趣旨	・「The study found that the use of Iliad improved NP students' diagnostic reasoning, and that the training effects were modified by prior nursing experience.」 ・「(Average findings scoreについては) The results indicated that students performed significantly better on the chest pain(M=70.79) than the abdominal pain(M=47.44) cases[F(1,18)=5.72, p<.05]. The results of the training condition x test domain interaction are presented in Figure2. To evaluate the relationship between prior case experience and information processing efficiency, a Pearson correlation was computed between the average findings score. (The sample size prohibited a covariate analysis) The correlation was statistically significant across the entire set of test cases[r(34)=.40, p<.05]. The correlation was marginally significant for the abdominal pain [r=.41, p<.10], but not for the chest pain cases[r=.12, p>.10]. 」 ・「(The costについては)The cost measure reflects the total cost for tests and procedures ordered by the student. A 2x2x2 (training condition x test domain x replication) mixed factorial analysis of variance was performed with the cost score as the dependent variable. The results indicated that the test domain main effect [F(1,13)=13.84, p<.05] and the training condition x test domain interaction [F(1,18)=5.08, p<.05] were statistically significant. As Figure5 indicates, the students trained and tested on abdominal pain cases spent substantially more money on their work-ups(M=$230) than students in the other three conditions, where cost averages ranged from$75 to$132.」			[参考:論文] ・successful implementationの条件として「先行研究に「CPC」に組み込んで成功した大学事例」に関する記載あり ・「NP学生の場合、看護師としてのそれまでの経験が大きく結果に影響する可能性がある」という考察あり [参考:査読者メモ] ・「Iliadの評価は医学生を対象にしたものはあるがNPはまだ」 ・Iliadに関する記載あり ・検査コストも診断評価項目 [報告書用メモ] ・NPという職種の特殊性(看護と診断) ・教育の評価の難しさ「Tanner reasoned that the teaching interventions were usually too brief to have an influence on clinical judgment, and that the studies were limited by the lack of a valid measure of clinical judgment performance.」

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E056	Kimura, T and Kawabe, A and Suzuki, K and Wada, H. Usefulness of a virtual reality simulator or training box for endoscopic surgery training. Surgical endoscopy 2006; 20(4): 656-9.	2:非無作為化比較試験	非無作為化比較試験	・「Virtual reality group.: The VR subjects trained in the performance of grasping, lifting, incision, attachment of clips, isolation, and suturing 2 h daily for 5 days (Monday to Friday) using a Reachin laparoscopic trainer under the supervision of a staff member from the Correspondence to: T. Kimura Gadelius Company.」 ・「Training box group.: The TB subjects grasped and moved beads and rubber rings and grasped a needle and suture material (using rubber gloves and chicken tissue) 2 h daily for 5 days (Monday to Friday) using an Endowork (MC Medical, Tokyo, Japan) under the supervision of a staff member from Karl Storz Company.」 ・「Control group. :The control subjects had no training using a simulator. They were requested to watch a video about techniques to be used in the animal laboratory.」 ・豚を使用 ・「目的はVRシミュレーターとトレーニングボックスの教育の効果、フォーカスしたのは内視鏡検査・手術トレーニング、対象は浜松医科大学最終学年の医学生16名、関連使用ツールはVR:	・「16 medical students were divided into three groups: a virtual reality (VR) simulator group (n = 6), a training box (TB) group (n = 6), and a control group (n = 4).」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「operating time」「error score 」	・「This study showed that training with a VR or TB simulator was not immediately helpful for shortening the operating time of LC or for reducing errors. On the other hand, simulator training was able to reduce the time required for suturing, a technique that depends heavily on psychomotor skills.」		・「The best method is to learn under the supervision of an experienced surgeon in the operating room, but patients are not likely to consent to such training, and there are not enough supervising surgeons because of the procedure_s short history. Performing operations in a laboratory on animals such as pigs is very useful for training, but there are the problems with animal rights activists, and the cost is extremely high.」の記載あり	［参考:論文］ ・先行文献の結果と異なっている理由の可能性として「十分な時間がとれていないこと」「先行研究の多くがレジデントであるのに対し本研究は医学生であること」等 ［報告書用メモ］ ・「午前」と「午後」の比較？

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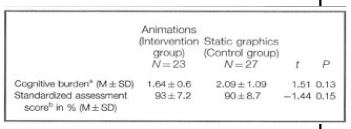
E057	Cook, David A and Erwin, Patricia J and Triola, Marc M. Computerized virtual patients in health professions education: a systematic review and meta-analysis. Academic medicine : journal of the Association of American Medical Colleges 2010; 85(10): 1589-602.	1A:システマティックレビューまたはメタアナリシス	システマティックレビュー	・「Educators increasingly use virtual patients (computerized clinical case simulations) in health professions training. The authors summarize the effect of virtual patients compared with no intervention and alternate instructional methods, and elucidate features of effective virtual patient design」	・「The authors searched MEDLINE, EMBASE, CINAHL, ERIC, PsychINFO, and Scopus through February 2009 for studies describing virtual patients for practicing and student physicians, nurses, and other health professionals. Reviewers, working in duplicate, abstracted information on instructional design and outcomes. Effect sizes were pooled using a random-effects model.」	3:安全と間接的に関係するその他の測定可能なアウトカム	knowledge outcomes, clinical reasoning, skills	・「Four qualitative, 18 no-intervention controlled, 21 noncomputer instructioncomparative, and 11 computer-assisted instruction-comparative studies were found. Heterogeneity was large (I2＞50%) in most analyses. Compared with no intervention, the pooled effect size (95% confidence interval; number of studies) was 0.94 (0.69 to 1.19; N＝11) for knowledge outcomes, 0.80 (0.52 to 1.08; N＝5) for clinical reasoning, and 0.90 (0.61 to 1.19; N＝9) for other skills. Compared with noncomputer instruction, pooled effect size (positive numbers favoring virtual patients) was－0.17 (－0.57 to 0.24; N＝8) for satisfaction, 0.06 (－0.14 to 0.25; N＝5) for knowledge, －0.004 (－0.30 to 0.29; N＝10) for reasoning, and 0.10 (－0.21 to 0.42; N＝11) for other skills. Comparisons of different virtual patient designs suggest that repetition until demonstration of mastery, advance organizers, enhanced feedback, and explicitly contrasting cases can improve learning outcomes.」			[limitations] ・他のレビューと同様、対象とした論文の質と量 ・論文の年代 ・論文の矛盾、不正確さ、統計的解析の弱さ等、 ・Vartual Patientに関する情報収集
E058	Tunuguntla, Renuka and Rodriguez, Osvaldo and Ruiz, Jorge G and Qadri, Syeda S and Mintzer, Michael J and Van Zuilen, Maria H and Roos, Bernard A. Computer-based animations and static graphics as medical student aids in learning home safety assessment: a randomized controlled trial. Medical teacher 2008; 30(8): 815-7.	1:無作為化比較試験	無作為化比較試験(RCT)	・「The module presented a simulated multimedia home environment with a narrated tutorial covering the basics of home safety assessment, including identification of the major safety hazards in the home, followed by practice in one of two versions, animations for the intervention group and static graphics for the control group」 ・「目的はComputer-based animationsを使った研修の効果、フォーカスしたのはhome safety のアセスメント、対象はmedical student aids、50人、関連使用ツールはComputer-based animations のプログラム、評価は「Computer-based animations群 」と「static graphics(コントロール)群」、実施時期は記載なし2008？、実施場所は米国」	・「University of Miami Miller School of Medicine、first year medical studens were offered the opportunity」 ・「50 (22 females and 28 males) met cl'itetia fol inclusion in the anall'sis: 23 in the intervcntion group and 27 in the control group.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「level of cognitive burden」「score on the standardized competency」「assessment test」「time spent on task.」	・「We observed no significant differences in the level of cognitive burden, standardized assessment scores, and time spent on task between the student group who viewed a module with animation and the group who viewed the same module with the static graphics.」  Animations (Intervention group) N = 23 / Static graphics (Control group) N = 27 / t / P Cognitive burden[a] (M ± SD): 1.64 ± 0.6 / 2.09 ± 1.09 / 1.51 / 0.13 Standardized assessment score[b] in % (M ± SD): 93 ± 7.2 / 90 ± 8.7 / −1.44 / 0.15		・「Nevertheless, in our study static graphics were as effective as computer-based animations in teaching medical students about home safety assessment and are the much cheaper option.」と記載があるも具体的な計算はなし。	[limitations] ・サンプルサイズ ・アニメーションがあまり複雑なものではなかったこと

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E059	Cullinan, Shane and O'Mahony, Denis and Byrne, Stephen. Use of an e-Learning Educational Module to Better Equip Doctors to Prescribe for Older Patients: A Randomised Controlled Trial. Drugs & aging 2017; 34(5): 367-374.	1:無作為化比較試験	無作為化比較試験 (RCT)	・「the 'Standard Computerised Revalidation Instrument for Prescribing and Therapeutics (SCRIPT)' tool developed by NHS Health Education West Midlands, University of Birmingham ard OCB Media in the UK [25]. This is a comprehensive doctor training tool utilised in the UK which covers all aspects of prescribing for all demographics」 ・「目的はe-Learning Educational Module の評価、フォーカスしたのは高齢の患者への薬剤処方、対象は病院に勤務する医師(ポジションは様々)、146人、評価は「e-learning群」と「コントロール群」、前、4週間後、12週間後も。アセスメント、質問票も。関連使用ツールはe-Learning、実施時期は2015年、実施場所はアイルランド」	・「病院に勤務する医師(ポジションは様々)146人」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Three assessments were created and marking schemes agreed upon by a consultant physician in geriatric medicine and two clidcal pharmacists. Each assessment consisted of ten multiple-choice questions (MCQ) (20 marks) folowed by five case studies (30 marks).」	・「Eighty participants completed the l2-week trial. The SCRIPT intervention resulted in a 22Vo difference in mean test scores between control and intervention groups at 4 weeks (23.12 marks versus 33.67 marks; p < 0.0001 95Vo Cl 8.L3-12.97). This significance was maintained at 12 weeks. Thirty-four percent of participants in the intervention group rated themselves as 'confident' with regards to prescribing for older patients post-intervention compared with l2%o in the control group. A short eJearning module focused on geriatric pharmacotherapy can significantly improve doctors' prescribing knowledge and confidence with regards to older patients. 」			[limitations] ・ボランティアバイアス ・脱落が多い ・最初の評価から次の評価まで時間があり、その間に学習してしまう可能性 ・患者のアウトカムを測定していない

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E060	Dennison, Robin D. A medication safety education program to reduce the risk of harm caused by medication errors. Journal of continuing education in nursing 2007; 38(4): 176-84.	3:対照群のある観察研究	前後比較研究	・「Participants were required to complete two 30-minute computer modules focusing on medication safety. 」 ・「Module 1 was a commercial program developed by Abbey Associates and titled Medication Error Reduction Training. This module covered general content related to medication safety. Module 2 was developed by the author and titled Intravenous Infusion of High-Alert Medications. It covered content more specific to critical care, intravenous infusion, and high-alert medications. 」 ・「The modules were accessible on unit-based personal computers or on CD-ROMs for use on home computer」 ・「目的はA Medication Safety Education Programの評価、フォーカスしたのは薬剤エラー、対象はRN、最終的に20人、関連使用ツールはcomputer-based modules(病院のPCもしくは自宅のPC(CD-ROM)、評価は、前後、実施時期は明確な記載なし2007年？、実施場所はアメリカ」	・「The setting for the project was a 12-bed coronary care unit. Of the 31 registered nurses on this unit, 20 completed the education and testing procedures. The project was 6 months in duration.」	2:代替アウトカム	・「the climate of safety」「 nurses' knowledge and behavior」「the number of infusion pump alerts」「reported medication errors」 ・「The Climate of Safety Survey, available from the Institute for Healthcare Improvement (www.ihi.org), was administered before and after participants completed the Medication Safety Education Program to evaluate whether there was a change in the Safety Climate Score.」 ・「The nurses' knowledge regarding medication safety was evaluated using an 18-item Medication Safety Knowledge Assessment Tool that was developed by the author and reviewed and critiqued by three national medication safety nurse experts.」	・「A statistically significant change in knowledge regarding medication errors occurred, but there was no change in the climate of safety scores, the use of behaviors advocated in the medication safety education program to improve medication infusion safety, the number of infusion pump alerts, or the number of reported errors. It was concluded that there was a need for strong administrative support and follow-up to foster changes in behavior, which can lead to a reduction in harm caused by medication errors.」とあるが A statistically significantに関する数値の記載なし ・「(reported medication errorsについても) The number of medication errors was evaluated using continuous improvement data downloaded from the infusion pumps and incident reports. No statistical difference was seen between the number of infusion pump alerts before and after the education program. These alerts indicate the rate programmed by the nurse would result in a dose that was less than or more than the institution-specific best practice dosage range for that drug. No reliable conclusions could be made from the difference between one reported error on this unit the month before the education process and no reported errors on this unit the month after the education process.」とあるが方法や数値の記載なし		・「The computer-based method used in this project was a time-effective and cost-effective method for teaching the Medication Safety Education Program.」とあるも具体的な数字の記載はなし ・「Although medication safety education is a logical and relatively inexpensive first strategy to focus attention on evidence-based strategies and reduce the risk of patient harm caused by medication errors, it is inadequate as a sole strategy to change behavior, climate of safety, and the number of infusion pump alerts and reported	[参考:査読者メモ] ・統計的な分析の記載なし [報告書用メモ] ・既成の教育教材の活用、既成の評価ツールの活用

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E062	Atayee, Rabia S and Awdishu, Linda and Namba, Jennifer. Using Simulation to Improve First-Year Pharmacy Students' Ability to Identify Medication Errors Involving the Top 100 Prescription Medications. American journal of pharmaceutical education 2016; 80(5): 86.	3:対照群のある観察研究	前後比較研究	・「In the first quarter of a 3-quarter pharmacy self-care course, a didactic lecture on the most common prescribing and dispensing prescription errors was presented to first-year pharmacy students (P1) in preparation for a prescription review simulation done individually and as a group. In the following quarter, they were given a formal prescription review workshop before a second simulation involving individual and group review of a different set of prescriptions. Students were evaluated based on the number of correctly checked prescriptions and a self-assessment of their confidence in reviewing prescriptions.」 ・「目的はSimulation を使った教育の評価、フォーカスしたのは薬剤のエラー、対象はfirst-year pharmacy students、63人、関連使用ツールはシミュレーション、評価は段階的な教育の前後、Knowledge survey、confidence survey、fall quarterとwinter quart、、前後、実施時期は明確な記載なし2015年？、実施場所はアメリカ」	・「first-year pharmacy students、63人」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Evaluation of Prescription Checking Knowledge」「Evaluation of Prescription Checking Accuracy Using Simulation」「Student Self-Evaluation Confidence Survey Results」	・「All 63 P1 students completed the prescription review simulations. The individual scores did not significantly change, but group scores improved from 79 (16.2%) in the fall quarter to 98.6 (4.7%) in the winter quarter. Students perceived improvement of their prescription checking skills, specifically in their ability to fill a prescription on their own, identify prescribing and dispensing errors, and perform pharmaceutical calculations.」		・「Use of pictures instead of actual medications allowed for more students to cycle through the simulation at one time and significantly reduced the cost of supplies overall.」	[limitations] ・IPPE(introductory pharmacy practice experiences)の影響(制度上アメリカのpharmacy studentsはそれぞれ異なる教育・実務経験がある) ・学生がシミュレーションやグループワークに慣れていないこと ・評価が二つの学期にまたがっている影響 ・sequence bias [参考:査読者メモ] ・「An unexpected finding was that the prescription accuracy group score in the fall quarter was lower than the individual score. The group simulation component gave students the opportunity to improve their ability to work together when checking prescriptions. Once students learned how to work within a group, the benefit of a double-check system and team approach was observed」の記載も。 ・調査における困難さについての記載も。 [報告書用メモ] ・国によって教育と評価の制度が異なること

