



Characteristics of artificial intelligence clinical trials in the field of healthcare: A Cross-Sectional Study on ClinicalTrials.gov

Table S1. Characteristics of completed interventional trials by the status of results reporting.

| Characteristics | Number (%) of studies (N = 249) | |
|-------------------------------|---------------------------------|------------------------|
| | Reported (n = 27) | Not reported (n = 222) |
| Posted year | | |
| Before 2007 | 2 (7.41) | 4 (1.80) |
| 2008-2012 | 6 (22.22) | 18 (8.11) |
| 2013-2017 | 14 (51.85) | 57 (25.68) |
| After 2018 | 5 (18.52) | 143 (64.41) |
| Status | | |
| Completed | 22 (81.48) | 188 (84.68) |
| Suspended | 0 (0) | 3 (1.35) |
| Terminated | 5 (18.52) | 10 (4.50) |
| Withdrawn | 0 (0) | 21 (9.46) |
| Allocation | | |
| Randomized | 7 (25.93) | 114 (51.35) |
| Non-randomized | 3 (11.11) | 23 (10.36) |
| NA | 17 (62.96) | 83 (37.39) |
| Masking | | |
| None/open label | 27 (100) | 143 (64.41) |
| Single | 0 (0) | 46 (20.72) |
| Double or more | 0 (0) | 33 (14.86) |
| Phase | | |
| Phase 1 | 0 (0) | 6 (2.70) |
| Phase 1/Phase 2 | 1 (3.70) | 3 (1.35) |
| Phase 2 | 1 (3.70) | 5 (2.25) |
| Phase 2/Phase 3 | 0 (0) | 1 (0.45) |
| Phase 3 | 1 (3.70) | 3 (1.35) |
| Phase 4 | 1 (3.70) | 6 (2.70) |
| NA | 23 (85.19) | 198 (89.19) |
| Enrollment | | |
| ≤100 | 17 (62.96) | 134 (60.36) |
| >100 | 10 (37.04) | 88 (39.64) |
| Center | | |
| Single-center | 15 (55.56) | 194 (87.39) |
| Multi-center | 12 (44.44) | 28 (12.61) |
| Lead sponsor | | |
| Hospital/University | 12 (44.44) | 132 (59.46) |
| Industry | 8 (29.63) | 50 (22.52) |
| Other | 7 (25.93) | 40 (18.02) |
| Region of lead sponsor | | |
| North America | 22 (81.48) | 109 (49.10) |
| Europe | 3 (11.11) | 61 (27.48) |

| | | |
|------------------|------------|-------------|
| Asia | 1 (3.70) | 47 (21.17) |
| Other | 1 (3.70) | 5 (2.25) |
| Funded by | | |
| NIH/US Fed | 8 (29.63) | 17 (7.66) |
| Industry/other | 19 (70.37) | 205 (92.34) |

Abbreviations: NA, not applicable; NIH, National Institutes of Health; US Fed, other United States Federal Agencies.

Table S2. Description of entity types in the AI technology application graph.

| Entity types | Description | Example |
|--------------------|---|-----------------------------------|
| AI_subdomain | classification of AI subdomains | e.g., supervised machine learning |
| AI_technology | detailed AI technologies of different subdomains | e.g., support vector machine |
| condition | classification of conditions by ICD11 | e.g., neoplasms |
| healthcare_setting | classification of healthcare application settings | e.g., diagnosis and screening |

Table S3. Description of entity relationship types in the AI technology application graph.

| Relationship types | Description | Example |
|--------------------|--|---|
| has_a | AI subdomain contains detailed AI algorithms or models | e.g., <“supervised machine learning” -has_a - “support vector machine”> |
| is_applied_to | AI technology can be apply to the healthcare scenarios | e.g., <“support vector machine” -is_applied_to - “diagnosis and screening”> |
| focus_on | focused disease areas in healthcare scenarios | e.g., <“diagnosis and screening” -focus_on - “neoplasms”> |

Table S4. Statistics on the application of deep learning technology (list the top 10 items).

| Rank | AI technology | Healthcare setting | Conditions | Number of trials |
|------|---------------|-------------------------|--|------------------|
| 1 | Deep learning | Diagnosis and screening | Neoplasms | 54 |
| 2 | Deep learning | Diagnosis and screening | Diseases of the digestive system | 20 |
| 3 | Deep learning | Diagnosis and screening | Diseases of the visual system | 18 |
| 4 | Deep learning | Diagnosis and screening | Symptoms, signs or clinical findings, not elsewhere classified | 10 |
| 5 | Deep learning | Diagnosis and screening | Diseases of the circulatory system | 9 |
| 6 | Deep learning | Diagnosis and screening | Other conditions not classified | 9 |
| 7 | Deep learning | Diagnosis and screening | Diseases of the nervous system | 7 |
| 8 | Deep learning | Diagnosis and screening | Endocrine, nutritional or metabolic diseases | 4 |
| 9 | Deep learning | Diagnosis and screening | Diseases of the genitourinary system | 4 |
| 10 | Deep learning | Diagnosis and screening | Mental, behavioural or neurodevelopmental | 3 |

disorders
