**SUPPLEMENTARY MATERIAL**

**The prevalence of healthcare-associated infections in Mainland China – A systematic review and meta-analysis**

**Supplementary table 1A.** Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist [1](#_ENREF_1)

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **Item** | **Criteria** | **Yes/No** |
| **Introduction** |  |  |  |
| Background/rationale | 1 | The study explains the specific background and rationale for HAI prevalence |  |
| Objectives | 2 | To assess the HAI prevalence in Chinese hospitals |  |
| **Methods** |  |  |  |
| Study design | 3 | Point prevalence survey/cross-sectional study |  |
| Settings | 4 | General hospitals, children hospitals, hospitals for maternal and child health, and/or oncology hospitals |  |
| Participants | 5 | Hospitalized adults, children and/or neonates |  |
| Variables | 6 | Author, publication year, timescale of study, number of hospitals in the study, patients with HAI, type of infection, \*[isolated pathogens, MDROs, prevalence by department (ICU, internal medicine, surgery, pediatric)] |  |
| Data sources | 7 | Investigator actively collected data from the patient’s (electronic) information system |  |
| Bias | 8 | The study provides information on assessment of bias |  |
| Study sample size | 9 | The study reports sample sizes for the different hospital settings |  |
| Statistical methods | 10 | The study explains applied statistical methods:* Descriptive analysis of overall prevalence
* Distribution of HAIs
* Distribution of microorganism isolations
 |  |
| **Results** |  |  |  |
| Descriptive data | 11 | * Prevalence of HAI prevalence stratified by hospitals (e.g. General hospitals, children hospitals, hospitals for maternal and child health, and oncology hospitals)
* Type of infections (URTI, LRTI, UTI, SSI, BSI, GI, IA, STI, OTH)
* \*(microorganism pathogens causing HAI)
 |  |
| **Discussion** |  |  |  |
| Key results | 12 | Key results are summarized with reference to study objectives |  |
| Limitations | 13 | Limitations are sufficiently discussed |  |
| Interpretation | 14 | Overall interpretation of results is based on the findings and in the context of the evidence base |  |
| Generalizability | 15 | Generalizability (external validity) of the study results is discussed |  |
| **Total** |  |  |  |

**Supplementary table 1B.** Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) quality assessment criteria [1](#_ENREF_1)

|  |  |
| --- | --- |
| **Rating** | **Description** |
| High quality  | Fulfilled >75% of STROBE criteria |
| Moderate quality | Fulfilled 50-75% of STROBE criteria |
| Low quality | Fulfilled <50% of STROBE criteria |

**Supplementary table 2A.** Summary of quality assessment – Systematic review on healthcare-associated infections in Mainland China, 2006-2016

|  |  |  |  |
| --- | --- | --- | --- |
| Healthcare setting | Level of quality | Studies(N) | Weighted prevalence(95%CI) |
| General hospitals | High  | 16 | 2.89 (2.52-3.27) |
| Moderate  | 26 | 3.11 (2.79-3.43) |
| Children hospitals | High  | 1 | 4.60 (3.39-6.09) |
| Moderate  | 13 | 4.35 (2.97-5.74) |
| Low  | 5 | 4.49 (2.68-6.29) |
| Maternal and child health hospitals | Moderate  | 22 | 1.99 (1.53-2.46) |
| Low  | 5 | 1.34 (0.57-2.11) |
| Oncology hospitals | Moderate  | 23 | 4.28 (3.37-5.20) |
| Low  | 4 | 1.94 (1.04-2.84) |

**Supplementary table 2B.** Study quality assessment – Systematic review on healthcare-associated infections in Mainland China, 2006-2016

