## FA 7110 Data tables

***Characteristic and finding of guidelines or systematic reviews***

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| **Author, Year Reference** | **Study design** | **Number of articles identified (N)** | **Population, Type of allergy** | **Intervention** | **Findings as presented in the article** |
| Miles LM, 2021(Miles 2021 2321-33) | Review and meta-analysis | (N=252) Epinephrine domain (44). Barrier domain (166). Cost effectiveness (7). Program and domain strategy (35) | Community use of EAI in children and adults, All type of allergy. | Four domains; epinephrine use in the pre-hospital setting; barriers to epinephrine use in the pre-hospital setting; cost evaluation and cost-effectiveness of epinephrine use; programs and strategies to improve epinephrine use during anaphylaxis. | Epinephrine use in the prehospital setting was significantly higher for children compared with adults: 20.98% (95%CI: 16.38%, 26.46%) vs 7.17% (95%CI: 2.71%, 17.63%), respectively, P=0.0027). The pooled estimate of biphasic reactions among all anaphylaxis cases was 3.92% (95%CI: 2.88%, 5.32%). Our main findings indicate that prehospital use of epinephrine in anaphylaxis remains suboptimal. Major barriers to the use of epinephrine were identified as low prescription rates of epinephrine autoinjectors and lack of stock epinephrine in schools, which was determined to be cost-effective. Finally, in reviewing programs and strategies, numerous studies have engineered effective methods to promote adequate and timely use of epinephrine. |

Abbreviations: EAI, Epinephrine Auto-Injector; CI, confidential interval.

***Characteristic and finding of experimental studies***

| **Author, Year, Reference** | **Type of study** | **Location, Study Size (N)** | **Population, Type of allergy** | **Intervention** | **Comparison** | **Outcomes** | **Findings on our topic as presented in the article** |
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| Brockow, 2015(Brockow 2015 227-35) | Multicenter RCT | Germany, (N=193) | Caregivers of affected children (95) and patients with previous episodes of anaphylaxis (98), All type of allergy. | Two-3h schooling modules of structure education programme (IG) | Standard auto-injector training only (CG) | Knowledge of anaphylaxis. Emergency management competence. Secondary psychological parameters. All outcomes are assessed baseline and 3 months after intervention. | In comparison with CG, the intervention led to significant improvement of knowledge for caregivers: IG 3.2/13.2, improvement/baseline vs CG 0.7/12.6; P < 0.001; patients: IG 3.9/10.8 vs 1.3/ 12.6; P < 0.001. Emergency management competence was increased after intervention as compared to controls for caregivers (IG 8.6/11.2 vs CG 1.2/ 10.8; P < 0.001) and patients (7.1/11.0 vs 1.1/11.1; P < 0.001). Intervention showed significant reduction of caregiver anxiety (-1.9/8.4 vs -0.7/7.5; P < 0.05) but there were no significant changes in the depression scores. |
| Canon N, 2019(Canon 2019 2152656719856324) | Controlled before and after experimental study | Houston, Texas, United State (N=375) | 375 Teachers of six privates schools were assigned to an intervention (4 schools, n=302) and control group (2 schools, n=73). | 1-hour educational session on food allergies by one health care provider. | Pretest survey for the IG and CG. Post-test survey immediately after courses for the IG and 1 month after the pre-test for the CG (Survey: Chicago Food Allergy Research Survey). | Knowledge measure (linear mixed effect model). Attitudes (Likert scale). Beliefs (Likert scale). | Knowledge: the scores in the IG had 19,85% (95%CI: 16,62-22,53) point higher than the CG post-test (P<0.001). IG: the score is 19,78% (95%CI: 18,17-21,38) point higher in the post-test versus pre-test (P<0.001). CG: no significant differences. Attitudes: In terms of agreement that recognizing FA as a serious health problem, the post test score was higher in the IG (16.3 times increased) compared to the control (P<0.001). Beliefs: Post-education, IG schools were 5 times more likely to recognize the difficulty of food avoidance in allergic patients compared to CG schools (OR=5.21; 95% CI: .73–15.70; P<0.003). |

Abbreviations: RCT, randomized control study; IG, intervention group; CG, control group; CI, confidential interval; FA, Food allergy, CI, confidential interval, OR, odd ratio