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E063	Walker, Bonnie L and Harrington, Susan S and Cole, Claire S. The usefulness of computer-based instruction in providing educational opportunities for nursing staff. Journal for nurses in staff development : JNSD : official journal of the National Nursing Staff Development Organization 2006; 22(3): 144-9.	2:非無作為化比較試験	前後比較研究	・「Four CB modules were developed to provide information and practical guidelines on the topics of:「Preventing Suicide」「Preventing Adverse Medication Events」「Preventing Foodborne Illness」「Preventing Burns and Scalds」 ・「目的はComputer-Based Instruction の評価、フォーカスしたのは入院中の患者ケアに必要なあれこれ(a fall, choking, fire, infection control, depression, patient abuse等)医療安全に関する事項も含む、対象は看護に関わる全ての鞘腫、最終的に57人、、関連使用ツールはComputer-Based、評価は各モジュール毎のテスト、自己評価も、前後、CBとIl(instructor-led)間の比較も、実施時期は2005年、実施場所はアメリカ」	・「Fifty-seven participants completed one or more modules during the study. Each of the participants provided care or services to older people in a long-term care setting or in a supervisory or support role. 」	3:安全と間接的に関係するその他の測定可能なアウトカム	Test score	・「Each group of learners significantly improved knowledge related to the topic presented. The CB and IL versions of the modules produced similar results. The participants enjoyed using the computers and found the program easy to use. The authors concluded that CB instruction can be an effective alternative method of providing educational opportunities and is a convenient and cost-effective way to provide those opportunities to nursing staff.」 ・「(Pretest to Posttest Differences by Moduleについては)The means and standard deviations for the pretest and posttest scores were calculated for the total group for each module. Gains ranged from 2.73 (9%) for「Preventing Adverse Medication Events」to 9.89 (33%) for「Preventing Burns and Scalds.」The changes in the participants' scores significantly improved from pretest to posttest on each of the four tested modules. The overall change was 4.84 (16%)」		・「Hospital administrators face extensive and complex problems as they attempt to provide continuing education to their staff. One important issue is cost. Expenses associated with continuing education include instructors' fees, materials fees, and, most importantly, staff wages. Classes must be offered to staff on all three shifts. If the educational programs are conducted away from the facility, costs include travel and wages for both the nurse and a eplacement on the unit.」「Computer-based (CB) instruction offers a cost-effective alternative to instructor-led	

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E064	Chung, Catherine and Cooper, Simon J and Cant, Robyn P and Connell, Cliff and McKay, Angela and Kinsman, Leigh and Gazula, Swapnali and Boyle, Jayne and Cameron, Amanda and Cash, Penny and Evans, Lisa and Kim, Jeong-Ah and Masud, Rana and McInnes, Denise and Norman, Lisa and Penz, Erika and Rotter, Thomas and Tanti, Erin and Breakspear, Tom. The educational impact of web-based and face-to-face patient deterioration simulation programs: An interventional trial. Nurse education today 2018; 64(): 93-98.	2:非無作為化比較試験	前後比較研究	・「To investigate the educational impact of the First2Act web-based (WB) and face-to-face (F2F) simulation Programs」 ・施設(病棟)単位でWBとF2Fを実施 ・「The web-hosted 'e-simulation' (screen based) version includes a range of pre- and post-course assessment and educational materials and three interactive scenarios (cardiac, shock and respiratory cases) which run over 8 min. A patient actor depicts a deteriorating patient who significantly deteriorates at the four-minute mark. Individual participants are required to 'click' on various actions - such as taking vital signs, inserting an IV line, recording an ECG or selecting a form ofoxygen therapy - resulting in pop up videos of each action (Fig. 1). Detailed feedback on performance is provided at the end of each scenario and at the end of the program. In this study staff completed the program in their own time or were released from ward duties.」 ・「目的はシミュレーション教育プログラムの評価、フォーカスしたのは「Cardiac scenario」「Shock scenario」「Respiratory」、対象は	・「registered (RN) and enrolled nurses (EN)、F2Fは74人、WBは56人」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「participants' knowledge」「competence」「confidence」	・「Both WB and F2F participants' knowledge, competence and confidence increased significantly after training (p≤0.001). Skill performance for the WB group increased significantly from 61% to 74% (p≤0.05) and correlated significantly with post-test knowledge (p=0.014). No change was seen in the F2F groups' performance scores. Course evaluations were positive with median ratings of 4/5 (WB) and 5/5 (F2F). The F2F program received significantly more positive evaluations than the WB program (p < 0.05), particularly with regard to quality of feedback.」 ・「(Knowledge Developmentについては) Participants completed the MCQ before and after the program with knowledge improving significantly (pre-test M=7.56, SD 1.7; post-test M=8.93, SD 1.7; t (n=43)=−5.990, p≤0.001) and with medium effect size (r=0.37). Eight of 12 knowledge items were significantly improved at post-test, in particular a marked change in an item that asked 'which are the six essential actions in the initial treatment of a deteriorating patient?' Bachelor-qualified nurses' knowledge improved most (pre 7.59 SD 1.65; post 9.00 SD 1.29; z (n=22)=−3.671, p≤0.001). There was no correlation between participants' age and knowledge scores, however years of work experience was negatively correlated with post-test knowledge scores (r=−0.38, p=0.03).」		・「The overall objectives of the current study were to measure the educational impact of these face-to-face (F2F) and web-based (WB) simulation programs in the education of qualified nurses, and second, to compare cost-effectiveness and clinical impact. The full protocol for this study is registered at: https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?id=370425 (ACTRN12616000468426) and is available as Cooper et al. (2016). In this paper we report on the educational impact. Later papers and the final report (Cooper et al., 2017) will identify the economic and	[limitations] ・すべての病棟の看護職を代表しているわけではないこと ・いい結果ではあるが大きな効果ではないこと ・短期間の教育効果の評価であること ・効果の継続についてはコメントできないこと [参考:論文] ・「The programs, though similar, use a different form of delivery and are in themselves not directly comparable. As such, the intention was to measure the impact of the two programs rather than compare the programs per se.」

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E065	Kroeze, Stephanie G C and Mayer, Erik K and Chopra, Samarth and Aggarwal, Rajesh and Darzi, Ara and Patel, Anup. Assessment of laparoscopic suturing skills of urology residents: a pan-European study. European urology 2009; 56(5): 865-72.	3:対照群のある観察研究	横断的研究	・「Residents were assessed on their ability to complete a standardized laparoscopic suturing task consisting of the placement and tying of a single laparoscopic suture with three throws to oppose an iatrogenic wound on artificial tissue (Professional Skin Pad Mk 2, Limbs and Things, Bristol, UK) within a laparoscopic box trainer environment (Pop-up Trainer, Simulab Corporation, Seattle, WA, USA)」 ・「This study was conducted during the laparoscopic hands-on training (HOT) portion of the European Urological Residents Education Programme (EUREP) meeting 2007, EUREP is organised by the European School of Urology (ESU) in collaboration with the European Board of Urology and has been developed exclusively for all European urologic residents」 ・「目的はlaparoscopic hands-on training (HOT) を使ったPGY1～PGY6の群間比較、フォーカスしたのはlaparoscopic hands-on training、特に縫合技術、対象はall European urologic residents、201人、関連使用ツールはlaparoscopic hands-on training (HOT)、評価はレジデントのトレーニング期間による違い(PGY1	・「Two hundred and one European urology residents present at the EUREP 2007 laparoscopic HOT course were recruited for this study 」 ・「Participants were mainly senior residents (79%), 37 were intermediate (18%), and 8 were junior (4%).」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Twenty-nine-point scoring checklist used for assessing performance of standardised laparoscopic suturing task.(トレーニングを受けた2名の観察者による評価)」 「Questionnaire」	・「Laparoscopic suturing skill was significantly different across PGY levels (p = 0.032), and between junior residents and both intermediate and senior residents (p = 0.008 and p = 0.012, respectively). There was no significant difference between intermediate and senior residents (p = 0.697).Only12%of participants rated their existing volume of laparoscopic operative cases as sufficient, while 55% of participants had no regular opportunities, and 32% of participants had not performed laparoscopic procedures as primary surgeon.Most residents (96%) reported the use of laparoscopic simulators to be beneficial in training, although current European training programmes appear to provide <50% of residents with the opportunity to train with them.」		・Editorial Commentに「Dissemination of a standardized, proficiency-based curriculum may be the goal, but issues of simulator development, device realism, training validation, and added training costs must be addressed.」の記載あり。	[limitations] ・自主参加者によるバイアス ・技術の評価方法 ・グループ間のサンプルの差(シニアが多い) ・チェックリストのknot評価における客観的評価基準の欠如、など

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E067	Wakefield, Peggy L and Wilson, Melissa A. Enhancing nurses' knowledge regarding the complex care of hospitalized patients on insulin. Journal for nurses in professional development 2014; 30(4): 174-80.	1:無作為化比較試験	無作為化比較試験(RCT)	・「a hospital-nurse on-line diabetes education course addressing the complex nursing care of hospitalized patients on basal-bolus insulin.」 ・「目的はon-line diabetes education course の評価、フォーカスしたのはbasal-bolus insulin、対象は看護職118人(介入群45人、コントロール群73人)、関連使用ツールはテストと質問票、評価は介入群と非介入群、「pre test」「post test」「3か月後のfollow up test」、時期は2009年、実施場所はアメリカ」	・「118 nurses: 45 nurses were in the intervention group, and 73 nurses were in the control group.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Opinion Survey: The survey was based on a 4-point Likert scale measuring opinions to questions on the topic of self-confidence in diabetes knowledge and patient care. 」 ・「Multiple-Choice Test : The test was divided into two parts. Part 1 contained 31 questions about facts of knowledge; part 2 assessed application of knowledge through 16 questions based on six ca.se scenarios.」	・「Knowledge in the intervention group increased significantly and was retained 3-months postintervention 」 ・「(Both group over two group)について「Analysis of the fixed effects of group differences showed a significant group effect(F(l,116)=15.51, p＜.0001),a significant change in scores by the intervention group over time(F(1,96)=63.29, p＜.0001), and a significant group differences that varied by time(F(1,96)=32.09, p＜.0001). There was a significant difference in scores between test parts l and 2(F(1,114)=214.56,p＜.0001). 」		・「Online educational courses are becoming more p()pular and cost effective for administration and documentation, and their role in nurse diabetes education is still evolving.」の記載はあるも具体的な数値の記載はなし。	

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E068	Wanderlei, Poliana Nunes and Montagna, Erik. Formulation, implementation and evaluation of a distance course for accreditation in patient safety. Einstein (Sao Paulo, Brazil) 2018; 16(2): eGS4316.	3:対照群のある観察研究	前後比較研究	・「a virtual learning environment course in patient safety」 ・「The whole hospital staff was enrolled in the course. The accreditation team defined the syllabus. The education guidelines were divided into 12 modules related to quality, patient safety and required organizational practices. The assessment was performed at the end of each module through multiple-choice tests. The results were estimated according to occurrence of adverse events. Formulation, implementation and evaluation of a distance course for accreditation in patient safety。」 ・「Module I – Quality: 」「Module II – Patient safety: 」「 Module III – ROPs: 」 ・「目的は病院をあげての教育の評価、フォーカスしたのは医療安全、対象はブラジルの公的病院の全職員、最終的に859人、関連使用ツールはonline、評価は3タイプ別、モジュール終了ごとに。2016年と2017年の前後比較、インシデントレポートの数については2014年と2016年で比較、実施時期は2014年に開始、実施場所はブラジル」	・「The whole hospital staff」 ・「type 1, if operation staff (66%); type 2, staff with intermediate leadership (14%); and type 3, coordination and supervision staff (20%).」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「An assessment was carried out at the end of each module completed by the employee Outcomes in patient safety culture among participants were held by a Likert-type survey」 ・「the Hospital Survey on Patient Safety Culture (HSOPSC). This survey was proposed by the Agency for Healthcare Research and Quality (AHRQ), and assesses personnel attitude changes on patient safety culture through a multidimensional approach.」 ・「The number of adverse event reports evolved in the period 2014-2016」	・「More than 80% of participants reached up to 70% success on tests after the course; the event-reporting rate increased from 714 (16,264 patients) to 1,401 (10,180 patients). 」 ・「Virtual learning environment was a successful tool data. Data on course evaluation is consistent with increase in identification and reporting of adverse events. Although the report increment is not positive per si, it indicates changes in patient safety culture.」 ・「The most relevant outcome of this study was the increased number of event reports in the organization, suggesting the training program was probably successful, and improved patient safety culture.」		・「These factors are relevant in scenarios with limited financial resources. 」 ・「The choice for an open source VLE involved almost no financial cost to the institution, besides the demand for operational computing structure, which is already available. Actually, a low impact on budget was observed, since the whole process only involved the reallocation of available human resources. From the perspective of a public health organization in a country with serious budgetary constraints, low cost is a relevant factor.]	[参考:査読者メモ] ・後進国についての検討あり(イラン、クウェート、トルコなどの論文を引用) 「Furthermore, previous data points there are few studies on patient safety culture, mainly from developed countries. The studies available on low-income countries or those with marked social inequities showed low scores」 ・一応インシデントレポート数の評価もあり [報告書用メモ] ・「インシデントレポートの枚数」のレベル評価は？

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E069	Ann Adamczyk, Mary. Reducing Intensive Care Unit Staff Musculoskeletal Injuries With Implementation of a Safe Patient Handling and Mobility Program. Critical care nursing quarterly 2018; 41(3): 264-271.	3:対照群のある観察研究	前後比較研究	・the implementation of a safe patient handling and mobility (SPHM) program in a medical intensive care unit.」 ・「An SPHM program was implemented on a critical care medicine unit in February of 2O17. Nursing and assistive personnel completed education via hand-on and online educational modules regarding SPHM equipment and technique and an SPHM policy.」 ・「目的はa safe patient handling and mobility (SPHM) program の評価、フォーカスしたのは患者の傷害と医療職の傷害(により組織に生じた経済的損失)(医療安全というより労働安全、労災)、対象はICU(CCMU)の看護職(nursing and assistive personnel)、評価はプログラム施行の前後、患者の傷害と医療職の傷害(により組織に生じた経済的損失)、実施時期は2016年、実施場所はアメリカ」	・「ICU(CCMU)の看護職(nursing and assistive personnel)」	2:代替アウトカム	・「wort-related iniuries: 患者の傷害と医療職の傷害(により組織に生じた経済的損失)」	・「A l-year evaluation demonstrated a reduction of &% in y/ort{elated injuries. In 2016, there were 7 injuries while in 2Of7, only 1 injury occurred- Lost and restricted days away from work were reduced by 54% or from a total of 112 days in 2016 to 52 days in 2OL7. The implementation of an SPHM program in a medical intensive care unit appears to be highly effective at reducing health care worker injuries.」			［参考:論文］ ・労災事故の現状と損失コストに関する計算あり ・労働組合とのジョイント ［参考:査読者メモ］ ・本件は労働安全 ・統計的な分析はんし ・導入に際しての記載あり「Many of the experiences CCMU staff voiced stories of injuries, including the nursing director, which with the use of and improvements in SPHM equipment today could have been prevented. The evidence and staff experiences told the story of the need for a change in culture and thus gave incentive to adopt the SPHM practices. The CCMU leadership shared a vision with staff of enhancing staff safety and provided evidence of the benefits of an SPHM program.」

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E071	Bowe, Sarah N and Laury, Adrienne M and Kepchar, Jessica J and Lospinoso, Joshua. Programmatic Assessment of a Comprehensive Quality Improvement Curriculum in an Otolaryngology Residency. Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery 2016; 155(5): 729-732.	3:対照群のある観察研究	前後比較研究	・「program, including didactic, web-based, and experiential learning, developed in the setting of a preexisting institutional quality and safety policy.」 ・「All trainees at our institution must complete the Institute for Healthcare Improvement Open School Basic Certificate.4,5. The web-based modules served as the foundation upon which faculty-led lectures were developed to reinforce the key principles from each topic (see Appendix A at www.otojournal.org/supplemental). ・「The web-based modules served as the foundation upon which faculty-led lectures were developed to reinforce the key principles from each topic ・「The first full complement for the didactic components occurred in the 2014-2015 academic year, including 3 PGY-2s (PGY-2 curriculum), as well as 3 PGY-3s and 3 PGY-4s (PGY3 curriculum).」 ・「目的は包括的なQIカリキュラムの評価、フォーカスしたのはQI、対象は耳鼻科のレジデント9人、関連使用ツールはweb-based、評価は受講前と受講後、受講後の質問票、実施時期は2014－2015？、実施場所は米国」	・「Nine otolaryngology residents」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「learner satisfaction, learner attitudes, and knowledge acquisition according to the Kirkpatrick framework」	・「While the total score increased across all assessments, it was significant for only the Quality Improvement Knowledge Application Tool Revised (P¥.05).」 ・「Resident evaluations were generally positive, with a mean score of 3.78 of 5 for ‘‘How would you rate this course overall?’’ Six of 9 residents would recommend the course to other residents. Notable learning points focused on methodology, exemplified by the comment that ‘‘QI requires a systematic and methodical approach to effect change.’’ Finally, when asked about their least favorite component of the course, 100% disliked the Institute for Healthcare Improvement modules.」 ・「the pre- and postcurriculum results. A positive change in the total score was noted across all assessments, although it was significant for only the QIKATR. This was true for both reviewers and was supported by the near perfect interrater agreement, with intraclass correlation coefficients of 0.921 (F = 1.364) for the pre-QIKAT-R and 0.899 (F = 1.238) for the post-QIKAT-R.」			[limitations] ・一施設の小さいサンプルサイズであること ・当該施設にはQIの専門家がいること ・コントロールがないこと [参考:論文] ・QIカリキュラムに関する評価(2014年6月までに発表されている論文、最終的に57論文を評価) [参考:査読者メモ] ・「Finally, when asked about their least favorite component of the course, 100% disliked the Institute for Healthcare Improvement modules.」という記載も [報告書用メモ] ・米国におけるIHIのopen school basic certificateの位置付け

