Table of eligible studies

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| **Study (Date)** | **Design** | **Setting (Length)** | **Population** | **Intervention;(Providers)** | **Patients (Sex, Age)** | **Reported Outcomes** |
| **Pre-hospital studies** |
| Spaite(1990) | RC | USA (1985–1987) | Trauma, CA | Surgical Cric (ALS paramedics) | 16 | Success; Clinical outcomes; complications; HRQoL |
| Boyle(1993) | RC | USA(1983–1988). | Trauma, CA | Surgical Cric; (Air ambulance staff nurses) | 69(Sex: 78% M; Age: avg 22) | Incidence; success rate; Clinical outcomes complications; HRQoL |
| Xeropotamos(1993) | RC | UK(1991–1992) | Trauma, CA | Surgical Cric; (HEMS staff, physicians, surgeons) | 11(Sex: NR; Age: range 24–64) | Incidence eFONA; success rate; ROSC; Clinical outcomes; HRQoL |
| Jacobson(1996) | RC | USA(1990–1994) | Trauma, CA | Surgical Cric,Needle Cric; (Paramedics) | 50 (Sex: 76% M; Age: means 32.1) | Incidence; success rate; ROSC; Clinical outcomes; complications |
| Gerich(1998) | PC | Germany(1993–1997) | Trauma, Medical | Surgical Cric; (HEMS) | Eight (Sex: 75% M; Age: Mean 40.3y) | incidence; success rate; Clinical outcomes ; complications |
| Thomas(1999) | RC | USA (1995–1997) | Trauma, Medical | Surgical Cric; (HEMS) | 10  | Incidence; success rate |
| Robinson(2001) | RC | USA (19851997) | Trauma, Medical | Surgical Cric; (Nurses, physician) | 8  | Incidence; success rate |
| Bulger(2002) | RC | USA (19971999) | Trauma, Medical, CA | Surgical Cric, Needle cric;(Paramedics) | 30 (Sex: 70% M; Age: range 18 – 99 y) | Incidence; Clinical outcomes |
| Germann(2009) | RC | USA (1998– 2006) | Trauma, CA | Surgical Cric;(Paramedic, registered nurses) | 6 (Sex: 100% M) | Incidence; success rate |
| Warner(2009) | PC | USA (2001– 2005) | Trauma, CA | Surgical Cric; (Paramedic, Critical-care,Advanced paramedic) | 11  | Incidence; success rate; Clinical outcomes; complications |
| Wang(2011) | RC | USA (2008–2008) | Trauma, CA | Surgical Cric, Needle Cric; (Standard paramedic physicians, Surgeons) | 88 (Sex: 75%M) | Incidence; success rate; complications |
| Shapey(2012) | RC | UK (2003- 2010) | Trauma, Medical, CA | Surgical Cric, Needle Cric;( Paramedic, doctors, HEMS) | 16 | Incidence; ROSC; complications |
| Kamiutsuri(2013) | RC | Japan (2004–2011) | Trauma, CA | Surgical Cric; (Physicians) | 13  | Incidence; success rate |
| Brown(2014) | RC | USA (2007- 2009) | Trauma, Medical | Surgical Cric, Needle Cric; (HEMS, Paramedic, Nurse) | 35  | Incidence; success rate |
| Prekker(2014) | RC | USA (2006–2011) | NA | Surgical Cric, Needle Cric; (Paramedics) | 30  | Incidence; ROSC; Clinical outcomes |
| Diggs(2014) | RC | USA (2012–2012) | NA | Surgical Cric, Needle Cric; (Paramedics) | 1,332  | Incidence; success rate |
| Peters(2014) | RC | Netherlands (2007–2013) | Trauma, Medical, CA | Surgical Cric; (Anaesthesiologists, HEMS physicians, surgeons) | 29 (Sex: 80% M) | Incidence; ROSC; Clinical outcomes |
| Peters(2015) | RC | Netherlands (2007-2012) | NA | Surgical Cric; (HEMS physicians, paramedics, nurses) | 19  | Incidence |
| Sunde(2015) | PC | Multicentre (2012–2013) | Trauma, Medical, CA | Surgical Cric; (HEMS physicians, Paramedics) | 6  | Incidence |
| Gellerfors(2018) | RC | Multicentre (2015–2016) | Trauma, CA | Surgical Cric; (Physician, Nurses) | 14  | Incidence |
| Schober(2019) | RC | Netherlands (2011–2018) | Trauma, Medical | Surgical Cric,Needle Cric; (HEMS) | 18  | Incidence; success rate; Clinical outcomes; Complications |
| Aziz(2021) | RC | UK (2000–2019) | Trauma, CA | Surgical Cric, Needle Cric; (Physician, paramedic) | 72  | Incidence; success rate |
| Himmler (2023) | RC | USA (2008-2020) | Medical,Surgery | Surgical Cric | 95 | Incidence |
| Malkan (2023) | RC | USA (2007 – 2020) | Trauma | Surgical Cric | 251 (Sex: 98% M;Age: Median 25 y)  | Incidence; Clinical outcomes; Complications |
