**Supplemental Digital Content 4 – Study Quality Details – High Importance Studies**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study Author and Date** | **\*Clinical Role of Learner** | **Repres. of Sample** | **Randomization** | **Compar. of Control** | **†Validity of Assessment** | **Reported Unit of Analysis** | **‡Outcome Level** | **Outcome Follow-up** |
| Alwy Al-beity et al (2019) | Att, Res, Nur, NS, AH | Yes | No | Yes | NA | Patient (inapp) | K2A, K2B, K4P, K4I | Yes |
| Arul et al (2021) | Res, Nur, RT | Yes | No | Yes | None | Provider | K4I | Yes |
| Bhatia et al (2021) | Att, Nur | Yes | No | Yes | NA | Patient (inapp) | K1, K2A, K4P | Yes |
| Bohmann et al (2021) | Att, Res, AH | Yes | No | Yes | NA | Patient (inapp) | K1, K3, K4 | No |
| Cheung et al (2020) | Att, Nur, AH | No | No | Yes | IS | Provider | K1, K2A | No |
| de Melo et al (2021) | Res | No | No | Yes | NA | Patient (inapp) | K4P, K3 | No |
| Gallagher et al (2021) | Att, Nur | No | No | No | None | Patient (inapp) | K4P, K3 | Yes |
| Greer et al (2019) | Att, Res, Nur, RT, AH | Yes | No | Yes | None | Provider | K2B, K4I, K1 | No |
| Harvey et al (2019) | Att, Res, Nur, RT, Pharm | yes | No | No | Con, IS | Patient (inapp) | K1, K2A, K2B, K4I | Yes |
| Hazwani et al (2020) | Res, Nur, RT, AH | Yes | No | No | NA | Patient (inapp) | K3, K4P | No |
| Josey et al (2018) | N, ATT, RT, AH | Yes | No | Yes | NA | Patient (inapp) | K4I | No |
| Leng et al (2018) | Res, N, AH | No | No | No | NA | Patient (inapp) | K1, K2B, K3, K4P, Qual | No |
| Lutgendorf et al (2017) | Att, Res, Nur, AH | Yes | No | No | NA | Patient (inapp) | K1, K4I | No |
| Mduma et al (2015) | Nur, NS, AH | Yes | No | Yes | NA | Patient (inapp) | K4P | No |
| Miller et al (2012) | Att, Res, Nur, RT, Pharm, AH | No | No | No | Con, IS | Patient (inapp) | K2B, K3 | Yes |
| Minai et al (2014) | MS | Yes | Yes | No | Con | Provider | K2B | No |
| Patterson et al (2013) | Att, Res, Nur, EMT, RT, AH | Yes | No | No | Con | Provider | K1,K2B, K4I | No |
| Sodhi et al (2015) | Att, Res, Nur, AH | Yes | No | No | NA | Patient (inapp) | K4P, K4I | Yes |
| Sorenson et al (2015) | Att, Res, Nur, AH | Yes | Yes | Yes | Con | Provider | K2A, K2B | No |
| Sprehe et al (2016) | Att, Nur, RT, Pharm | Yes | No | No | Con | Provider | K1, K2A, K2B | No |
| Steinemann et al (2011) | Att, Res, Nur, RT, AH | Yes | No | No | Con, IS | Patient (inapp) | K2B, K3, | No |
| Ulmer et al (2022) | Att, Res, Nur | Yes | No | No | None | Provider | K3 | Yes |
| van den Broek et al (2019) | AH | Yes | Yes | Yes | NA | Patient (inapp) | K3, K4I | Yes |
| Ventre et al (2014) | Att, Res, Nur, RT, Pharm | Yes | No | Yes | None | Provider | K4I | No |

This table provides more granular information regarding specific quality issues with the included high importance studies. In all cases in which the patient was the unit of analysis used within the study, this was deemed inappropriate as the intervention was performed at the provider level. Assessment tool validity was assessed using Messick’s Unified framework. Outcome follow-up was deemed to have occurred if either a specific skills-decay assessment was undertaken or if patient outcomes were followed for longer than a year.

\*Clinical Role Abbreviations: Att-Attending Physician, Res-Resident Physician, MS-Medical Student, Nur-Nursing, NS- Nursing Student, RT-Respiratory Therapy, Pharm-Pharmacist, AH-Other Allied Health

**†**Assessment Validity Abbreviations: NA – Clinical metrics obtained, no assessment tool used, None – Assessment tool used but no validity data provided, Con – Content evidence provided, IS – Internal Structure evidence provided.

**‡**Outcome Level Abbreviations: K1-Kirkpatrick 1 (learner reactions and self-assessment), K2A – Kirkpatrick 2A (objective knowledge assessment), K2B – Kirkpatrick 2B (skills assessment within the educational environment), K3 – Kirkpatrick 3 (behaviors assessed during patient care), K4P – Kirkpatrick Level 4 Patient (care impact of intervention assessed at patient level), K4I – Kirkpatrick Level 4 Institution (care impact of intervention assessed at institutional level)