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E072	Schmitz, Connie C and Braman, Jonathan P and Turner, Norman and Heller, Stephanie and Radosevich, David M and Yan, Yelena and Miller, Jane and Chipman, Jeffrey G. Learning by (video) example: a randomized study of communication skills training for end-of-life and error disclosure family care conferences. American journal of surgery 2016; 212(5): 996-1004.	1:無作為化比較試験	無作為化比較試験 (RCT)	「online course, ‘‘Mastering Difficult Family Conversations in Surgical Care,’’ was professionally created with an instructional designer (Y.Y.). It contained 10 modules (5 EOL, 5 ED). Each module had a power-point presentation with voiceover narration and embedded video clips illustrating more and less effective communication behaviors.」 ・「In this study, we tested an online strategy that used small ‘‘chunks’’ of video-based instructional content that did not just tell residents but showed them what effective and ineffective communication looked like and how it sounded, based on actual OSCE encounters as rated by standardized family members, surgeons, and ICU nurses.」s ・「目的はコミュニケーションスキルトレーニングプログラムの評価、フォーカスしたのはend-of-life and error disclosure family care conferences、対象はレジデント(ミネソタ大学とメイヨークリニックのレジデント、72人、関連使用ツールはビデオを活用したonline、評価はPre- to posttest effectsとfollow-up, Training condition group effects, Educational effects, 実施時期は2014ー	・「residents (n＝72) in general and orthopedic surgery programs at the University of Minnesota (UMN) and Mayo Graduate School (Mayo) were enrolled in the study.」 ・「This included 28 UMN residents (n=12 general surgery, n=16 orthopedic) and 44 Mayo residents (n=20 general surgery, n=24 orthopedic). All 4 program directors required these residents to take the Family Conference OSCE as part of their annual ACGME Milestone evaluations.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Resident feedback survey」「Use of online course materials」「OSCE performance」「Dose response」「Total group performance」「Subgroup performance」 ・2010年の調査でEOLとELのrating toolの検証済「In our 2010 study, both tools were found to be reliable (internal consistency estimates ranged from r= .935 to r=.958 for EOL, and from r=.867 to r=.940 for ED), with acceptable relative generalizability across the 6 sites (G=.89 for EOL, G=.716 for ED).	・「All residents improved (pre-post). At the group level, treatment effects were insignificant, and post-test performance was unrelated to course usage. At the subgroup level for EOL, low performers assigned to treatment scored higher than controls at post-test; and within the treatment group, post graduate year 3 residents outperformed post graduate year 1 residents.」 ・それぞれの項目について統計的な分析あり「(Online courseについては) utilization was moderate to low. Mean EOL scores on the utilization scale (range＝1 to 16) were m＝7.64 (standard deviation [SD]＝3.80) for UM, and m ＝ 6.42 (SD＝3.75) for Mayo. Utilization scores for ED were significantly different by site: m＝10.22 (SD＝3.32) for UM, and m＝1.44 (SD＝3.49) for Mayo (P ≦.001). Mayo residents reported significantly greater difficulties with logging on, navigating the site,」		・「Users may access the ‘‘Mastering Difficult Conversations in Surgical Care’’ course directly at no cost by going to the University of Minnesota Department of Surgery website [http://www.surg.umn.edu/education-residency-fellowships/more-classes/index.htm].	[limitations] ・OSCE判定結果を使っていること ・途中で予定外の施設離脱があったこと ・OSCEの判定メンバーにバイアスの可能性があること ・maturation effects ・(onlineに関する評価に共通する)クリックを「見て読んでいる」としていること ・(信頼性の検証はしてはいるものの妥当性についての検証ができておらず)シミュレーションの結果が実際の行動に通じるかが不明であること [参考:論文] [参考:査読者メモ] ・OSCEの結果を利用

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E073	Ling, Lowell and Gomersall, Charles David and Samy, Winnie and Joynt, Gavin Matthew and Leung, Czarina Ch and Wong, Wai-Tat and Lee, Anna. The Effect of a Freely Available Flipped Classroom Course on Health Care Worker Patient Safety Culture: A Prospective Controlled Study. Journal of medical Internet research 2016; 18(7): e180.	3:対照群のある観察研究	前後比較研究	・「The BASIC Patient Safety course was administered only to staff from Hospital A ICU. Safety culture was assessed in both units at two time points, one before and one after the course, by using the Hospital Survey on Patient Safety Culture questionnaire. Responses were coded according to the Survey User's Guide, and positive response percentages for each patient safety domain were compared to the 2012 Agency for Healthcare Research and Quality ICU sample of 36,120 respondents. The BASIC Patient Safety course is a blended learning course that uses a flipped classroom approach in which didactic teaching is carried out prior to participants attending face-to-face teaching. This allows face-to-face time to be dedicated to interactive sessions involving application of the knowledge already acquired. In our course, preparatory material consists of a short printed course manual and e-learning」 ・「目的は安全管理に関する研修プログラムの評価、フォーカスしたのは安全文化、対象は二つの病院のICUの医師、看護師、ヘル	・「Between April to December 2011, 117 participants attended the course, of whom 91 nurses and 8 doctors worked in ICU A. No staff from ICU B attended the course. The course was taught predominantly by senior nursing and medical staff from ICU A. The course was taught predominantly by senior nursing and medical staff from ICU A.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「the AHRQ Hospital Survey on Patient Safety Culture Excel tool」	・「After the safety course, ICU A significantly improved on teamwork within hospital units (P=.008) and hospital management support for patient safety (P<.001), but decreased in the frequency of reporting mistakes compared to the initial survey (P=.006). Overall, ICU A staff showed significantly greater enhancement in positive responses in five domains than staff from ICU B. Pooled data indicated that patient safety culture was poorer in the two ICUs than the average ICU in the Agency for Healthcare Research and Quality database, both overall and in every individual domain except hospital management support for patient safety and hospital handoffs and transitions」			[limitations] ・the possibility of confounding factors : ただし本調査はICUAとICUBの比較というよりそれぞれの施設の変化を重視 ・プログラムそのものではなく、senior nursing and medical staff によって教育されたことによる影響の可能性 ・二つのICUのみ ・短期的効果のみ等

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E074	Härkänen, Marja and Voutilainen, Ari and Turunen, Elina and Vehviläinen-Julkunen, Katri. Systematic review and meta-analysis of educational interventions designed to improve medication administration skills and safety of registered nurses. Nurse education today 2016; 41(): 36-43.	1A:システマティックレビューまたはメタアナリシス	システマティックレビュー	・「The aim of this study is to evaluate the nature, quality and effectiveness of educational interventions designed to increase the medication administration skills and safety of registered nurses working in hospitals」. ・「The specific research questions were:① What kind of educational interventions have been conducted to increase the medication administration skills and safety of registered nurses? (Narrative synthesis)、② What was the quality of these intervention studies? (Quality assessment)、③ How effective have interventions been in reducing MAEs and/or increasing」 safety or skills? (Meta-analysis)」 ・目的は「どのような教育が行われているか」「介入の質のレベル」「教育効果」、フォーカスしたのはRNの薬剤の使用と安全、対象は論文、時期は2015年4月、発表者はフィンランド	・「A total of 755 studies were identified and 14 intervention studies were reviewed.」 ・「Search terms: medication/drug; administration, safety/error/incident/near miss; skill/competence; nurse.」	3:安全と間接的に関係するその他の測定可能なアウトカム	test score (knowledge of medication administration, learning outcomes and error risks)	・「Interventions differed by their nature, including traditional classroom training, simulation, e-learning, slide show presentations, interactive CD-ROM programme, and the use of posters and pamphlets. All interventions appeared to improve medication administration safety and skills based on original p-values. Only five studies reached strong (n = 1) or moderate (n = 4) quality ratings and one of them had to be omitted from the meta-analysis due unclear measures of dispersion. The meta-analysis favoured the interventions, the pooled effect size (Hedges' g) was large, 1.06. The most effective interventions were a blended learning programme including e-learning and a 60-min PowerPoint presentation. The least effective educational intervention, an interactive internet-based e-learning course, was reported in the study that achieved the only strong quality rating.」			[limitations] ・使用したEPHPP: EPHPP tool is mostly focusing on the quality of the research and reporting process, not the quality of the intervention. ・The contents and methods of the interventions included to the meta-analysis were all different, although all studies were either randomised controlled trials or controlled clinical trials, which for its part reduced heterogeneity ・The present meta-analysis was small (only four studies) ・the grey literatureを対象にしていない [参考:査読者メモ] ・MAEsの定義に関する記載あり ・PCIOmethodに関する記載あり ・除外基準に関する記載あり ・14編に関する評価の記載あり [報告書用メモ] ・論文絞り込みのわかりやすいFigあり

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E075	Putnam, Luke R and Pham, Dean H and Ostovar-Kermani, Tiffany G and Alawadi, Zeinab M and Etchegaray, Jason M and Ottosen, Madelene J and Thomas, Eric J and Lesslie, Donald P and Kao, Lillian S and Lally, Kevin P and Tsao, KuoJen. How Should Surgical Residents Be Educated About Patient Safety: A Pilot Randomized Controlled Trial. Journal of surgical education 2016; 73(4): 660-7.	1:無作為化比較試験	無作為化比較試験(RCT)	・「all general surgery residents in our institution participate in a hospital-based, online patient safety curriculum during the orientation process, before working with patients in the hospital. The OC is called “breakthroughs in patient safety” and takes approximately 1 hour to complete. It covers topics such as error reduction, enhanced communication, and support for colleagues; however, it is not discipline specific nor does it focus on patient safety issues from a resident trainee perspective. Residents are not required to retake the OC once it has been completed. 」 ・「Residents randomized to the intervention group partici- pated in an adjunctive SW. The workshop entailed a dedicated,4-hour session designed and led by surgeon and anesthesia leaders. The curriculum included didactics, small group breakout sessions, and interactive team-building activities. The overarching goal of the workshop was to broaden and reinforce the residents’ understanding of effective communication, error identification, and other safety practices of high-reliability	・「51人の外科レジデントをランダムにonline群(25人)とonline＋ワークショップ群(26人)」「All preliminary and categorical general surgical residents at the University of Texas Health Science Center at Houston in January 2014 were eligible for enrollment.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Primary outcomes were perceptions of safety culture, teamwork, and speaking up as per the validated safety attitudes questionnaire (SAQ) at 6 and 12 months post intervention. 」 ・「Secondary outcomes included behavioral scores from blinded surgical faculty using the Oxford Non Technical Skills scale.」	・「A total of 51 residents were enrolled (control=5, intervention=26). SAQ response rates were 100%, 100%, and 76% at baseline,6months,and12months, respectively. SAQ scores were similar at baseline between groups and did not change significantly at 6 or 12 months, independent of postgraduate year (PGY)level. Overall Non Technical Skills scores were similar between groups, but senior residents(≧PGY 4)in the OC ＋ SW group scored significantly higher in teamwork, decision-making, and situation awareness(all $p < 0.05$).」			［limitations］ ・サンプルサイズ ・グループ間のコンタミネーション ・blindではない ・(NOTECHSを使った)ファカルティメンバーによる評価の信頼性 ・CNとWS双方でNOTECHSのベースラインがとれていない ・本施設における調査 ［参考:論文］ ・本調査はパイロット ［参考:査読者メモ］ ・HROに関する記載あり ［報告書用メモ］ ・測定ツール(本調査の)「SAQ」と「the Oxford Non Technical Skills scale.(the NOTECHSシステム)」等の「既存のツール」のほか、「自前のツール」「先行研究で使用したツール」等あることに注意

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E076	Magin, Parker J and Morgan, Simon and Tapley, Amanda and Davis, Joshua S and McArthur, Lawrie and Henderson, Kim M and Mulquiney, Katie J and Dallas, Anthea and Davey, Andrew R and Scott, John and van Driel, Mieke L. Reducing general practice trainees' antibiotic prescribing for respiratory tract infections: an evaluation of a combined face-to-face workshop and online educational intervention. Education for primary care : an official publication of the Association of Course Organisers, National Association of GP Tutors, World Organisation of Family Doctors 2016; 27(2): 98-105.	3:対照群のある観察研究	前後比較研究	・「The separate interventions for registrars and supervisors were both comprised of (i) a 90-min face-to-face educational session conducted during separate daylong educational workshops and (ii) two online educational modules specified as pre-reading for the educational sessions. The content of the modules was identical for registrars and superyisors. For supervisors, the workshop sessions included (as well as the material in the registrar sessions) guidance on teaching registrars about rational antibiotic prescribing. The location and group size of the workshop sessions were dictated by logistic and geographic factors. 」 ・「six respiratory tract infection vignettes」 ・「目的はa combined face-to-face workshop and online educational interventionの評価、フォーカスしたのはantibiotic prescribing for respiratory tract infections、対象はGP registrarsとsupervisors、pre-postを共に終了したのは合計170人、関連使用ツールは一部にonline、評価は質問票、前後、実施時期は2005年、実施場所はオーストラリア」	・「The study population was GP registrars in two of Australia 17 Regional Training Providers (RTPs) and supervisors in one of the RTPs. Registrars were in Terms 1 and 2 of their three mandatory general practice-based training terms. Each term lasts six months (full-time equivalent). These GP terms are undertaken after at least two years full-time equivalent spent in hospital training. 」 ・「GP registrarsはpre-postを共に終了したのは75人、supervisorsは95人」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「a questionnaire-based evaluation of a pragmatic intervention,」	・「We found that, for registrars, there were statistically significant reductions in antibiotic prescribing for the sore throat (24.0% absolute reduction), otitis media (17,5% absolute reduction) and two of the three acute bronchitis (12.0% and 18.0% absolute reduction) vignettes. There were significant reductions in supervisors' antibiotic prescribing intentions for the same four vignettes. We conclude that our intervention produced a significant change in registers' intention to prescribe antibiotics for non-pneumonia RTIs.」			[limitations] ・実際の処方ではないこと ・知識だけでは十分ではない ・コントロールがない等