***Characteristic and finding of observational studies***

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| **Author, Year, Reference** | **Type of study** | **Location,**  **Study Size (N)** | **Population,**  **Type of allergy** | **Intervention/aim** | **Comparison** | **Outcomes** | **Findings on our topic as presented in the article** |
| Litarowsky, 2004(Litarowsky 2004 279-84) | Prospective before and after study. | San Francisco, United State of America (N=53). | Unlicensed assistive personnel in the high school setting, All type of anaphylaxis. | Training program to recognize and respond effectively to an anaphylactic emergency. | Test before and after the training program. No comparison group. | Knowledge and self-efficacy of personnel. | Knowledge: comparison of pretest and posttest scores for knowledge showed significant improvement (p<0.001). The mean score of 5.28 (SD 5 1.769) at pretest increased to 8.91 (SD 5 1.484) after the training intervention. Self-efficacy: Preintervention and postintervention perceived self-efficacy questionnaire scores showed significant improvement (p<0.001) upon comparison. The prequestionnaire means of 20.06 (SD = 7.315) increased to 35.69 (SD = 4.213) after the training intervention. |
| Rodriguez Ferran L, 2020(Ferran 2020 384-89) | Prospective before and after study. | Terrassa, Spain (N=53). | 53 participants from 3 schools (85% teachers, 15% canteen staff). Food allergy. | Training session. 55 min of theoretical part and 10 to 20 min of practical part (use of EAI simulator). | Pre-and post-training questionnaire completed by participants before and after the training session. No comparison group. | Recognition of symptoms of allergic reaction. Recognition of anaphylaxis. Main medication of anaphylaxis. When to use EAI use. How to use an EAI. How to act after use of EAI. | Frequency of correct answer (pre-training versus post-training questionnaire). Recognition of anaphylaxis: 40% vs 81% (p<0.001). Treatment of choice: 45,3% vs 79% (p<0.001). When to use EAI : 19% vs 100% (p<0.001). How to use EAI : 13% vs 100% (p<0.001). |
| Polloni, 2020(Polloni 2020 380-87) | Before and after study. | Padova, Italy (N=592). | Teachers and school caretakers. Food allergy. | 2-hour course on food allergy and anaphylaxis management with discussion. | Pre-and post-training questionnaire completed by participants before and after the training session.  No control group. | Self-efficacy. AM (Recognition of anaphylaxis symptoms and administer proper good drug). FAM. | School personnel reported low self-efficacy in AM, especially in recognizing anaphylaxis symptoms and administering proper drugs. After training course, all scores improved, specially AM scores. Pre-Post difference total score for: AM and FAM score (median and IQR)= 6(3-9); AM score= 1(0.67-1.67); FAM score = 0.6(0,2-1). Significant difference in pre-post difference for recognition of anaphylaxis symptoms (p<0.05). |
| Dumeier 2018(Dumeier 2018 575-81) | Before and after study. | Leipzig, Germany (N=75). | Pre-school teachers. All type of allergy. | Education session (60 min with slides gives before the session and an action plan give after the session). | Survey realized before, immediately after and 4–12 weeks after the education session. No control group. | Assessment by the survey of: attitudes towards and knowledge of allergies and aphylactic emergency. | Attitudes: before the education session, 8/75 (11%) participants felt well-prepared for an anaphylactic emergency according to their self-assessment. This number increased to 66/75 (88%, p< 0.001) directly after the education. After 4–12 weeks, the number was 59/75 (79%, p< 0.001). Knowledge: for the question “*Which of the following descriptions represent possible symptoms of an anaphylactic emergency*?” before, directly after and 4–12 weeks after. Anal incontinence and urinary incontinence: n= *17(23%)- 61(81%)\*- 30(40%)\*\*.* Dip in blood pressure, dizziness: n=*49(65%)- 68 (91%)\*- 65(87%)\*\*.* Shortness of breath, wheezing: *56(75%)-60 (80%)-62(83%).* Nausea, vomiting: n=*44 (59%)- 67(89%)\*- 60(80%)\*\*.* Swelling of skin and mucosa: n=*73(97%)- 74(99%)- 73(97%).* All of 5 symptoms correctly related: n=*7(9%)- 45(*60%)\*- 23(31%). (\*p < 0.025 before vs. directly after education session; \*\*p < 0.025 before  vs. 4–12 weeks after education session). |