| **In-hospital setting** |
| McGill(1982) | RC | USA (1977–1980) | Trauma, Medical, CA | Surgical Cric; (ER physicians, surgeons) | 38 (Age: average 41 y) | Incidence; Clinical outcomes; HRQoL |
| Erlandson(1989) | RC | USA (1981–1985) | Trauma, Medical, CA | Surgical Cric; (ER physicians, Anaesthesiologists, Surgeons) | 39  | Incidence; Clinical outcomes; complications |
| Delaurier(1990) | RC | USA (1984–1988) | Trauma | Surgical Cric; (ER physicians) | 34  | Clinical outcomes; Complications |
| Gillespie(1999) | RC | USA (1993-1998) | Trauma, Medical, CA | Surgical Cric, Needle cric, Tracheostomy; (ER physicians, Surgeons) | 35 (Sex: 69% M; Age: Mean 50 y) | Success rate; complications |
| Isaacs(2001) | RC | USA (1996) | Trauma, Medical | Surgical Cric | 27 (Sex: 70% M; Age: range 20–81) | Clinical outcomes; complications; HRQoL |
| Bair(2002) | RC | USA (1998–2001) | Trauma, Medical | Surgical Cric, Needle Cric, Tracheostomy; (ER physicians Surgeons) | 44  | Incidence |
| Wong (2008) | PC | Singapore (2000–2006) | Trauma, Medical, CA | Surgical cric, Tracheostomy; (ER physicians, Anaesthesiologists, Surgeons) | 7  | Incidence; success rate |
| Cook(2011) | RC | UK (2008–2009) | Trauma, Medical, CA | Surgical Cric, Needle Cric, Tracheostomy; (ER physicians, Anaesthesiologists, Surgeons) | 75 (Sex: 58% M) | Incidence; success rate; complications |
| NAP4(2011) | PC | UK (2008–2009) | Trauma, Medical, CA | Surgical Cric, Needle Cric; (ER physicians, Anaesthesiologists, Surgeons) | 58  | Incidence; success rate Clinical outcomes; complications |
| Beshey(2014) | RCT | Egypt (2011–2011) | Trauma, Medical, CA | Surgical Cric | 169 (Age: Mean 46.7 ± 32.11 y) | Incidence; success rate; complications |
| Rosenstock(2016) | RC | Denmark (2008–2014) | Trauma, Medical, CA | Surgical Cric; (Anaesthesiologists, surgeons) | 27 (Sex: 78% M; Age: Mean 57 y) | Incidence; success rate; complications |
| Darby(2018) | RC | USA (2008–2012) | Trauma, Medical, CA | Surgical Cric, Needle Cric; (Physicians, Anaesthesiologists, Surgeons) | 22 (Sex: 77% M; Age:61 ± 11) | Incidence; success rate; Clinical outcomes; Complications |
| Kwon(2019) | RC | Korea (2007–2018) | Trauma, Medical, CA | Surgical Cric, Needle Cric; (ER, ENT) | 23 (Sex: 78% M; Age: Mean 63 y) | Success rates; ROSC; Clinical outcomes; complications |
| Alkhouri(2020) | RC | Australia, New Zealand (2010–2015) | Trauma, Medical, CA | Surgical Cric, Tracheostomy; (ER-physicians, intensivists, anaesthetists, GP) | 15 (Sex: 93% M; Age: Mean 54 y) | Complications  |
| Willinge(2021) | RC | Netherlands (2013–2018) | Trauma, Medical, CA | Surgical Cric; (Surgeons) | 52 (Age: Median 54 y) | Complications |
| Okada(2022) | RC | Japan (2012–2020) | Trauma, Medical, CA | Surgical Cric, Needle Cric, Tracheostomy; (Physicians) | 31 (Sex: 74% M; Age: Median 53 y) | Incidence; Clinical outcomes; complications |
| George(2022) | RC | USA (2009–2019) | Trauma | Surgical Cric | 51 (Sex: 77% M; Age: 45.2 ± 19.93 y) | Incidence; Clinical outcomes |
| Jansen (2023) | RC | Germany (2014-2019) | In-hospital emergencies | Surgical Cric | 8 | Incidence |
| Arora (2023) | RC | India (2021- 2022) | Medical | Needle Cric, Tracheostomy | 17 (Sex: 41% M; Age: mean 64 y) | Clinical outcomes |
| Offenbacher (2023) | RC | USA (2016-2018) | Trauma, Medical, CA | Surgical Cric | 49 (Sex:80% M; Age: median 41 y) | Incidence; success rate; Clinical outcomes |
| **In-hospital and pre-hospital settings** |
| Nugent(1991) | RC | USA (1987–1989) | Trauma, Medical, CA | Surgical Cric; (HEMS-Nurses) | 55 (Sex: 78% M; Age: range 9–76 y) | Incidence; success rate; Clinical outcomes; complications |
| Salvino(1993) | RC | USA (1988–1991) | Trauma | Surgical Cric; (Paramedic, HEMS-nurse and paramedics, anaesthesia, Surgeons) | 30 eFONA (Sex: 90% M) | Incidence; success rate; Clinical outcomes; complications |