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E077	Grundgeiger, Tobias and Kolb, Lorenz and Korb, Maximilian O and Mengelkamp, Christoph and Held, Volker. Training students to use syringe pumps: an experimental comparison of e-learning and classroom training. Biomedizinische Technik. Biomedical engineering 2016; 61(2): 211-20.	1:無作為化比較試験	無作為化比較試験 (RCT)	・「The study was conducted in two parts. The first part included (1) the training (e-learning oi classroom), (2) the immediate knowledge test, and (3) the questionnaires. The second part consisted of the follow up test only. ・「Within the constraints of the German Medical Devices Operator Ordinance Act [18], author VH and DokuPartner GmbH developed an e-learning program for product knowledge in cooperation with the Fresenius Kabi Deutschland GmbH (Bad Homburg, Germany).」 ・目的はe-learningと従来の教室での教育効果の比較、フォーカスしたのはシリンジポンプ、対象は看護学生(大学生と看護学校生)59人、関連使用ツールはthe German Medical Devices Operator Ordinance Act に準じて作成されたプログラム、評価はテストと質問票、「e-learning」と「従来の教室での教育効果」、「前」と「後」、「大学生」と「看護学校生」、実施時期は記載なし2014年？、実施場所はドイツ	・「59 participants (3O university students and 29 nursing students).」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Knowledge test」「Questionnaire data」	・「The results showed that e-learning was as effective as classroom training but nursing students' confidence in using the pump and satisfaction with the training was decreased for e-learning compared with classroom training.」 ・「(Knowledge test) no main effects of training [e-learning: M=65.27Vo, SD=13.46 vs. classroom: M=62.6T/o, SD=72.67; F(1,55)=0.773, p=O.383, lp']=0.0141, group [university students: M=55.67%, SD=1O.83 vs. nursing students: M-61.O8%, SD=14.61; F(1,55)=2.9O3,p=o.o94, np'?=0.o501, and test time [immediate: M=63.92%, SD=13.02 vs. follow-up: M=60..77%, SD=16.1o;F(1,55)=3.091, p=o.084, rlp'?=0.0531. None of the interactions were significant [all F(1,55)<1.500]. 」 ・前後、群間比較等の統計的分析あり		・「E-leaming has also been considered to be more cost-efficient compared with traditional leaming methods, but studies specificatty addressing this aspect are missing」の記載があるが先行文献からの引用	[limitations] ・サンプルサイズ ・適切な質問が限られてるため同じ前後で質問を使用していること ・大学生と看護学校生の差 ・シリンジポンプといっても調査したのはシリンジドライバー(シリンジポンプの操作そのものではない) [参考:査読者メモ] ・ドイツ特有の事情 「Furthermore, in Germany, the training has to be conducted in the presence ofan authorized tlainei. Because of shift work, heayy workloads, and trainer availability, the coordination of staff training is difficult and time consuming. In addition, training itself takes time, and sometimes only a single nurse is trained.」

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E078	Harris, Rosiland. Improving Preceptors' Knowledge on Medication Error Reduction Strategies. Medsurg nursing : official journal of the Academy of Medical-Surgical Nurses 2014; 23(6): 402-7.	3:対照群のある観察研究	前後比較研究	・「The intervention, a three-part online learning module on medication error reduction strategies」 ・「Part one of the module included background information and the scope of the problem on medication errors. Part two addressed alternative methods for drug calculation and practice issues relating to the administration of wrong dose. Part three reviewed risky practice behaviors as well as evidence-based medication error reduction strategies.」 ・「目的は教育プログラムの評価、フォーカスしたのは薬剤エラー(特に計算)、対象はプリセプターになる可能性のある看護師、37人、関連使用ツールはonline、評価はテスト、questionnaire、前後、実施時期は明確な記載なし2014年？、実施場所はアメリカ	・「Only 21 completed all phases of the project (pretest, online modules, posttest, and participant satisfaction survey).」 ・「Selection criteria for the participants were at least 1 year of experience and previous service in the role of a preceptor. Clinical nurses, advanced practice nurses, and clinical educators serving as preceptors in an acute care setting」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「pretest」「posttest」「participant satisfaction survey」	・「This CQI project used an online educational medication module to increase preceptors' knowledge on medication error reduction strategies.」 ・「A statistically significant difference in the pretest and posttest knowledge scores of participants (t(20) = -5.706, p<0.01) confirmed an increase in preceptors' knowledge completion of the computer-based educational module」			[limitations] ・一つの急性期施設 [報告書用メモ] ・薬剤に関するエラー防止策についての記載あり(ダブルチェック、IVラベリング、等)
E079	Swensson, Jordan and McMahan, Lane and Rase, Ben and Tahir, Bilal. Curricula for Teaching MRI Safety, and MRI and CT Contrast Safety to Residents: How Effective Are Live Lectures and Online Modules? Journal of the American College of Radiology : JACR 2015; 12(10): 1093-6.	2:非無作為化比較試験	前後比較研究	・「a set of 3 modules was created by the investigators, each focusing on 1 of the areas described.:「MRI safety」「MRI contrast and contrast use safety」「 CT contrast and contrast use safety.」 ・「目的はカリキュラムの評価、フォーカスしたのは「MRI safety」「MRI contrast and contrast use safety」「CT contrast and contrast use safety.」、対象はレジデント、57人、関連使用ツールはonline、評価は「live lecture群」と「online module群」、前後も、実施時期は明確な記載なし2015年？、実施場所はアメリカ」	・「A total of 50 of the 57 residents completed the entire CT study; 51 of the 57 residents completed the entire MRI study. (single large academic radiology residency program)」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「questions on MRI safety, CT safety, and CT contrast used to assess knowledge」 ・「A set of 42 questions was designed by the investigators to cover the areas of MRI safety, MRI contrast and contrast use safety, and CT contrast and contrast use safety. Specific topics included types and doses of MRI and CT contrast, contrast reactions, contraindications, and MRI department zones」	・「The degree of improvement in the lecture group was not significantly different, compared with the module group, in knowledge of either CT contrast and safety or MRI contrast and safety; P=.82 and P=.43, respectively. The residents expressed a statistically significant increase in their relative comfort level with knowledge of issues of CT and MRI contrast and safety on a 5-point Likert scale, from 2.97 to 3.55 on CT (P < .005) and 2.65 to 3.28 on MRI (P < .005).」			[limitations] ・レジデントの知識だけを測定していること ・単一の施設のレジデントを対象にしていること ・CT、MRI、医療安全といった項目だけを対象にしていること [参考:査読者メモ] ・Randomではない

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E081	Abdollahi, Alireza and Sheikhbahaei, Sara and Meysamie, Alipasha and Bakhshandeh, Mohammadreza and Hosseinzadeh, Hasan. Inter-observer reproducibility before and after web-based education in the Gleason grading of the prostate adenocarcinoma among the Iranian pathologists. Acta medica Iranica 2014; 52(5): 370-4.	3:対照群のある観察研究	前後比較研究	・「150 tissue samples of prostatic adenocarcinoma are re-examined to be scored according to the Gleason scoring system. Then all pathologists attend a free web-based course. Afterwards, the same 150 samples [with different codes compared to the previous ones] are distributed differently among the pathologists to be assigned Gleason scores.」 ・「目的はWeb-Based Educationの評価、フォーカスしたのはthe Gleason Grading of the Prostate Adenocarcinoma、対象は病理医、3人、関連使用ツールはWeb-Based Education、評価はInter observer Agreement 、実施時期は2009～20010年、実施場所はイラン」	・「3つの病院から無作為に選ばれた病理医、3人」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「the concordance rate in the first and second reports of pathologists」	・「In the pre web-education, the mean kappa value of Interobserver agreement was 0.25 [fair agreement]. Post web-education significantly improved with the mean kappa value of 0.52 [moderate agreement]. Using weighted kappa values, significant improvement was observed in inter-observer agreement in higher scores of Gleason grade; Score 10 was achieved for the mean kappa value in post web-education was 0.68 [substantial agreement] compared to 0.25 (fair agreement) in pre web-education.」		・「Web-based training courses are attractive to pathologists as they will not need to spend much time and money. 」の記載あり。	[limitations] ・病理医の数が少ない ・サンプルサイズが小さい [参考:査読者メモ] ・self-controlled study

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E082	Catling, Finneas and Williams, Jane and Baker, Robert. A prescribing e-tutorial for medical students. The clinical teacher 2014; 11(1): 12236.	3:対照群のある観察研究	前後比較研究	・「an online e-tutorial (Prepare for the PSA) was designed. The e-tutorial consists mainly of a practise exam that closely mirrors the format of the PSA itself.」 ・「目的はPSAに準じたonline e-tutorial(Prepare for the PSA)の評価、フォーカスしたのは処方、対象は医学生最終学年、最終的に119 -121人、関連使用ツールはon-line、評価はテスト、質問票、受講の前後、実施時期は明確な記載なし2013年？、実施場所はイギリス)	・「A total of 248 final-year students at a UK medical school were asked to evaluate the e-tutorial and rate their prescribing confidence before and after completing it」 ・「A total of 207 non-duplicate survey responses were received; 137 respondents reported having completed PftPSA and 119-121 provided data on their pre- and post-PftPSA」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「evaluate the e-tutorial 」「rate their prescribing confidence」	・「The results show that completing the e-tutorial is associated with highly significant ($p < 0.0001$) increases in confidence across all prescribing skills.」 ・「Prescribing confidence data for students who completed the survey before and after the PSA pilot were not found to be significantly different on Mann-Whitney tests ($1444 \leq U \leq 1716$; $-0.65 \leq Z \leq 0.97$; $0.32 \leq p$ (two-tail) ≤ 0.98), and these subgroups were subsequently combined. Prescribing confidence data were graphed (see Figure 3) and analysed using Wilcoxon signed-rank tests (see Table 2), showing that completing PftPSA is associated with highly significant increases in confidence across all prescribing skills.」			[limitations] ・評価方法が「a subjective surrogate outcome measure (selfreported prescribing confidence)」であること ・PftPSA は a single UK medical school」で開発されたものであること. [参考:論文] ・PSAとは「The Prescribing Safety Assessment (PSA) is a new national examination in the UK aimed at ensuring prescribing competence in final-year medical students, which is currently being piloted prior to its full implementation during the 2013/14 academic year. The proposed exam is 120 minutes long, is computer-based and contains eight question types, covering topics in medicine, surgery and the common specialities (see Table 1).] [参考:査読者メモ] ・Facebook に関する記載もあり「The e-tutorial is integrated with several popular social media websites, including a companion

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E083	Soh, BaoLin Pauline and Reed, Warren Michael and Poulos, Ann and Brennan, Patrick C. E-tutorial improves students' ability to detect lesions. Radiologic technology 2013; 85(1): 17-26.	1:無作為化比較試験	無作為化比較試験 (RCT)	・「an online e-learning tutorial between sessions. Eighty mammographic breast images from 20 cases were obtained from a validated online image bank. Of those 20 cases, 30% were normal and 70% demonstrated a single-lesion abnormality.」 ・「The Web-based tutorial focused on female breast anat¬omy, image positioning, mammogram viewing, mammo¬gram analysis, mammographic appearance of the normal breast, and appearances of asymmetric density and masses. The tutorial took, on average, 1 hour to complete.」 ・「目的はan online e-learning tutorial の評価、フォーカスしたのは mammographic breast images 、対象はmedical radiation sciences (MRS) students、14人、関連使用ツールはan e-learning tutorial、評価は、before、after、実施時期は明確な記載なし2013年？、実施場所はオーストラリア」	・「Fourteen first-year MRS students participated in this study and were randomly assigned to either a control or an experiment group (7 per group).」 ・「14人のfirst-year medical radiation sciences (MRS) students」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Eye Tracking」「Observer Performance:AUC values, sensitivity, and specificity」「Error Analysis」	・「The experiment group demonstrated a 45% increase in the mean number of fixations per case (P = .047), with a 30% increase in sensitivity (P = .022) following the tutorial. The experiment group also demonstrated improved lesion detection overall and a 49% decrease in mean time to first fixation on the lesion (P = .016).」			[limitations] ・サンプルサイズが小さいこと ・実臨床との差があること ・conventional ROCを使用していること ・コントロールがないこと

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E084	Rodrigues, Jonas Almeida and de Oliveira, Renata Schlesner and Hug, Isabel and Neuhaus, Klaus and Lussi, Adrian. Performance of experienced dentists in Switzerland after an e-learning program on ICDAS occlusal caries detection. Journal of dental education 2013; 77(8): 1086-91.	3:対照群のある観察研究	前後比較研究	・「an e-learning program on the validity and reproducibility of the International Caries Detection and Assessment System (ICDAS) in detecting occlusal caries.」 ・「an e-learning program was developed to explain the ICDAS method of recording and moni¬toring the presence of caries and to support training in the use of ICDAS. The ninety-minute e-learning program is available online in four anguages (Eng-lish, German, Portuguese, and Spanish) and explains ICDAS examination protocol and reviews the coding system. This e-learning program was designed to be a general introduction to the criteria and codes.」 ・「目的はICDAS を学ぶe-learning programの評価、フォーカスしたのは International Caries Detection and Assessment System (ICDAS)、対象は平均8年の経験のある歯科医、4人、関連使用ツールはe-learning、評価は、before after、実施時期は明確な記載なし2013年？、実施場所はスイス」	・「The visual assessments were carried out by four dentists (A, B, C, and D) in Switzerland with an average of eight years (range seven to nine years) of clinical practice and no previous experience in the ICDAS scores」 ・(学生を対象にしたものはあるけれど)経験のある歯科医を対象にして評価したものはない。	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Specificity」「Sensitivity」「Accuracy」「AUC」	・「 Sensitivity before and after the e-learning program was 0.80 and 0.77 (D1), 0.72 and 0.63 (D2), and 0.74 and 0.67 (D3,4), respectively. Specificity was 0.64 and 0.69 (D1), 0.70 and 0.81 (D2), and 0.81 and 0.87 (D3,4). A McNemar test did not show any difference between the values of sensitivity, specificity, accuracy, and area under the ROC curve (AUC) before and after the e-learning program. The averages of wK values for interexaminer reproducibility were 0.61 (before) and 0.66 (after). Correlation with histology presented wK values of 0.62 (before) and 0.63 (after). A Wilcoxon test showed a statistically significant difference between before and after the e-learning program. In conclusion, even though ICDAS performed well in detecting occlusal caries, the e-learning program did not have any statistically significant effect on its performance by these experienced dentists.」			[limitations] ・(先行研究に反して)統計的な有意差がなかった理由としていくつか記載あり ・練習の時間が先行研究より短いこと ・英語が母国語ではない被検者がいたこと、など

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E085	Lee, Tzu-Ying and Lin, Fang-Yi. The effectiveness of an e-learning program on pediatric medication safety for undergraduate students: a pretest-post-test intervention study. Nurse education today 2013; 33(4): 378-83.	2:非無作為化比較試験	前後比較研究	・「The effectiveness of an e-learning program on pediatric medication safety for undergraduate students: A pretest-post-test intervention study ・「The e-learning program was developed through the five phases of the ADDIE model (analysis, design, development, implementation, and evaluation). The contents of the e-learning program, Pediatric Medication Safety, were developed based on the literature, findings from interviews with nursing faculty and students (Lee, 2009), and in consultation with medical and nursing experts.」 ・「目的はan e-learning program の評価、フォーカスしたのはpediatric medication safety、対象は看護学生、349人、関連使用ツールはe-learning、評価は、受講群と非受講群、pre test、post test、実施時期は2011～2012年、実施場所はタイペイ」	・「There were 357 students who voluntarily participated; 349 completed the study. Eighty students (23%) were in the comparison group and 269 (77%) students ・「Students in the Spring semester of 2011 were recruited to the comparison group, and in the following two semesters students (143 in Fall semester of 2011 and 126 in Spring semester of 2012) were recruited to the intervention group. n the intervention group.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「pediatric medication management, including pediatric medication knowledge and calculation ability」	・「The intervention group had significantly higher pediatric medication management scores at completion of the lecture course and at the completion of the clinical practicum than the comparison group based on the first day of the lecture course, after adjusting for age, nursing program, and having graduated from a junior college in nursing. Overall, the students appreciated the program that included various teaching modalities content that related to the administration of medication.」 ・「(medication management scoresについては) The intervention group had a significantly higher pediatric medication management score at post-test 1 (β =6.84, pb0.001) and post-test 2 (β =8.53, pb0.001) than the comparison group at the pretest, after adjusting for age, nursing program, and having graduated from junior college in nursing.」			[limitations] ・二つのグループは同じ学期に調査できていないこと ・ランダム化していないこと ・e-learningについては学生がどのくらいの時間を使っているか正確にわからないこと

