**S2 Table. Quality scores of 34 studies included in the systematic review**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study ID | 1. Timing and location of study cleary stated  | 2. Definition of counterfeit / substandard med provided? |  3. Description of Type of outlet sampled | 4. Descriptionof sampling design & sample size calculation | 5. Type and N of dosage units purchased fr outlet | 6. Random sampling used? | 7. Info on who collected the sample (mystery shopper)? | 8. Packaging assessment performed?  | 9. Statistical analysis described? | 10. Chemical analysis clearly described? |  11. Detailson method validation | 12. Chemical analysis assessors blinded to packaging? | **Total quality score1** |
| Abuga 2013  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **1** |
| Anyakora 2018  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | **11** |
| Dan Ling 2013  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **1** |
| Guatemala 2011 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **3** |
| Hagen 2020 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | **10** |
| Hall 2016 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | **4** |
| Hozergeil 1993  | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | **4** |
| Islam 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **1** |
| Kaale 2016 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | **5** |
| Karikari 2013  | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | **8** |
| Karwar 2011 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | **5** |
| Lambert 2018  | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | **7** |
| Lambert 2019  | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | **8** |
| Liu 2016  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **2** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study ID | 1. Timing and location of study cleary stated  | 2. Definition of counterfeit / substandard med provided? |  3. Description of Type of outlet sampled | 4. Descriptionof sampling design & sample size calculation | 5. Type and N of dosage units purchased fr outlet | 6. Random sampling used? | 7. Info on who collected the sample (mystery shopper)? | 8. Packaging assessment performed?  | 9. Statistical analysis described? | 10. Chemical analysis clearly described? |  11. Detailson method validation | 12. Chemical analysis assessors blinded to packaging? | **Total quality score1** |
| MoPH Afghanistan 2015, | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | **4** |
| Nazerali 1996  | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |   | 1 | 0 | **5** |
| PATH 2015 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | **7** |
| Peru 2010 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2** |
| Prazuck 2002  | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **3** |
| Pribluda 2012  | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | **7** |
| Rafiki Islam 2017 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **4** |
| SAIDI-Peru 2009 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | **4** |
| Scrimgeour 2019 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | **7** |
| Sheth 2007 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |   | 0 |   | **7** |
| Silva 2010 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | **5** |
| Stanton 2012 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | **8** |
| Stanton 2014  | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | **9** |
| Tabernero 2019 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | **10** |
| Taylor 2001 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | **5** |
| Thoithi 2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **1** |
| Thoithi 2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **1** |
| U.N Col 2015 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **5** |
| Walker 1988  | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **3** |
| WHO 1995  | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | **3** |
| **TOTAL**  | **17** | **21** | **26** | **9** | **16** | **10** | **11** | **14** | **5** | **28** | **7** | **6** |  |

Based on MEDQUARG guidelines 12 Quality Criteria (Newton 2009, Almuzaini 2013)