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Author** | **Year** | **Province** | **Sample size** | **HAI Patients** | **HAI** | **Quality** |
| **General hospitals** |  |  |  |  |  |  |
| Chen L[2](#_ENREF_2) | 2016 | Guizhou | 7799 | 198 | 207 | moderate |
| Chen L[3](#_ENREF_3) | 2016 | Guizhou | 6541 | 120 | 127 | high |
| Chen P[4](#_ENREF_4) | 2011 | Chongqing | 20432 | 985 | 1174 | moderate |
| Cui Y[5](#_ENREF_5) | 2010 | Shanghai | 49458 | 1962 | 2193 | high |
| Fu T[6](#_ENREF_6) | 2016 | Hainan | 3122 | 170 | 170 | moderate |
| Gan Y[7](#_ENREF_7) | 2011 | Guangxi | 8043 | 156 | 156 | moderate |
| Huang H[8](#_ENREF_8) | 2014 | Fujian | 10643 | 358 | 375 | high |
| Huang W[9](#_ENREF_9) | 2016 | Sichuan | 27144 | 691 | 737 | high |
| Ji Z[10](#_ENREF_10) | 2013 | Hebei | 2183 | 27 | 27 | moderate |
| Li H[11](#_ENREF_11) | 2013 | Guangdong | 21242 | 628 | 689 | high |
| Liu J[12](#_ENREF_12) | 2016 | Beijing | 61990 | 1294 | 1389 | high |
| Liu W[13](#_ENREF_13) | 2011 | Inner Mongolia | 18172 | 462 | 474 | moderate |
| Liu W[14](#_ENREF_14) | 2014 | Inner Mongolia | 31504 | 573 | 614 | moderate |
| Liu W[15](#_ENREF_15) | 2014 | Inner Mongolia | 26940 | 553 | 586 | moderate |
| Liu W[16](#_ENREF_16) | 2015 | Inner Mongolia | 43463 | 871 | 919 | high |
| Liu X[17](#_ENREF_17) | 2012 | Hubei | 23441 | 791 | 829 | moderate |
| Shao Y[18](#_ENREF_18) | 2007 | Anhui | 100742 | 1962 | 1962 | moderate |
| Shen Y[19](#_ENREF_19) | 2013 | Shanghai | 148446 | 5748 | 6405 | high |
| Sun S[20](#_ENREF_20) | 2012 | Hubei | 43646 | 1494 | 1756 | moderate |
| Wei X[21](#_ENREF_21) | 2015 | Jiangsu | 21033 | 630 | 657 | moderate |
| Wu X[22](#_ENREF_22) | 2011 | Fujian | 48947 | 1595 | 1739 | high |
| Xiang Q[23](#_ENREF_23) | 2013 | Sichuan | 74457 | 1966 | 2001 | high |
| Xie D[24](#_ENREF_24) | 2010 | Hubei | 20350 | 790 | 833 | high |
| Xiong W[25](#_ENREF_25) | 2010 | Hubei | 7745 | 309 | 331 | moderate |
| Xu C[26](#_ENREF_26) | 2015 | Hubei | 63320 | 1915 | 2051 | high |
| Xu F[27](#_ENREF_27) | 2011 | Shandong | 11493 | 171 | 196 | moderate |
| Xu X[28](#_ENREF_28) | 2014 | Fujian | 144091 | 5216 | 5620 | moderate |
| Yang H[29](#_ENREF_29) | 2015 | Xinjiang | 66208 | 1211 | 1338 | high |
| Yang L[30](#_ENREF_30) | 2012 | Jiangsu | 9691 | 362 | 382 | moderate |
| Yang L[31](#_ENREF_31) | 2015 | Tianjin | 29513 | 996 | 1106 | high |
| Yu L[32](#_ENREF_32) | 2015 | Xinjiang | 12787 | 369 | 392 | moderate |
| Yu W[33](#_ENREF_33) | 2013 | Hebei | 4390 | 238 | 241 | moderate |