| Hawkins(1995) | RC | USA (1989–1993) | Trauma | Surgical Cric;(ER-physicians) | 66  | Incidence; Clinical outcomes; complications |
| Bair(2003) | RC | USA (1995–2000) | Trauma, Medical | Surgical Cric; (HEMS, ER-physicians, Surgeons) | 50  | Incidence; success rate; complications |
| McIntosh(2008) | RC | USA (1995–2004) | Trauma, Medical | Surgical Cric;(Paramedics, HEMS-nurses, and paramedics) | 17  | Incidence; success rate Clinical outcomes; complications |
| Graham(2011) | RC | USA (1995–2010) | Trauma, Medical, CA | Surgical Cric | 94 (Sex: 94% M) | Success rate; ROSC; Clinical outcomes; complications |
| Paix(2012) | Case series | Australia (1992–2011) | Trauma, Medical, CA | Surgical Cric, Needle Cric | 24 (Sex: 88% M) | Success rate; complication  |
| King(2012) | RC | USA (2000–2010) | Trauma | Surgical Cric; (Paramedics, ER-physicians, surgeons) | 54 (Sex: 80% M; Age: 50 ± 15 ) | Complications |
| Katzenell(2012) | RC | Israel (1997–2010) | Trauma | Surgical Cric; (Paramedics, physicians) | 46  | Incidence; success rate; Clinical outcomes. |
| High(2018) | RC | USA (2006–2015) | Trauma, Medical | Surgical Cric; (HEMS) | 13 (Sex: 75% M) | Incidence; success rate |
| Duggan(2018) | RC | Multicentre (2016–2017) | Trauma, Medical, CA | Surgical Cric, Needle Cric, Tracheostomy; (Paramedics; ER-physicians, anaesthesiologists, surgeons) | 99 (Sex: 74% M) | Success rate |
| Morocco(2021) | Case series | USA (2010–2020) | Trauma | Surgical Cric; (Paramedics, Surgeons) | 12 (Sex: 92% M; Age: average 43 y) | Incidence; success rate; short- Clinical outcomes; complications |
| **Battlefield** |
| Leibovici(1997) | RC | Israel (1991–1995) | Trauma | Surgical Cric | 29 (Age: median 20 ± 6.56 y) | Success rate; Clinical outcomes; complications |
| Adams(2008) | PC | Iraq (2005–2007) | Trauma, Medical, CA | Surgical Cric | 17 (Sex: 95% M) | Incidence; success rate; complications |
| Mabry(2012) | RC | Iraq, Afghanistan (2007–2009) | Trauma | Surgical Cric | 72 (Sex: 96% M) | Success rate; Clinical outcomes; complications |
| Lairet(2012) | PC | Afghanistan (2009–2011) | NA | Surgical Cric | 15  | Incidence; complications  |
| Barnard(2014) | RC | Afghanistan (2009–2013) | Trauma | Surgical Cric; (Ground and flight-medics) | 34 (Sex: 97% M; Age: median 24y) | Incidence; success rate; Clinical outcomes |
| Pugh(2015) | RC | Afghanistan (2013–2013) | Trauma | Surgical Cric; (Paramedics) | 14  | Incidence;Clinical outcomes; complications  |
| Schauer(2015)\* | RC | USA (2010–2012) | Trauma | Surgical Cric; (Military-physicians and physician-assistants) | 32 (Age: range]36–56 y [) | Incidence; Clinical outcomes |
| Tobin(2015) | RC | Afghanistan (2010–2010) | Trauma, CA | Surgical Cric,Tracheostomy, (Military personnel, HEMS- critical care team). | 42  | Incidence |
| Kyle(2016) | RC | Afghanistan (2006–2014) | Trauma | Surgical Cric; (General Medic, Medical Emergency Response Team, combat EMT) | 86 (Sex: 100% M; Age: median 25 y) | Success rate; Clinical outcomes |
| Schauer(2018) | RC | Iraq, Afghanistan (2007–2016) | Trauma | Surgical Cric | 230 (Afghanistan= 178 and Iraq =52) ; (Sex: Iraq: 96% M; Afghanistan: 99% M) | Clinical outcomes; complications |
| Benov(2019) | RC | Israel, Syria (2013–2017) | Trauma, Medical | Surgical Cric | 30 eFONA/ (Male:93%; Age: median 24 y) | Incidence; success rate |
| Hudson(2020) | RC | Afghanistan (2008–2014) | Trauma | Surgical Cric, Tracheostomy | 85 (Sex: 98% M; Age: 25 y IQR [23–30]) | Incidence; Clinical outcomes. |
| Beitner(2021) | RC | Israel (1998–2018) | Trauma | Surgical Cric; (Paramedics, ER-physicians) | 153 (Age: Mean 27.4 y ) | Incidence; success rate; Clinical outcomes |
| Key- RC- retrospective cohort, PC- prospective cohort, CA-cardiac arrest, Cric- cricothyroidotomy, ER- emergency room, ENT- Ear-Nose-Throat surgeon, GP- General practitioner, HRQoL- Health-related quality of life); this study includes military and civilian cases.  |