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E086	Cerecero, Jennifer A and Charlton, Michael A. Designing, implementing, and conducting a web-based radiation safety training program to meet Texas standards for radiation protection. Health physics 2012; 103(5): S188-92; quiz S193.	2:非無作為化比較試験	非無作為化比較試験	・「a Web-Based Radiation Safety Training Program to Meet Texas Standards for Radiation Protection」 ・「目的はa Web-Based Radiation Safety Training Programの策定・実行・評価、 フォーカスしたのは Radiation Safety 、対象はリサーチセンターの職員: radiation safety courseを受講しなければならない laboratory workers(各群14名？合計28名？) 、関連使用ツールはweb-based、評価は,「the classroom course」と「the web-based course」、実施時期は明確な記載なし2012年？、実施場所はアメリカ」	・「The University of Texas Health Science Center at San Antonio (institution) のradiation safety courseを受講しなければならないlaboratory workers(各群14名？合計28名？)	3:安全と間接的に関係するその他の測定可能なアウトカム	・「The post-test was fifteen questions that covered materials such as radioactive waste, gamma radiation, laboratory specific procedures, dosimetry, spill response, instrumentation, regulations, and radiation biology.」	・「The final web-based radiation safety training program was evaluated by a standard examination that it is equivalent to the knowledge gained in the class room course. The results of the scores for the standard examination were equivalent for both the classroom and the web based course. However, the web-based version with the in the classroom has saved 5,407 h total throughout the institution.」		・「This includes a savings of 5,407 h. The values were derived from the 163 principal investigators with at least one research assistant and postdoctoral fellow per laboratory and one instructor for the course twice a year: ・ Previous time investment when classroom only ・ 163 individuals x 3 groups x 20h classroom =9,78Oh ・ l instructor x20 h x 2timesa /ear = 40 h ・ Total previous investment = 9,820 h . New time investment when web-based 8 h and the classroom・ 163 individuals x 3 groups x the (B web-based and L classroom) = 4,4Olh . 1	［参考:論文］ ・「The classroom course required individuals to stop vital research during normal business hours and would require instructors to take a day to teach the course.」 ［参考:査読者メモ］ ・「current classroom radiation safety course is only offered semi-annually due to the time requirement of personnel to teach the course, and therefore estricts the incorporation of new personnel that may enter the institution in between course offerings. For example, an individual could begin working in August but the course is not offered until January of the next year, which would delay work 5 mo.」 「The current course requires instructors and radiation safety Personnel to take work time to teach the total of 20 h of presentations. Making this course web-based will be a cost effective solution to this problem.」を背景に、

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E087	Polivka, Barbara J and Chaudry, Rosemary Valedes and Mac Crawford, J. Home environmental hazard education for undergraduate and prelicensure nursing students. The Journal of nursing education 2012; 51(10): 577-81.	2:非無作為化比較試験	前後比較研究	・「The education module, which is based on the National Center for Healthy Housing's framework for Healthy Homes, was developed, implemented, and evaluated in three phases. Phase 1 included nine Web-based recorded lectures on the Healthy Homes principles and on home assessment and referral. ln the next phase, a Healthy Homes clinical laboratory simulation(home visit scenario and four rooms of an apartment) was created. Phase3 involved piloting home visits by students who, under the supervision of a clinical instructor, conducted Healthy Homes assessments of clients living in two low-income subsidized housing sites. Using a pretest-posttest format, students' knowledge of Healthy Homes concepts significantly increased after completing the Phase 1 Web-based lectures. Student evaluations, which were collected after each phase, were consistently positive.」 ・「目的は教育プログラムの評価、フォーカスしたのは home environmental hazard education、対象は看護学生、297人、関連使用ツールは一部にインターネット、	「undergraduate and prelicensure nursing students.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「pretest-posttest assessments of knowledge gained from the recorded lectures(a 20-item, multiple choice online quiz)」「student surveys of satisfaction with the recorded lectures, the clinical simulation, and home visits」「review of completed Healthy Homes simulation PEHA assessment forms to determine students' competency in identifying and recording key hazards in the simulated rooms」	・「Results of paired t tests indicated that quiz scores(n=332) increased significantly from an average of 14.25 (SD=2.16) correct answers tot6.54 correct answers(SD=2.3) (tl22=12.6, p<0.001). Quiz scores increased significantly for all three student groups(traditional BSN, second-degree graduate prelicensure, BSN completion), with the second-degree graduate prelicensure student scores increasing significantly more than scores for the BSN completion students(2.57 points versus2.4 points for traditional BSN,1.5 points for BSN completion; F=3.8; p=0.024).」		・「Although our multistep approach to Healthy Homes education was implemented successfully, any educational institution adopting our approach will incur costs of developing simulation materials and purchasing supplies to provide to residents for in home visits. We are exploring the possibility of developing virtual reality and gaming environment simulations that would reduce simulation costs」	[参考:論文] ・「Healthy Homes Framework :The National Center for Healthy Housing's(NCHH) frame- work for Healthy Homes, which guided this project, is based on the premise that a well-constructed, maintained, or rehabilitated home supports the health of its residents(NCHH, 2012). Healthy Homes is a holistic approach in which the home is viewed as a system. The seven core principles of Healthy Homes are Keep it: Dry, Clean, Post-Free, Well Maintained, Contaminant-Free, Ventilated, and Safe.」 [参考:査読者メモ] ・home environmental hazard educationという領域もあり

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E088	Pusic, Martin V and Andrews, John S and Kessler, David O and Teng, David C and Pecaric, Martin R and Ruzal-Shapiro, Carrie and Boutis, Kathy. Prevalence of abnormal cases in an image bank affects the learning of radiograph interpretation. Medical education 2012; 46(3): 289-98.	1:無作為化比較試験	無作為化比較試験(RCT)	・「(著者らが作った) a paediatric ankle trauma radiograph case bankから作った、three different 50-case training sets, which varied in their proportions of abnormal cases (30%, 50%, 70%). Levels of difficulty and diagnoses were similar across sets.」 ・「目的は(教材として組み込む)normalとabnormalの比率と学習効果の評価、フォーカスしたのはa paediatric ankle trauma radiograph、対象は救急と小児科のレジデント、(30%abnormal、33人、50%abnormal、29人、70%abnormal、58人)、最終的に100人、関連使用ツールはon-lineトレーニングセット、評価は3群(30%abnormal、50%abnormal、70%abnormal)、実施時期は2009年、実施場所はアメリカ」	・「six academic training programmes for emergency medicine and paediatric residents in post-licensure years 2-5.」 ・「30%abnormal、33人、50%abnormal、29人、70%abnormal、58人」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Accuracy」「Sensitivity」「Specificity 」「False positive rate」「False negative rate」「Discrimination parameter」「Criterion parameter」	・「The groups did not differ in accuracy on the post-test (p = 0.20). However, they showed considerable variation in their sensitivity-specificity trade-off. The group that received a training set with a high proportion of abnormal cases achieved the best sensitivity (0.69, standard deviation [SD] = 0.24), whereas the groups that received training sets with medium and low proportions of abnormal cases demonstrated sensitivities of 0.63 (SD = 0.21) and 0.51 (SD = 0.24), respectively (p < 0.01). Conversely, the group with a low proportion of abnormal cases demonstrated the best specificity (0.83, SD = 0.10) compared with the groups with medium (0.70, SD = 0.15) and high (0.66, SD = 0.17) proportions of abnormal cases (p < 0.001). The group with a low proportion of abnormal cases had the highest false negative rate and missed fractures one-third more often than the groups that trained on higher proportions of abnormal cases.」			[limitations] ・考察のなかにあれこれの記載あり ・実臨床とは異なること ・被検者のレジデントの多くが小児科で、結果が他の領域に応用できるかどかわからないことなど [参考:論文] ・「Although all three groups learned to an educationally important degree from our intervention, they did so using different sensitivity-specificity trade-offs. The group that received the lowest proportion of abnormal radiographs was more accurate with negative radiographs and thus had a higher specificity. Conversely, the group that trained on the mix with the highest proportion of abnormal radiographs demonstrated greater sensitivity and detected more abnormalities when abnormalities were present. Thus, evidence from this research supports the use of deliberate practice with radiographs to improve overall performance, but

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E089	Buijze, Geert A and Guitton, Thierry G and van Dijk, C Niek and Ring, David and Science of Variation Group, [Collective Name]. Training improves interobserver reliability for the diagnosis of scaphoid fracture displacement. Clinical orthopaedics and related research 2012; 470(7): 2029-34.	1:無作為化比較試験	無作為化比較試験(RCT)	・「The training group received an online training module before the rating session, and the nontraining group did not.」 ・「The training group was instructed that for purposes of this study no measurements should be taken on any of the radiographic images. Displacement was defined as any gapping, angulation, or translation of the fracture (regardless of comminution)—anything more than a crack. Instead of measurements, the module provided instructions for a definition of displacement based on CT scans. For each type of fracture displacement, image examples were provided to illustrate a displaced fracture and a nondisplaced fracture」その後、レーティング ・「目的は教育の効果、フォーカスしたのは diagnosis of scaphoid fracture displacement on radiographs and CT scans、対象はfully trained orthopaedic and trauma surgeons、64人、関連使用ツールはonlineトレーニング、評価は「トレーニング群」と「非トレーニング群」、実施時期は記載なし2012？、実施場所は数か国(オランダ)」	・「Sixty-four fully trained orthopaedic and trauma surgeons who practice in various parts of the world participated in this observer study through a recently developed online forum for the Science of Variation (www.scienceofvariation group. org). The total group of observers consisted of 57 male and seven female attending orthopaedic and trauma surgeons from multiple countries, with the majority practicing in the United States (58%).Before rating, the observers were randomized to a training group (34 observers) and a nontraining group (30 observers) 」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「interobserver reliability and sensitivity, specificity, and accuracy for the diagnosis of scaphoid fracture displacement on radiographs and CT scans.」	・「There was a small, but significant difference in the interobserver reliability for displacement ratings in favor of the training group compared with the nontraining group. Ratings of radiographs and CT scans combined resulted in moderate agreement for both groups. The average sensitivity, specificity, and accuracy of diagnosing displacement of scaphoid fractures were, respectively, 83%, 85%, and 84% for the nontraining group and 87%, 86%, and 87% for the training group. Assuming a 5% prevalence of fracture displacement, the positive predictive value was 0.23 in the nontraining group and 0.25 in the training group. The negative predictive value was 0.99 in both groups.」			[limitations] ・テストの条件と実臨床との差について何点か言及 [参考:論文] ・「This study was part of a nascent collaborative called the Science of Variation Group (SOVG). The objectives of the collaborative are to study variation in the definition, interpretation, and classification of injury and disease. The SOVG has created a web-based platform (www. scienceofvariationgroup.org, Amsterdam, The Netherlands) that facilitates large international interobserver studies. With multiple fully trained surgeons from diverse countries and institutions participating in studies, this approach should provide a powerful forum for studying, understanding, and ultimately reducing interobserver variation in aspects of patient care」のプロジェクト [参考:査読者メモ] ・「Interobserver

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E090	Coil, Clinton and Kaji, Amy H and Crevensten, Henry and Aaron, Kenneth E and Lewis, Roger J and Coates, Wendy C. Screen savers as an adjunct to medical education on patient safety. Joint Commission journal on quality and patient safety 2011; 37(11): 524-8.	2:非無作為化比較試験	前後比較研究	・「Screen savers were designed to teach 10 patient safety concepts based on The Joint Commission's National Patient Safety Goals. 」 ・「The third-year medical students rotating at the intervention medical center were exposed to the patient safety screen savers throughout their three-to-four-week rotations, while students rotating at the control site were not.」 ・「目的はScreen Savers の評価、フォーカスしたのは The Joint Commission's National Patient Safety Goals 、対象はローテーション中の医学生3年生、41人、350人、関連使用ツールは一部にインターネット、評価は介入群とコントロール群、27人と14人、pre-test, post-test、実施時期は2009年、実施場所はアメリカ」	・「A total of 167 medical students began their third year at the medical school in June 2009. The medical school nonrandomly assigned 27 of the students to the intervention hospital and 14 to the control hospital.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「The 20-item multiple choice test」	・「This study did not demonstrate that screen savers were more effective than general clinical exposure for improving performance on an objective test of patient safety knowledge.」 ・「Students showed some improvement in patient safety knowledge after completing their first clinical rotation, regardless of screen-saver exposure. This improvement was likely due to general exposure to appropriate safety practices as exhibited by house staff and faculty. Despite the widespread use of screen savers, no evidence was provided that they are an effective method for teaching patient safety concepts to medical students.」 ・「The median pretest score for the intervention and control groups was 45% (interquartile range [IQR], 40%-55%) and 40% (IQR, 35%-50%), respectively. The median improvement in test scores was 15% for both the 11 students in the control group (IQR, 10%-25%) and the 27 students in the intervention group (IQR: 10%-20%)—both at p < .001.」			[limitations] ・サンプルサイズが小さいこと ・サブグループ(3ヶ月と4か月」の比較ができていないこと ・サンプルサイズが小さいため評価が限定的にならざるを得なかったこと ・ランダム化していないこと [参考:論文] ・前後の違いはスクリーンセーバー以外の要因の可能性(ローテーションの中での学習) ・学習することが多すぎてスクリーンセーバーから学習する余裕がない可能性 ・「It is also possible that exposure to any particular message may have been diluted by too many different screens. Employee feedback at Denver Health Medical Center, which has been using screen savers for education for several years, suggested that no more than eight screens should be used in a series.6 So-called "re-minder fatigue" may also come into play, especially for the hospital staff who had grown accustomed to

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E091	Havsteen, Inger and Christensen, Anders and Nielsen, Jens K and Christensen, Louisa and Krieger, Derk W and Christensen, Hanne. E-learn computed tomographic angiography: a proposed educational tool for computed tomographic angiography in acute stroke. Journal of stroke and cerebrovascular diseases : the official journal of National Stroke Association 2012; 21(8): 684-8.	3:対照群のある観察研究	前後比較研究	・「Computed tomographic angiography (CTA) : a 3-step e-learning tool based on the test-teach-retest methodology in 2 acute stroke scenarios: vascular occlusion and “spot sign”in acute intracerebral hemorrhage.」 ・「Our HTML-based program combined text and images structured as a quiz with radio button interface offering mutually exclusive choices without default Answers」 ・「目的はEducational Tool for Computed Tomographic Angiography in Acute Stroke の評価、フォーカスしたのはTomographic Angiography in Acute Stroke、対象は、neurologic consultants and four radiologic residents、それぞれ4人、計8人、関連使用ツールはE-learning、評価はテスト、前後、実施時期は明確な記載なし2012年？、実施場所はデンマーク」	・「Four neurologic consultants and four radiologic residents」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Vascular occlusion identification」「Spot sign identification」「Diagnostic accuracy」	・「The vascular occlusion teaching segment increased diagnostic accuracy from 42% to 68% (P 5 .005). The neurologic consultants showed significant progress, with average scores of 50% versus 75% (P 5.027). The radiologic residents showed trend with progress, with average scores of 33% versus 60% (P5.081). The entire group detected spot sign correctly 69% before versus 92% after teaching (P 5 .009) and reported a median self–perceived diagnostic certainty of 50% versus 75% (P 5.030). Self-perceived diagnostic certainty revealed no significant increase for vascular occlusion.」			[limitations] ・被験者数が少ないこと