| GonzalezMancebo E, 2019 (Gonzalez-Mancebo 2019 60-63) | Before and after study and anaphylaxis. | Fuenlabrada, Spain (N=191). | Teachers (24%), cooks (13%), cafeteria monitors (51%), and summer-camp leaders (12%). Food allergy. | Training course during a conference entitled ‘‘Management of Food Allergy in Children and Adolescents in School Centers’. | Questionnaire before and after the course to assess their self-efficacy in management of food allergy and anaphylaxis. | Self-efficacy in management of food allergy and anaphylaxis. | The areas with the lowest confidence before receiving the course were recognition of symptoms. Comparison before and after the training for recognition of anaphylaxis was MS 3.93 (SD 1.14) – MS 4.4 (SD 0.86); p < 0.0001 and for treatment of the reactions/anaphylaxis: MS 3.08 (SD 1.41) – MS 4.51 (SD 0.84); p < 0.0001. The MS for all the concepts evaluated improved after the training course and this improvement was significant in the recognition of anaphylaxis symptoms: MS 3.64 (SD:1.14) – MS 4.56 (SD:0.76) (P<0.05). |
| Jiang, 2019 (Jiang 2019 107-08) | Before and after study. | Chicago, United State (N=142). | Elementary (n=198), middle (n=156), and high school students with food allergy from urban and private schools (n=203).  Food allergy. | Peer to peer educational food allergy video ([3 videos](https://www.teamsoaar.com/videos/peer-to-peer/)). Videos included top common food allergens, 18 symptoms of an allergic reaction and EAI administration steps. | Pre- and post-tests assessing FA knowledge. | Changes in food allergy knowledge. Assess efficacy of the videos as a learning tool. | Common food allergen: Elementary school: (n=195) 92.3% at pre-test vs. 96.4% at post-test, p<0.05; Middle school (n=133): 76.7% vs. 96.2%, p<0.001; High school (n=160): 88.1% vs. 96.9%, p<0.01. Common Anaphylaxis Symptoms: Elementary school: (n=192) 61.5% at pre-test vs. 85.9% at post-test, p<0.001; Middle school (n=147): 46.3% vs. 70.1%, p<0.001; High school (n=189): 66.1% vs. 85.2%, p<0.001). Epinephrine as appropriate medication for elementary school: (n=192) 66.1% at pre-test vs. 85.4% at post-test, p<0.001. Cross contact: Middle school (n=149): 79.2% vs. 96.0%, p<0.001; High school (n=196): 93.9% vs. 99.0%, p<0.01. |
| Gallagher, 2019 (Gallagher 2019 319-25) | Before and after study. | Milwaukee, Wisconsin, United State(N=22). | Adolescents at risk for anaphylaxis (n=22). Food and stinging insect allergy. | Used of a Smartphone-based interactive teaching tool with decision support and EAI. | Before and after used of the smartphone application. | Decision support’s ability to improve allergic reaction management knowledge. Assess an EAI training module (participant’s ability to correctly demonstrate the use of an EAI). | Median(range) baseline number of correct answers on the scenarios before the intervention was 9 (3–11) and increase to 11 (9–12) with the use of the app (p<0.001). The median(range) demonstration score was 6 (5–6) for the video training module group and 4.5 (3–6) for the label group (p<0.001). |
| Soller, 2018(Soller 2018 693-95) | Before and after study. | Vancouver, BC, Canada (N=353 OFC). | Parents and children (18 years) on an in hospital oral food challenge (OFC). Food allergy. | Training of symptoms and sign of anaphylaxis and EAI use during actual episodes of anaphylaxis. | Pre- and post-challenge questionnaire. | 4 domains assess: conﬁdence in ability to recognize a severe allergic reaction, conﬁdence in EAI administration, perceived technical knowledge of EAI technique, perceived skill in EAI use. | Recognition of anaphylaxis: Mean: pre-challenge: 3.58 (95%CI:4.49-3.67) - post challenge 3.96 (95%CI: 3.74, 4.18). Administration: pre-challenge: 3.25 (95%CI:3.14-3,36) - post challenge 4.23 (95%CI: 4.01, 4.45). Knowledge: pre-challenge: 3.61 (95%CI :3.50-3.72) - post challenge 4.26 (95%CI: 4.04, 4.28). Skill: pre-challenge: 2.73 (95%CI :2.61-2.85) - post challenge 3.85 (95%CI: 3.63, 4.07). |
| Alqurashi W, 2020(Alqurashi 2020 227-33) | Observational study. | Ottawa, Canada (N=230). | Patients (children) and their parents.  All type of allergy. | To validate the Kids’ CAP and assess its impact on anaphylaxis recognition and treatment, and to determine its’ perceived usefulness. | No comparison. | Development phase: Readability. Understandability and Actionability (Patient Education Materials Assessment Tool for Printable Materials). Clinical phase: Health literacy (Newest Vital Sign); Quality of the written medical information, comprehensibility, design quality, and usability (Consumer Information Rating Form); Comprehension (Kids’ CAP Comprehension Assessment). | Development phase: The infographic scored an average GFI of 9 and an FRG score of 5; The understandability and actionability of the Kids’ CAP were deemed acceptable in the ﬁrst review with median scores of 88% (range 84%–92%) and 85% (range 71%–100%), respectively. Clinical phase: Of the 230 participants enrolled, 205 (89%) completed the follow-up interview. The written contents of the Kid's CAP were modified to match grade 7 readability level. The total MS of the CIRF for comprehensibility was 23.1 (SD 2.4), and 25.1 (SD 2.3) for design quality. The mean comprehension score was 11.3 (SD 1.8) (reference range 0-12), with no significant difference between participants with and without previous experience with anaphylaxis, or high vs. low literacy level. |