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E092	Carney, Patricia A and Bowles, Erin J Aiello and Sickles, Edward A and Geller, Berta M and Feig, Stephen A and Jackson, Sara and Brown, David and Cook, Andrea and Yankaskas, Bonnie C and Miglioretti, Diana L and Elmore, Joann G. Using a tailored web-based intervention to set goals to reduce unnecessary recall. Academic radiology 2011; 18(4): 495-503.	1:無作為化比較試験	無作為化比較試験(RCT)	・「a tailored web-based intervention to assess radiologists' ability to set goals to improve interpretive performance.」 ・「The learning module had three components: 1) Understanding audit statistics for sensitivity, specificity, recall rates, positive predictive value, and cancer detection; 2) Misperceptions radiologists have about women's risk of breast cancer; 3) Misperceptions about risk of medical malpractice lawsuits related to breast imaging.」 ・「Four of seven mammography registries that are currently part of the Breast Cancer Surveillance Consortium (BCSC; http://breastscreening.cancer.gov) were included in this study: Group Health Breast Cancer Surveillance Project in Seattle, WA; the New Hampshire Mammography Network; the Vermont Breast Cancer Surveillance System; and the Carolina Mammography Registry. Patient demographic and clinical information is collected at the time mammography is performed at a participating facility. Radiologists' interpretation and follow-up recommendations	・「放射線科医:Radiologists Who Set Realistic Goals (n=16)、Radiologists Who Did Not Set Realistic Goals (n=25)、最終的に41人」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「the percentage of radiologists who would consider changing their recall rates」「the specific goals they set to reduce recall rates」「a characteristics of radiologists who developed realistic goals to reduce their recall rates」「their reactions to the importance of patient risk factors and medical malpractice concerns.」	・「Forty-one of 46 radiologists (89.1%) who started the intervention completed it. Thirtyone (72.1%) indicated they would like to change their recall rates and 30 (69.8%) entered a text response about changing their rates. Sixteen of the 30 (53.3%) radiologists who included a text response set realistic goals that would likely result in reducing unnecessary recall. The actual recall rates of those who set realistic goals were not statistically different from those who did not (13.8% vs. 15.1% respectively). The majority of selected goals involved re-reviewing cases initially interpreted as BI-RADS category 0. Over half of radiologists who commented on the influence of patient risk (56.3%) indicated that radiologists planned to pay more attention to risk factors, and 100% of participants commented on concerns radiologists have about malpractice with the primary concern (37.5%) being fear of lawsuits.」 ・「(医療過誤に関連して) All 41 radiologists who completed the intervention commented on concerns radiologists have about malpractice (Table 5). Of these, 16 (39.0%) set realistic goals, and of these 15 set goals for reducing unnecessary recall and one set a goal to increase recall. Forty of these comments fell into eight relevant categories including (one was considered not applicable): 1) fear of lawsuits 15/40 (37.5%), 2) media sensation 7/40 (17.5%), 3) media exposure 2/40 (5%), 4) media unspecified 3/40 (8%), 5) impact of hearsay 4/40 (10%), 6) fear unspecified 5/40 (12.5%), 7) fear for patients 1/40 (3%), and 8) fear of professional loss 1/40 (3%).」の記載あり。			[limitations] ・実際のrecall rateを測定しているわけではないこと ・recall rateが高めになった可能性があること ・使用したrecallの定義によりクラス分けが正確にできていなかった可能性があること [参考:論文] ・「participants were awarded two hours of Category I CME credit.」 [参考:査読者メモ] ・「(医療過誤については) Interestingly, radiologists had strong reactions to the malpractice module that was part of the intervention. The majority of participating radiologists reported the perception that greater than 50% of radiologists are concerned that fear about medical malpractice affects how they interpret mammograms. Before the intervention, more participating radiologists who set realistic goals to reduce unnecessary recall reported that medical malpractice

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E093	Diniz, Michele B and Lima, Luciana Monti and Santos-Pinto, Lourdes and Eckert, George J and Zandoná, Andrea G Ferreira and de Cássia Loiola Cordeiro, Rita. Influence of the ICDAS e-learning program for occlusal caries detection on dental students. Journal of dental education 2010; 74(8): 862-8.	3:対照群のある観察研究	前後比較研究	・「Eight senior dental students examined the teeth twice with a one-week interval between examinations during each of two phases: before and after the ICDAS e-learning program.」 ・「ICDAS:the International Caries Detection & Assessment System (ICDAS), with new visual criteria, was developed.7 The ICDAS criteria rely on the visual inspection of clean, plaque-free wet and dried teeth. The system describes six stages of caries severity, varying from initial changes visible in enamel to frank cavitation in dentine」 「 The ICDAS e-learning program, developed by the ICDAS Foundation (distribution from Smile-On Limited), is a novel tool available by download via the Internet to explain the method and to provide an introduction of the criteria to novice users. It consists of a ninety-minute course divided into introduction, ICDAS examination protocol, ICDAS caries codes, how to apply the coding system, a decision tree to help with the codes, special considerations, and how to collect data for the recording codes. It also includes interactive quizzes」	・「Eight senior dental students」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「the ICDAS scores」	・「Teeth were histologically assessed for caries extension. Intraclass correlation coefficients for intra- and interexaminer repeatability were high, both before (0.75 and 0.72, respectively) and after e-learning (0.82 and 0.78, respectively). The ICDAS scores decreased significantly from before to after e-learning (p=0.0001). Correlation between ICDAS scores and histology scores was moderate (0.57 before e-learning and 0.61 after). Although the ROC curve shows an improvement in the use of the ICDAS scoring after e-learning, the difference was not significant (p=0.10). Specificity of the ICDAS scores significantly improved after e-learning (77 percent vs. 36 percent), and sensitivity was reduced slightly after e-learning (87 percent vs. 92 percent). The ICDAS e-learning program improved the performance of the diagnostic skills of the investigated students for the detection of occlusal caries lesions.」			

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E094	Holland, Robert and Meyers, David and Hildebrand, Christopher and Bridges, Alan J and Roach, Mary A and Vogelman, Bennett. Creating champions for health care quality and safety. American journal of medical quality : the official journal of the American College of Medical Quality 2010; 25(2): 102-8.	3:対照群のある観察研究	前後比較研究	・「a Web-based curriculum, identified a quality-of-care issue, applied Plan-Do-Study-Act cycles, authored a report, and engaged colleagues in their innovations during a department-wide presentation」 ・「Each month, 2 PGY-3 residents rotated through a 4-week block (with the exception of 2 half-day continuity clinics and 7 hours of unrelated curriculum per week) dedicated to patient safety and quality improvement in the University of Wisconsin-Madison internal medicine residency program.」 ・「The VA Patient Safety and Quality Improvement curriculum included faculty-mentored learning sessions, Web-based modules with interactive content, and selfdirected reading and assignments that tested residents' comprehension and application of knowledge (Table 1). The core content was divided into 8 modules, or 2 modules per week (Table 2). Each module consisted of: goals and objectives, content and outline, required and recommended reading, and assignments. The curriculum provided residents with an	・「ローテーション中のレジデント、26人、ただし、指標毎にnは様々」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Residents completed 3 assessments as part of this rotation: (1) Curriculum knowledge:(2) Reflection on Learning(3)Rotation Evaluation」	・「Results indicated that residents demonstrated significantly enhanced knowledge and attitudes about patient safety and quality improvement and provided consistently positive faculty and rotation evaluations. In addition, residents generated 20 quality improvement project proposals with a 50% rate of hospital-wide implementation, leading to meaningful changes in the systems that affect patient care.」 ・「(Curriculum Knowledgeについては) Residents who completed both the precurriculum and postcurriculum knowledge assessments (n = 12) received a mean score of 19.50 (standard deviation [SD] = 4.52) on the assessment prior to the rotation and a mean score of 23.00 (SD = 4.26) on the assessment at the end of the rotation. A paired t test indicated a small but significant improvement on residents' assessments of their knowledge of specific content taught during the rotation (t = 2.38; P < .05).」			［参考:論文］ ・論文中に「The VA Patient Safety and Quality Improvement curriculum」の内容に関する記載あり。

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E095	Silveira, Heraldo Luis Dias and Silveira, Heloísa Emilia Dias and Dalla-Bona, Reni Raymundo and Abdala, Daniel Duarte and Bertoldi, Rafael Floriani and von Wangenheim, Aldo. Software system for calibrating examiners in cephalometric point identification. American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2009; 135(3): 400-5.	3:対照群のある観察研究	前後比較研究	・「a computational model called Cyclops Cephalometry in radiographic cephalometry training and calibration. 」 ・「Five orthodontists and 5 postgraduate students took part in the training process for testers. The participants were requested to identify the 28 cephalometric landmarks over a set of 10 lateral radiographs. After 2 weeks and the training using the landmark location software, each participant identified the same landmarks on the images, once again. In total, 5,600 landmarks were located. The diagnostic accuracy of each observer and each time was compared to the gold standard.」 ・「目的はa computational model called Cyclops Cephalometry の評価、フォーカスしたのは radiographic cephalometry training and calibration 、対象は歯科矯正医と学生、5名づつ、計10名、関連使用ツールはCyclops Cephalometry、評価は、「orthodontists」と「postgraduation students」、前後も。実施時期は明確な記載なし2009年？、実施場所はブラジル」	・「5 orthodontists and 5 postgraduation students」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Accuracy level」「Comparisons between the averages for correctly located landmarks」「Software evaluations」	・「Before training, the Student's t test revealed significant differences (P < .05) in accuracy from orthodontists and students (71.4% and 54.9%). However, a considerable improvement was observed after training in accuracy for both groups (87% and 83%, respectively), without significant differences (P = .30) between groups. Users of the system agreed as regards software usability aspects such as effectiveness, efficiency and satisfaction.」			

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E096	Sung, Young Hee and Kwon, In Gak and Ryu, Eunjung. Blended learning on medication administration for new nurses: integration of e-learning and face-to-face instruction in the classroom. Nurse education today 2008; 28(8): 943-52.	2:非無作為化比較試験	前後比較研究	・「A medication education program using blended learning (including e-learning) was administered to 26 new nurses, while face-to-face instruction in the classroom was given to 24 new nurses.」 ・「目的はBlended learning on medication administrationの評価、フォーカスしたのはmedication administration 、対象は新人看護師、最終的に50人、関連使用ツールは一部にe-learning(そもそもIntegration of e-learning and face-to-face instruction in the classroom)、評価は、「Blended learning群26人」と「lecture only群24人」、前後も、実施時期は2004年、実施場所は韓国」	・「Fifty nurses participated in the medication-administration education program, of whom 26 were taught in a blended learning environment (i.e. they received face-to-face instruction in the classroom and also used Web-based materials) and 24 were taught by lecture only (i.e. they received face-to-face instruction in the classroom).」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「degree of knowledge of medication」「self-efficacy of medication administration」「medication-administration ability」「 and satisfaction with the learning program」	・「The experimental, blended learning group showed a significantly higher level of knowledge of medication and satisfaction with the comprehensiveness of their medication learning, but the self-efficacy of medication administration, medication administration ability, and other items related to their learning satisfaction did not differ significantly from that in the control group.」 ・「(Effects of educationについては)the mean score for knowledge of medication after education was significantly higher in the experimental group (82.21,SD = 8.75) than in the control group (67.92, SD =7.17) (t = 6.284, p = 0.000). The mean scores for medication-administration ability after education were 3.81 (SD = 0.51) in the experimental group and 3.94 (SD = 0.39) in the control group (t = 1.017, p = 0.314).」		・「This also provides some other advantages, such as reducing the instructors' lecture time by eliminating the need for repeated lectures, reducing the required human resources, increasing cost-effectiveness through inexpensive repeated education (despite the high initial investment in educational facilities), and reducing the anxiety and increasing the sense of belonging of new nurses through effective utilization of their work breaks.」の記載はあるが、具体的な数値の記載はなし。	[limitations] ・参加者数が少ないこと ・6か月後の評価は他のプログラムの影響がある可能性があること ・コントロールできていない要因がいくつもあること ・二つのグループの比較をするには期間が短いこと ・セレクションバイアスがあること(モチベーション) ・教育方法の差というより説明期間の差の可能性があることなど

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E097	Mulay, K and Swain, M and Jaiman, S and Gowrishankar, S. Gleason scoring of prostatic carcinoma: impact of a web-based tutorial on inter- and intra-observer variability. Indian journal of pathology & microbiology 2008; 51(1): 43242.	3:対照群のある観察研究	前後比較研究	・「This tutorial on Gleason scoring system is available on the website http//www.pathology.jhu.edu/prostate. It comprised of a pretutorial test of 20 out of 38 consensus cases. The tutorial consisted of images and written material following which there was a posttutorial test of the same previous 20 cases. The results of the pre- and post-tutorial tests were then displayed with the acility to review the images if required. Then, the same 40 cases in a changed order were recirculated and scored again by the four pathologists. Later a consensus score was arrived at in each of the 40 cases by simultaneous viewing of all sections under a multihead microscope by all four pathologists.」 ・「The scores were stratified into four groups - group 1 (scores 2-4), group 2 (scores 5-6), group 3 (score 7), group 4 (scores 8-10). This grouping has been recommended in earlier studies 」 ・「目的はGleason scoring system を使用した評価の評価、フォーカスしたのは the website で使える Gleason scoring system、対象は病理医(うち一人はレジデント)、合計4人、関連使用ツールはGleason	・「the four pathologists, three of whom were general surgical pathologists with experience varying from 4 to 15 years. One was a resident pathologist in training. 」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Gleason scoring」	・「The pretutorial scores ranged from 0.328 to 0.571 indicating a fair agreement in all except one, with the average score of 0.511 being in the fair agreement category. The κ value for the posttutorial scores ranged from 0.418 to 0.611, all in the fair agreement category. There was a slight improvement indicating better agreement, though this was probably not significant.」			［参考:論文］ ・Prof. Gleason 自身のコメントとして「Prof. Gleason has himself said, ″I have duplicated my exact previous histologic scores approximately 50% of the times and within ±1 of the histologic score (range, 2-10) approximately 85% of the time″.」の記載あり。 ・「One of the problems in analyzing the interobserver variation is the establishment of the correct diagnosis. The ideal true diagnosis would be the one arrived at by the expert pathologists in the speciality. [3] In the absence of expert urologic pathologists in centers in developing countries such as India where most surgical pathologists are expected to be general pathologists, we resorted to a consensus score for the comparison.」というインドならではの事情についての記載もあり。 ［参考:査読者メモ］ ・先行研究における Gleason scoringの評

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E098	Straight, Maureen. One strategy to reduce medication errors: the effect of an online continuing education module on nurses' use of the Lexi-Comp feature of the Pyxis MedStation 2000. Computers, informatics, nursing : CIN 2008; 26(1): 23-30.	3:対照群のある観察研究	前後比較研究	・「An online self-learning module on nurse knowledge and use of the Lexi-Comp feature of the Pyxis MedStation Rx 2000 system, a point-of-care medication delivery system.」 ・「preliminary questionnaire regarding awareness of the medication resources and complete the self-learning module (SLM) about the current medication delivery system and AMDU. 」「One week later, the participants would be asked to complete a post-SLM/AMDU usage questionnaire.」「 the One month later, the participants would be asked to complete the final usage questionnaire.」 「The study included a comparison among the participants' awareness of the Lexi-Comp/Pyxis AMDU resource, in use for 1.5 years; Medline Plus electronic resource, in use for 2 years; and of the institutional internal pharmacy resource, in use for 12 years. (Meditech system)」 ・「目的はan online self-learning module の評価、フォーカスしたのは薬剤管理に活用できるツールの認知度と薬剤に関するエラー、対象は新人看護師(RNとLPN)、合計41人、関連使用ツールはone	・(RNとLPN)「nurse-users (RNとLPN) at a community-based healthcare organization (N = 41). 」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「preliminary questionnaire regarding awareness of the medication resources and complete the self-learning module (SLM) about the current medication delivery system and AMDU. 」「One week later, the participants would be asked to complete a post-SLM/AMDU usage questionnaire.」「 the One month later, the participants would be asked to complete the final usage questionnaire.」	・「After training, completion of the tutorial and knowledge and use of the Lexi-Comp feature increased by 23% and 56%, respectively. One month after training, a drop in medication errors on administration at the healthcare organization was observed.」 ・「(a drop in medication errors on administration at the healthcare organization was observed)については、本文に、Although a direct cause-and-effect relationship cannot be drawn from the current study, there was an increase in awareness and increase in use of resources by those responsible for administration of medication and a decrease in administration errors..」の記載あり。		・Costとして「Reducing the error rate reduces cost to the institution. Although this dollar amount was not actually quantified at the HCO, any reduction in errors saves money. For example, if the average cost of a medication error in length of stay is $5,000. (per literature review) and the average ADE is four per month (per average of SWAT reports), the cost savings would be $20,000 per month, resulting in $240,000 per year. This is money that could be allocated to other needs. Reducing error rate affects overall institutional risk assessment,	[limitations] ・調査期間が短くなってしまったこと ・データの収集方法の不備のために統計的な分析ができていないこと ・職種間でintranetへのアクセスの容易性等に差があること ・サンプルサイズが小さいこと [参考:査読者メモ] ・前後の単純集計。統計的な分析をしているわけではない。

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E100	Shavit, Itai and Keidan, Ilan and Hoffmann, Yoav and Mishuk, Lena and Rubin, Orit and Ziv, Amitai and Steiner, Ivan P. Enhancing patient safety during pediatric sedation: the impact of simulation-based training of nonanesthesiologists. Archives of pediatrics & adolescent medicine 2007; 161(8): 740-3.	2:非無作為化比較試験	非無作為化比較試験	・「simulation-based education on patient safety」 ・「In 2003, the Israeli Ministry of Health published formal guidelines for pediatric procedural sedation by nonanesthesiologists. Per these guidelines, sthesiologists performing procedural sedation outside of the OR were required to undergo specific training in pediatric sedation, including a component pertaining to patient safety. More than 400 nonanesthesiologists have been trained and qualified in a simulation-based pediatric sedation safety course at the Israel Center for Medical Simulation.」の評価 ・「目的はsimulation-based education on patient safetyの効果、フォーカスしたのはオペ室以外での小児麻酔、対象は麻酔医ではない医師、32人(半数はシミュレーション研修の経験者、半分はシミュレーション未経験者、関連使用ツールはsimulation-based education on patient safety とSST、評価はwith-without、実施時期は2005年3～4月、実施場所は大学の関連2病院、イスラエル」	・「Nonanesthesiologists, with or without training in simulation-based education on patient safety, who routinely perform procedural sedation outside the operating room. These comprise full-time pediatricians practicing emergency medicine and a cohort of pediatric gastroenterologists.」 ・「Thirty-two completed evaluations are included in the study: 20 from PGEs and12 from PEMs.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・(Presedation evaluation):「History of operations or procedural sedation」「Time of last meal」「History of known adverse effect to medication 」「Measurement of vital signs before drug administration 」 ・(Participant performance during sedation):「Maintaining eye contact with patient throughout the procedure 」「Titration of medication」「Monitoring 」 ・(Participant performance in recovery time):「Monitoring 」「National guideline-recommended discharge criteria」 ・「The Sedation Safety Tool (SST) includes 9 criteria deemed relevant for patient safety.」	・「Significant differences in performance pertaining to patient safety were found between those physicians who did and those who did not complete simulation-based training 」(SSTスコアの比較あり)			[limitations] ・SSTによる評価 ・サンプルサイズ ・非ランダム ・エントリーが少なかったこと ・「Pediatric emergency medicine is not yet a recognized specific subspecialty in Israel and, consequently, training programs do not exist.」といった事情によるコホートの精度等、その他多くの記載あり

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E101	Raij, Andrew B and Johnsen, Kyle and Dickerson, Robert F and Lok, Benjamin C and Cohen, Marc S and Duerson, Margaret and Pauly, Rebecca Rainer and Stevens, Amy O and Wagner, Peggy and Lind, D Scott. Comparing interpersonal interactions with a virtual human to those with a real human. IEEE transactions on visualization and computer graphics 2007; 13(3): 443-57.	1:無作為化比較試験	無作為化比較試験(RCT)	・「Study I (n, : 24, where n is the number of participants), presented at IEEE Virtual Reality 2006 l4l, found that interactions with the standardized patient and virtual human were similar on gathering critical information from the patient and other content measures」 ・「Study II (n : 58) sought to 1) further characterize how behavior changes with virtual humans using new measures and 2) strengthen the main findings of Study Ⅰ」 ・「As part of the studies′ the system was installed in a real medical exam room. A virtual exam room was projected on a wall. DIANA, a virtual human with severe stomach pain, was in the virtual room. DIANA's appearance and responses are modeled after a real standardized patient, Maria, trained to exhibit severe stomach pain. Modeling DIANA after Maria allowed participants to interact with similar patients in the real and virtual experiences. Another virtual human, VIC, served as an instructor that tutors students on how to interact with DIANA.」 ・「二つの調査をStudy IとStudy II(RCT) として報告、論文の構成はStudy Iにお	・医学生(Study Iは、the Medical College of Georgia とthe University of Florida、合計24人、Study II(RCT)は、University of Floridaのみ、合計58人)、	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Study Ⅰ:Eliciting Critical Information、Educational Goals 、Empathy、conversational behavior、等」 ・「Study Ⅱ :Eliciting Critical Information、patient history、process and etiquette、empathy、nonverbal communication、等」 ・「(back ground surveyは) Group SP: The standardized patient graded articipants by noting the critical information she revealed in the interview. Medical experts also graded the interactions. Group VH: The viitual patient system graded students by logging the critical information she revealed in the interview. Medical experts also graded the interactions.」 ・「(最後に) The Maastricht Assessment of the Simulated patient (MaSp)」	・「Study I (n.:2a), medical students elicited the same information from the virtual and real human, indicating that the content of the virtual and real interactions were similar. However, participants appeared less engaged and insincere with the virtual human. These behavioral differences likely stemmed from the virtual human's limited expressive behavior.」 ・「 Study ll (n : 58) explored participant behavior using new measures. Nonverbal behavior appeared to communicate lower interest and a poorer attitude toward the virtual human. Some subjective measures of participant behavior yielded contradictory results, highlighting the need for objective, physically-based measures in future studies.」 ・「(StudyⅡのEliciting Critical informationについては) The consistency of eliciting critical information across studies strengthens the assertion that content was similar in the real and virtual interactions'. A single difference was found on whether the student elicited the location of the pain (Msp =0.75± 0.36,Mvh=0.91± 0.16, p=0.02) 」			[limitations] ・二つのstudyについて論文中に若干の記載あり(サンプルサイズのことなど) [参考:査読者メモ] ・VHの改善ポイントの記載あり「Clearly, expressiveness must be improved further. The virtual human should use everyday conversational idiosyncrasies, like stopping to think and saying ″um″ and ″uh.″ Her face should convey more pain. Her body should be less rigid, yet still enough to convey the pain that moving creates. Her responses to queries should be immediate. This list is only a small sample of the expressive abilities that must be improved.」 [報告書用メモ] ・バーチャルについては技術革新について留意する必要あり ・最新のバーチャルは? ・バーチャルの作り込みと客観的な評価の難しさについての記載あり「Some new behavioral measures were too subjective to yield useful

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E102	Kobak, Kenneth A, Opler, Mark G A and Engelhardt, Nina . PANSS rater training using Internet and videoconference: results from a pilot study. Schizophrenia research 2007; 92(1): 23193.	3:対照群のある観察研究	前後比較研究	・「Twelve trainees with no prior PANSS experience completed didactic training via CD-ROM and two remote training sessions where they interviewed a tandardized patient-actor while being remotely observed in real time and given feedback. The training involved two components: didactic training via CD-ROM and applied clinical training conducted in real time via videoconference.」「Prior to any intervention, all trainees administered a portion of a SCI-PANSS interview to a standardized patient (i.e., a professional actor trained to portray the signs and symptoms of schizophrenia), which was videotaped for later evaluation by a blinded rater」 ・「目的はInternet and videoconferenceを使ったトレーニングの評価、フォーカスしたのはPANSS rater training、対象はthe human services professions、12人、関連使用ツールは一部にインターネットとビデオカンファレンス、評価はRAPS score、実施時期は明確な記載なし2007年？、実施場所はアメリカ」	・「Twelve trainees (2 males, 10 females) with prior experience with schizophrenic patients but no prior PANSS experience participated. Half of the trainees had graduate degrees and half undergraduate degrees in the human services professions.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Applied training」「CD-ROM didactic tutorial」「Scoring accuracy and inter-rater reliability」「Trainee satisfaction」 ・「RAPS score」	・「Results found a significant improvement in trainees' conceptual knowledge and an improvement in trainees' clinical skills. The use of these technologies allows for training to be more effectively delivered to diverse sites in multicenter trials, and for evaluation of raters' applied clinical skills, an area that has previously been overlooked.」 ・「(Scoring accuracy and inter-rater reliabilityについては) The agreement in scoring between the trainee and blinded expert (ICC) improved from r=.19 prior to training (p=.248) to r=.52 after training (p=.034). Similarly, the mean score difference between the trainee and the blinded expert at pre-test was 9 points (34.91 vs. 25.92), t(11)=4.339, p=.001, whereas the mean score difference between the trainee and the blinded expert at post-testwas 0.16 of a point (25.17 vs. 25.33), t(11)=.079, p=.938.」			[limitations] ・コントロールがない ・改善が継続するか不明 ・患者の一時のレイティングのみ その他 ・サンプルサイズ ・「A major question that remains unanswered by this pilot study is the impact that clinical experience, prior use of rating scales, or education level might have on both applied clinical skills and the effectiveness of centralized training.の記載も。

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E103	Wright, Kerri. Student nurses need more than maths to improve their drug calculating skills. Nurse education today 2007; 27(4): 278-85.	3:対照群のある観察研究	前後比較研究	・「The strategies included: Online maths sessions were available which covered the areas identified from the maths test to be poorly understood. These included place value, decimals, fractions, percentages and multiplying ractions. Quizzes and tests were utilised throughout to give feedback on students' understanding. - A 2-h lecture explaining formulas and how to use these. - A drug calculation workbook, with answers, which was given out to students. - Practical sessions in the skills labs were held which linked drug calculations to clinical practice. This included calculating drip rates with intravenous infusions and drug dosages using drug ampoules and syringes. - Private study with books recommended from the reading list. ・「目的は計算能力の教育の効果、フォーカスしたのは薬剤に関する計算、対象は看護学生、71人、関連使用ツールは教育プログラム(その一部にonlineを使用)、評価は、pre-test、post-test、実施時期は記載なし2004？、実施場所はイギリス」	・「A convenience sample of 71, second year student nurses」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「The drug calculation test:5 sections:「Percentages」「Ratios」「Fractions」「Multiplying with fractions」「Place value」「Interpreting information」(5 sections? 6 sections?)	・「The student nurses showed notable improvements in their scores compared to the pre-test when analysed using the complex v2 test (P = 0.005, v2 = 22.04, df = 6). The mean difference in scores was 3.7 marks with a range from _1 to +10 marks difference. The average mark increased from 16.5 (55%) to 21.5 (71.2%) an increase of 5 marks. 」 ・「For individual student's score when these were matched and statistically analysed using the t-test, this also showed that their scores had improved notably from the pre-test (P = 0.0005, t = 11.28, df = 43).」			[limitations] ・サンプルサイズ ・検定方法 ・テストの方法(リサーチャー同席、完了するまで退席不可) [参考:査読者メモ] ・「The areas causing most difficulty according to the mean post-test were: 1. Multiplying fractions 2. Ratios 3. Place value 4. Percentages 5. Interpreting data 6. Fractions However, ・「the results for the post-test are still very poor. Only 32% (n = 14) students were able to achieve 83% or more on their post-test and 32% (n = 14) still got more than a third of the answers wrong.」 ・「The student nurses test papers showed several areas where the working out clearly indicated that students did not understand the mathematical concept being asked. For example the section on percentages asked students to calculate 2.5% of 100.」

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E104	Glaister, Karen. Exploring the impact of instructional approaches on the learning and transfer of medication dosage calculation competency. Contemporary nurse 2005; 20(1): 43172.	1:無作為化比較試験	無作為化比較試験 (RCT)	・「Three instructional approaches were studied: 「1.Integrative learning (IL) 」「2. Computerised learning (CL) 」「3. Computerised and integrative learning (CIL) 」 ・「2. Computerised learning (CL) は:opportunity using a purpose built computer program developed by the researcher. The program provided extensive practice in dosage calculations with immediate informative feedback. This process acilitated low-road learning to develop automaticity in calculations. Students assigned to the CL approach were free to access this program on a self-determined basis.」 ・「目的はinstructional approachesの評価、フォーカスしたのは薬剤の投与量計算、対象は2年目の看護師、97名、関連使用ツールは一部にコンピューター、評価は「1.Integrative learning (IL) 」「2. Computerized learning (CL) 」「3. Computerized and integrative learning(CIL)、実施時期は2005年、実施場所はオーストラリア」	・「The participants for this study were a cohort of second year nursing students (n = 97) enrolled in a pre-registration award course in a tertiary institute within Australia」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Knowledge acquisition」「Procedural knowledge」「Conditional knowledge」	・「There was no statistical difference between the three instructional approaches on knowledge acquisition and transfer measures, other than measures for procedural knowledge, which was significant (F(2.47)=3.33 at p < .044). A least-significant difference post hoc test (α = 0.10) indicated computerized learning was significantly more effective in developing procedural knowled.ge.」 ・「Planned comparison between the groups using the Least-signficant dfference test indicated that the CIL and CL treatments were significant. The probability of this occurring by chance was p = .017 (c = .10), with mean scores suggesting that CL was more effective in assisting the student to develop procedural knowledge.」			

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E105	Kobak, Kenneth A and Engelhardt, Nina and Lipsitz, Joshua D. Enriched rater training using Internet based technologies: a comparison to traditional rater training in a multi-site depression trial. Journal of psychiatric research 2006; 40(3): 192-9.	1:無作為化比較試験	無作為化比較試験 (RCT)	・「12 sites from a 22 site multi-center study were randomly selected to participate (6 = traditional, 6 = enriched).」 ・「 Traditional training consisted of an overview of scoring conventions, watching and scoring videotapes with discussion, and observation of interviews in small groups with feedback. Enriched training consisted of an interactive web tutorial, and live, remote observation of trainees conducting interviews with real or standardized patients, via video- or teleconference. Outcome measures included a didactic exam on conceptual knowledge and blinded ratings of trainee_s audiotaped interviews.」 ・「目的はmulti-siteの Hamilton depression scale (HAMD) rater training プログラムの評価、フォーカスしたのはHamilton depression scale (HAMD)、Phase III depression trial 、対象はmulti－siteの医師、最終的に60人、関連使用ツールは Internet based technologies、評価は「Enriched (N = 16)」「Traditional (N = 14)」「Combined (N = 30)」、実施時期は明確な記載なし2005年？、実施場所はアメリカ」	・「12 sites from a 22 site multi-center study were randomly selected to participate (6 = traditional, 6 = enriched). 」 ・「Enriched (N = 16)」「Traditional (N = 14)」「Combined (N = 30)」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「didactic knowledge」「applied skills」「Interview length」「Trainee satisfaction」「Patient satisfaction」「Videoconference vs teleconference」「Standardized vs real patients」 ・「Hamilton depression scale (HAMD)」	・「A significant difference was found between enriched and traditional training on pre-to-post training improvement on didactic knowledge, $t(27) = 4.2$, $p < 0.0001$. Enriched trainees clinical skills also improved significantly more than traditional trainees, $t(56) = 2.1$, $p = 0.035$. All trainees found the applied training helpful, and wanted similar web tutorials with other scales.」 ・「Results support the efficacy of enriched rater training in improving both conceptual knowledge and applied skills. Remote technologies enhance training efforts, and make training accessible and cost-effective. Future rater training efforts should be subject to empirical evaluation, and include training on applied skills」 ・「(didactic knowledgeについては)A significant difference was found between enriched and traditional training interventions on pre-to-post training improvement on didactic knowledge (mean change = 4.4 points for enriched, 0.5 points for traditional, $t(27) = 4.2$, $p < 0.0001$). The mean number of correct answers on the didactic exam increased from 14.07 to 18.47 in the enriched group, $t(14) = 6.60$, $p < 0.0001$, and from 12.07 to 12.57 in the traditional group ($t(13) = 0.81$, $p = 0.433$) 」		・「New technologies hold promise for enhancing training efforts, and make the knowledge accessible and cost-effective 」 ・「The cost of delivering enriched training is comparable to the cost of delivering rater training at a startup up meeting, given the time and expense involved in travel to startup meetings. The largest expense is for clinician trainer time. If done by telephone, there could be significant cost savings. More importantly, the costs of a failed trail by using ineffective raters make the investment in proper training	［参考:査読者メモ］ ・clinical trialの精度に関わるコストに関する記載もあり「More importantly, the costs of a failed trail by using ineffective raters make the investment in proper training critical」

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E107	Walker, Bonnie L and Harrington, Susan S. Can nursing facility staff with minimal education be successfully trained with computer-based training? Nurse education today 2004; 24(4): 301-9.	1:無作為化比較試験	無作為化比較試験(RCT)	・「For the CB version of the fire safety training, the authors designed a storyboard that presented the information screen by screen including interactive activities. Participants answered questions and played interactive games. The print material from the original version was adapted for the computer screens. The videotaped materials were incorporated into the CB training.」 ・「目的はCBの教育の効果、フォーカスしたのは火災、対象はナーシングホームの職員(高卒レベルもしくはそれ以下)592人、関連使用ツールはCBのプログラム、評価は、CB群とIL群、前後と群間:Pre- to posttest effectsとfollow-up, Training condition group effects, Educational effects、実施時期は記載なし2004?、実施場所は米国(7州の多施設)」	・「Nine nursing facilities located in Texas, South,Carolina, Georgia, Minnesota, Idaho, and Virginia」 ・「The 1373 participants were randomly assigned to the CB or IL groups.」「The subjects consisted of the 592 nursing facility staff participating in the larger field test of a fire safety training course that had only a high school diploma or less. Of those, 284 people completed the IL training, and 308 completed the CB training.」 ・「Participants in this sample had either a high school diploma (n=498) or less than high school diploma (n=94). 」	3:安全と間接的に関係するその他の測定可能なアウトカム	・テスト:「Knowledge」「Attitude」「Practices」 ・「Pre- to posttest effects, follow-up」「Training condition group effects」「Educational effects」	・「Findings show that both methods of instruction were effective in increasing staff tests scores from pre- to posttest. Scores of both groups were lower at follow-up three months later but continued to be higher than at pretest. Staff with a high school education increased scores more than those without a high school diploma.」 ・統計的分析結果あり、Pre- to posttest effects, follow-upにはANOVA		・本研究の結果ではないが考察としてコストに関する先行文献の引用あり「McDaniel and his colleagues (1998) pointed out that, "Alternative methods for conveying content have the possibility of reducing organizational costs without reducing programming. For example, the use of a medium such as computers provides more consistency in content presentation than in multiple sessions, flexibility in provision of programs at times best suited to the audience, and efficiency in resource use".」	[参考:査読者メモ] ・施設(ナーシングホーム)、施設内の火災防止と対応、高卒の職員、という領域を対象にしているのが特徴 ・「While the fire department can demonstrate how to use a fire extinguisher, they may not be skilled in presenting the types of information that a nurse's aid or housekeeper may need.」 [報告書用メモ] ・火災は本調査の対象になるか? ・施設職員は対象になるか? ・学歴による効果の比較は対象になるか?