| Korematsu, 2022(Korematsu e14973) | Observational study. | Oita, Japan (N=597 institutions) | All public of private elementary schools, junior high schools, and high schools.  Compulsory education schools: special-needs schools. Public and private kindergartens. certified childcare facilities, day-care centers in the prefecture (1.118 institutions). All type of allergy. | Determining if appropriate responses to anaphylaxis onset were implemented in Oita Prefecture, Japan after implementation of guidelines. | Online questionnaire after and no comparison. | Detection of symptoms of children witch an EAI was recommended. | Among the 48 children who had symptoms which an EAI was recommended; 23 have symptoms based on the evaluation within 30 seconds (Look sick, difficult to breathe, decreased consciousness) and 25 have symptoms based on the evaluation within 5 minutes (systemic, respiratory, and digestive symptoms). |
| Efthymiou, 2021(Efthymiou 2021 2083) | Observational study. | Cyprus (N=11 schools). | Personnel of preschool facilities and school. Food allergy. | Evaluation of allergy management competences in primary schools with a questionnaire (42 questions). |  | Recognition of signs and symptoms of anaphylaxis. Training and preparedness. | 8/11 respondents stated that they know some of the signs of food allergy. They mentioned 7 types of signs and symptoms: wheals (4/11), itching (2/11), airway obstruction (2/11), wheezing (2/11), dyspnea (1/11), abdominal pain (2/11) and oedema (1/11), but 3/11 could not recall any symptom. The personnel had received training relevant to allergies and allergic symptoms and were prepared to manage an allergic reaction in a child, in only 2/11 schools where seminars had been provided twice in the preceding 3 years, by an allergist and a dietitian. |
| Esenboga, 2020(Esenboga 3-7) | Observational study. | Ankara, Turkey (N=190). | Patients aged 1 to 18 years who were prescribed EAIs for any reason. All type of allergy. | To determine attitudes and knowledge levels of patients/parents regarding the use of EAIs with face- to-face interview (95%) and a survey for parents. | No comparison. | Experience of anaphylaxis. Use, carriage, and storage of EAI. | 44 parents’ experiences anaphylaxis and indicated in order as symptoms: Itching, urticaria, angioedema (≈37%); Breathing difficulty (≈34%); Tightening in the throat or chest (≈18%); Dizziness, fatigue, near fainting (≈4%); Repeated vomiting (≈2%); Resistant severe cough (≈13%). |
| Glassberg B, 2021(Glassberg 2021 175-79.e3) | Observational study. | New York, New York, United states (N=200). | Caregivers of pediatric patients with food allergies. Food allergy. | To understand the factors associated with underuse of EAI by caregivers of pediatric patients (survey). | No comparison. | EAI use. Reasons for not administering EAI. | 164 surveys were completed; 118 (72%) of lifetime most severe reactions warranted EAI use, but the EAI was used in only 45 (38.1%). Reasons caregivers indicated for not administering the EAI: reactions did not seem severe enough; it was the patient's first allergic reaction; use of other medication; and fear of using EAI. |
| Greiwe, 2015(Greiwe 2015 63-67) | Observational study. | Cincinnati, Ohio, United States (N=153). | Nannies (153). Food allergy. | To identify gaps in knowledge in the nanny population regarding food allergy in children (Online survey). | No comparison. | Knowledge gaps. | 51 % were comfortable with recognizing a food allergy emergency, 36% were uncomfortable. Responders thought that there is a need for more in-formation regarding eating out (23%), followed by recognizing signs and symptoms of allergic reaction (17%), travelling (15%), and epinephrine administration during emergencies (15%). |

Abbreviations: RCT, Randomized Controlled Trial; SD, standard deviation; IQR, interquartile range; EAI, Epinephrine Auto-Injector; FAM, food allergy management; AM, allergy management, MS, Mean Score; OFC, Oral Food Challenge; CAP, Canadian action plan; GFI, Gunning Fog index; FRG, Fry Readability Graph; CIRF, Consumer Information Rating Form.