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E108	Nyun, M T and Aronovitz, J R and Khare, R and Finkelstein, J. Feasibility of a palmtop-based interactive education to promote patient safety. AMIA ... Annual Symposium proceedings. AMIA Symposium 2003; (): 955.	3:対照群のある観察研究	前後比較研究	・「An interactive clinician education tool (patient safety and medical errors issues) was designed and implemented using COmputer-assisted EDucation (CO-ED)2 system. COED is a universal authoring tool supporting rapid development of interactive multimedia education programs utilizing modern features of palmtop computing. The feasibility of a PDA -based interactive multimedia tool aimed to provide self-paced patient safety education for clinicians.」 ・「目的はPDAを使った教育の評価、フォーカスしたのはthe patient safety courses、対象はレジデントとフェロー、10人、関連使用ツールはa PDA -based interactive multimedia tool、評価は前後、実施時期は明確な記載なし2003年？、実施場所はアメリカ」	・「ten clinical residents and fellows」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「knowledge questionnaire」	・「Attitudinal surveys were analyzed by total score (TS) calculation represented as a percentage of a maximal possible score. The mean TS was 74.5±7.1%. None of the subjects had TS less than 65% and in half of the subjects TS was higher than 75%. Analysis of the semi -structured in-depth interviews showed strong support of the study subjects in using PDA as an educational tool, and high acceptance of PS/CO-ED user interface. We concluded that PDA has a significant potential as a tool for clinician education.」			

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E109	Kobak, Kenneth A and Lipsitz, Joshua D and Feiger, Alan. Development of a standardized training program for the Hamilton Depression Scale using internet-based technologies: results from a pilot study. Journal of psychiatric research 2003; 37(6): 509-15.	3:対照群のある観察研究	前後比較研究	・「a web-based, interactive rater education program for standardized training to diverse sites in multi-center trials. The program includes both didactic training on scoring conventions and live, remote observation of trainees applied skills. The program was pilot tested with nine raters from a single site The three-stage model used in this study (didactic learning, applied learning, and testing of efficacy of the learning) may be a template for future training and testing, not only for the HAMD, but other clinician administered scales as well.」 ・「目的はHamilton depression scale (HAMD) rater training プログラムの評価、フォーカスしたのはHamilton depression scale (HAMD)、対象は被検者、7人、関連使用ツールはInternet based technologies、評価は、前後、実施時期は明確な記載なし2003年？、実施場所はアメリカ」	・一つの施設から被検者7人	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Didactic training on HAMD conventions」「Applied training on trainees clinical interviewing skills」	・「The program was pilot tested with nine raters from a single site. Results found a significant increase in didactic knowledge pre-to-post testing, with the mean number of incorrect answers decreasing from 6.5 (S.D.=1.64) to 1.3 (S.D.=1.03), t(5)=7.35, P=0.001 (20 item exam). Seventy-five percent of the trainees' interviews were within two points of the trainer's score. Inter-rater reliability (intraclass correlation) (based on trainees actual interviews) was 0.97, P<0.0001. Results support the feasibility of this methodology for improving rater training.」		・「Bringing raters together for inter-rater reliability training is a costly process, and the format and time allotted at start up meetings do not allow for a comprehensive study of scoring conventions」「Web-based technologiesのunique featuresのひとつとして「Providing rater training that is easily accessible, cost effective, and more easily and widely disseminated」等の記載はあるも具体的な数字の記載はなし。	[limitations] ・ハイスピードインターネットが必要であること ・ビデオカンファレンスも環境の違いがあること ・労力がかかる方法であること ・同じ施設であること ・サンプルサイズが小さいこと [参考:論文] ・「Given the increasing number of failed clinical trials, there is an urgent need in the field to improve clinical trial methodology and improve rater training, competence, and reliability.」 ・「We are currently studying the efficacy efficacy of this training methodology in a multicenter, NIMH funded trial, using both audio and videoconferencing, and both real and standardized patients. This will allow a more rigorous test of the feasibility and efficacy of this methodology across diverse sites and backgrounds.」→＃105 [参考:査読者メモ] ・＃105のパイロット

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E110	Pagnanelli, G and Soyer, H P and Argenziano, G and Talamini, R and Barbati, R and Bianchi, L and Campione, E and Carboni, I and Carrozzo, A M and Chimenti, M S and de Simoni, I and Falcomatà, V and Filipe Neto, I and Francesconi, F and Ginebri, A and Hagman, J and Marulli, G C and Palamara, F and Vidolin, A P and Piemonte, P and Soda, R and Chimenti, S. Diagnosis of pigmented skin lesions by dermoscopy: web-based training improves diagnostic performance of non-experts. The British journal of dermatology 2003; 148(4): 698-702.	3:対照群のある観察研究	前後比較研究	・「Dermoscopyに関するweb-basedのtraining : Each participant was asked to devote 1 h per day, 5 days per week for two consecutive weeks (total approximately 10 h) to learn and improve his / her dermoscopic knowledge using the Web-based tutorial at the website http://www.dermoscopy.org.」 ・「目的はDermoscopyに関する web-basedのtrainingの効果、フォーカスしたのはpigmented skin leisonsの診断、対象はDermoscopyに習熟していない医学生・皮膚科のレジデント・皮膚科医の16人、関連使用ツールはweb-basedのtraining プログラム 、評価は前後、実施時期は記載なし2003年？、実施場所はイタリア」	・「Sixteen colleagues from the Department of Dermatology, University of Rome _Tor Vergata_ were recruited to participate in the study; of these, three were medical students, nine were residents in dermatology and four were dermatologists. Sixteen colleagues from the Department of Dermatology,」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「sensitivity」「specificity」「diagnostic accuracy」 ・「 Pattern analysis」「ABCD rule 」「Seven-point checklist」「Menzies' method」	・「There was a considerable improvement in the dermoscopic melanoma diagnosis after the Web-based training vs. before. Improvements in sensitivity and diagnostic accuracy were significant for the ABCD rule and Menzies' method. Improvements in sensitivity were also significant for pattern analysis, whereas the sensitivity values were high for the seven-point checklist in evaluations both before and after training. No significant difference was found for specificity before and after training for any method. There was a significant improvement in the j intraobserver agreement after training for pattern analysis and the ABCD rule. For the seven-point checklist and Menzies' method there was already good agreement before training, with no significant improvement after training.」 ・統計的分析結果あり			

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E111	Kay, E J and Silkstone, B and Worthington, H V. Evaluation of computer aided learning in developing clinical decision-making skills. British dental journal 2001; 190(10): 554-7.	1:無作為化比較試験	無作為化比較試験(RCT)	・「One group of dentists read the radiographs pre and post an educational intervention」「a second group read the radiographs once, after the ntervention」「a third group read the radiographs twice, but received no intervention」 ・「 On each occasion the dentists read 24 surfaces on each of 15 radiographs and made 360 decisions on how certain they were about restoring the tooth surface. Comparisons of mean sensitivity, specificity and areas under ROC curves were made within and between the study groups.」 ・「目的はcomputer aided learning の評価、フォーカスしたのはclinical decision-making skills、対象は歯科医、95人、関連使用ツールはcomputer、評価は3群、その他の群間比較あり、実施時期は明確な記載なし2001年？、実施場所はイギリス」	・「Ninety-five dentists were randomly allocated to the three study groups One group of dentists read the radiographs pre and post an educational intervention, a second group read the radiographs once, after the intervention, and a third group read the radiographs twice, but received no intervention.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「Sensitivity and specificity of the dentist's decisions to restore teeth were calculated at two thresholds of diagnosis, "definitely restore" versus all other ratings (T1), and 'definitely', 'probably', or 'might consider' restoring the tooth versus 'definitely', 'probably', or 'might consider' leaving the tooth unrestored (T2).」 ・それぞれのグループ間で「Effect of intervention and dual reading」「Effect of dual reading and differences in variability between groups」「Effect of intervention and differences in variability between groups」「Effect of dual reading」「Effect of differences in variability between groups」についても比較	・「There were no significant changes in sensitivity, specificity or area under ROC curves caused by the intervention. There was no evidence that the level of agreement between the dentists improved after the intervention.」 ・「(The mean sensitivity and specificity values for threshold T1)については、for each study group are shown in Table 2. The initial mean sensitivity value for the dentists in group 1 was 0.318 and this increased to 0.336 after the intervention, the initial mean specificity value of 0.946 increased to 0.950, however these changes were not significant (P = 0.50; P = 0.56).」			［参考:論文］ ・結果について「The results are surprising since previous evidence had strongly suggested that information about uncertainty enhanced the accuracy and consistency of dentists' restorative treatment decisions 」「1. Further study of the psychology of treatment decision making is needed in order to determine the key factors influencing dentists' choices. 2. Direct comparisons of computer aided learning and traditional education are needed before the ease of distribution of such packages causes potentially ineffective educational methods to overtake traditional ones.」の記載あり。また先行研究との結果の差についての考察あり。

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E112	Bayne, T and Bindler, R. Effectiveness of medication calculation enhancement methods with nurses. Journal of nursing staff development : JNSD 1997; 13(6): 293-301.	1:無作為化比較試験	無作為化比較試験 (RCT)	・「All nurses completed a20-item medication calculation test, used both as the pretest and the posttest, and completed a short questionnaire that contained demographic and attitudinal items.」 ・「目的は教育方法の評価、フォーカスしたのは薬剤の計算、対象は看護師、関連使用ツールはcomputer-assisted instruction(CAI)、評価は「CAI」「a self-study work- book」「group classroom instruction」、「コントロール」、合計67人、実施時期は明確な記載なし1997年？、実施場所はアメリカ」	・「看護師67名3つの病院:Three healthcare facilities in Washington state were asked to participate in the study. 0ne was a major university teaching hospital, one an urban tertiary-care hospital, and the third was a home health-care agency.」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「All participants completed a 20-item medication calculation test that was used as both the pretest and posttest. They also completed a short questionnaire at each testing session that contained demographic and attitudinal items.」	・「Scores on the pretest ranged from25% to 100% (mean = 75.5%, standard deviation = l5.13) and from30% to 100%on the posttest (mean = 80%, standard deviation = 14.72). Scores improved for all groups except the self-study workbook group. No significant difference was found between the experimental groups or the control group for posttest medication calculation test scores. The classroom intervention was most costly, and the workbook intervention was least costly. The nurses identified the workbook intervention as the most satisfying method and computer・assisted instruction (CAI) as least satisfying. A strong positive correlation existed between the nurses' self-assessment of comfort and skill levels with medication calculation test scores. Questions necessitating multiple calculations and those necessitating a conversation not provided were the most difficult to answer correctly. Staff development educators need to address their role in improving the effectiveness of medication calculation.」		・本研究はコストの検討も目的のひとつ ・「Cost-Effectiveness of Teaching Strategiesとして数字をもとに具体的な検討あり:The self-study workbook was the least costly intervention ($23/participant) because this was the cost of the book used and each participant received a personal copy. Classroom instruction was the most expensive intervention method ($70/participant). Multiple classes taught by compensated staff development personnel were necessary to meet nurses' schedules at different sites. Computer-assisted instruction cost	limitations」 ・サンプルサイズが小さいこと ・ワシントン州に限定していること ・看護師の経験が様々であること ・post testのスケジュールが3～5か月にわたっていること ・コンピューターになじんでいるかどうかの差があること、など [参考:論文] ・謝礼あり「At the end of the study, nurses in the experimental groups were paid $40 and those in the control group were paid $25 for participation. care agency.」

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E113	Lincoln, M J and Turner, C W and Haug, P J and Warner, H R and Williamson, J W and Bouhaddou, O and Jessen, S G and Sorenson, D and Cundick, R C and Grant, M. Iliad training enhances medical students' diagnostic skills. Journal of medical systems 1991; 15(1): 93-110.	1:無作為化比較試験	無作為化比較試験(RCT)	・「Iliad is a computerized, expert system for internal medical diagnosis. The system is designed to teach diagnostic skills by means of simulated patient case presentations.」 ・「Iliad functions in three modes: consultation, simulation, and simulation-test.」 ・「The experimental design was a 2 x 2 x 2 (Simulation Training Set x Simulation Test Set x Time) mixed factorial design. The first two factors were between subjects (uncorrelated) factors, while the Time factor was within subjects.」 ・「目的はIliad の評価、フォーカスしたのはmedical decision-making skill、common caseとuncommon case、対象はthe third year medical students 、最終的に94人、関連使用ツールはIliad、評価は、2 x 2 x 2 (Simulation Training Set x Simulation Test Set x Time)、実施時期は1999年、実施場所はアメリカ」	・「The subjects were all of the third year medical students (n = 100) in the 1989—1990 class at the University of Utah who participated in a six-week internal medicine clerkship. The data were obtained from four rotations (of approximately 25 students each) which occurred during the spring semester in 1990. The student clerkships were conducted at the LDS Hospital, the University of Utah Medical Center, and the Salt Lake Veterans Ad-ministration Medical Center.」「最終的に94人」	3:安全と間接的に関係するその他の測定可能なアウトカム	・「independent variables」「testing procedure」「primary dependent variables: Final Diagnostic Errors, Posterior Probability, the Average Hypothesis Score.」	・「The results indicate that students made fewer diagnostic errors and more conclusively confirmed their diagnostic errors and more conclusively confirmed their diagnostic hypotheses when they were tested in their trained domain. We conclude that expert systems such as Iliad can effectively teach diagnostic skills by supplementing trainees' actual case experience with computerized simulations.」 ・「(Final Diagnostic Errorsについては) students who were Trained in Uncommon diseases committed significantly fewer Final Diagnostic Errors than students who were Untrained in Uncommon diseases. These results were supported by the students' Final Diagnostic Error scores, which indicated that neither the Simulation Test Set main effect [F(l ,91) = 2.16, p < 0.145] nor the Simulation Training Set main effect [F(l ,91) = 1.12, p < 0.292] were significant. The Time main effect was nearly significant [F(l,91) = 2.86, p< 0.09]. However, the Test Set by Training Set by Time interaction was significant [F(l,91)=10.41, p<0.002]. This effect appeared to be due to improved student performance on the Final Diagnostic Error variable on Uncommon test cases during the second replication of the experiment (Late level of the Time variable). To test this hypothesis, we performed a planned comparison of the students'mean performance in the Uncommon, Untrained condition (m=21.7%) against the average of the other three conditions (m=7. 7%) analysis demonstrated that the students committed significantly more Final Diagnostic Errors when they worked-up Untrained, Uncommon test cases [F(l,91)			[limitations] ・コンピューターを使っていないコントロールがないこと(学生に公正な機会を与えなければならないこと、コンピューターの経験の有無を最小にしたいこと ホーソン効果やプラセボ効果の影響を最小にしたいこと) ・トレーニング(クラークシップ)の間の患者との接触についての分析をしていないこと [参考:論文] ・Iliadの開発メンバーであるThe university of UtaとしてのIliadの活用を成功させるための考察あり [参考:査読者メモ] ・#055(こちらはNP学生)