| Yu W[34](#_ENREF_34) | 2013 | Hebei | 4879 | 174 | 191 | moderate |
| Zeng B[35](#_ENREF_35) | 2011 | Fujian | 83787 | 2870 | 3099 | high |
| Zhan R[36](#_ENREF_36) | 2009 | Fujian | 34840 | 1275 | 1360 | moderate |
| Zhang J[37](#_ENREF_37) | 2011 | Guizhou | 29358 | 1025 | 1063 | moderate |
| Zhang L[38](#_ENREF_38) | 2013 | Anhui | 10686 | 264 | 281 | moderate |
| Zhang M[39](#_ENREF_39) | 2015 | Guizhou | 65885 | 1546 | 1643 | moderate |
| Zhang M[40](#_ENREF_40) | 2015 | Guizhou | 143342 | 4030 | 4262 | moderate |
| Zhang W[41](#_ENREF_41) | 2015 | Sichuan | 152475 | 3426 | 3426 | high |
| Zhao Y[42](#_ENREF_42) | 2010 | Yunnan | 5514 | 233 | 233 | moderate |
| Zhu W[43](#_ENREF_43) | 2016 | Shanghai | 12419 | 483 | 512 | moderate |
| **Children's hospitals** |
| Geng R[44](#_ENREF_44) | 2015 | Hebei | 924 | 40 | 44 | moderate |
| Guo Q[45](#_ENREF_45) | 2016 | Guangdong | 997 | 30 | 32 | moderate |
| Hao Y[46](#_ENREF_46) | 2009 | Henan | 140 | 10 | 10 | low |
| Hu M[47](#_ENREF_47) | 2010 | Yunnan | 475 | 28 | 29 | low |
| Hu Y[48](#_ENREF_48) | 2010 | Guangdong | 552 | 28 | 28 | moderate |
| Huang K[49](#_ENREF_49) | 2016 | Hunan | 565 | 28 | 40 | moderate |
| Jia Y[50](#_ENREF_50) | 2011 | Shandong | 442 | 15 | 15 | moderate |
| Liu F[51](#_ENREF_51) | 2014 | Beijing | 1127 | 27 | 28 | low |
| Liu H[52](#_ENREF_52) | 2010 | Henan | 372 | 17 | 18 | moderate |
| Sun L[53](#_ENREF_53) | 2010 | Hebei | 464 | 16 | 16 | moderate |
| Wang J[54](#_ENREF_54) | 2008 | Henan | 507 | 38 | 44 | moderate |
| Wang J[55](#_ENREF_55) | 2015 | Hebei | 999 | 46 | 48 | high |
| Wang X[56](#_ENREF_56) | 2011 | Jiangsu | 626 | 41 | 41 | moderate |
| Xu Y[57](#_ENREF_57) | 2013 | Hebei | 241 | 4 | 4 | moderate |
| Yin A[58](#_ENREF_58) | 2015 | Hunan | 3899 | 233 | 243 | moderate |
| Zhang L[59](#_ENREF_59) | 2010 | Henan | 324 | 26 | 26 | low |
| Zhang L[60](#_ENREF_60) | 2015 | Jiangsu | 1368 | 31 | 33 | low |
| Zhang Y[61](#_ENREF_61) | 2015 | Beijing | 1027 | 8 | 10 | moderate |
| Zhao X[62](#_ENREF_62) | 2015 | Jiangxi | 2424 | 145 | 171 | moderate |
| **Maternal and child health hospitals** |
| Chen T[63](#_ENREF_63) | 2014 | Jiangsu | 720 | 15 | 17 | moderate |
| Deng Y[64](#_ENREF_64) | 2013 | Guangxi | 193 | 9 | 9 | moderate |
| Fan D[65](#_ENREF_65) | 2013 | Sichuan | 188 | 5 | 5 | moderate |
| Fu R[66](#_ENREF_66) | 2013 | Henan | 231 | 2 | 2 | moderate |
| Huang G[67](#_ENREF_67) | 2011 | Guangxi | 639 | 16 | 16 | moderate |
| Huang S[68](#_ENREF_68) | 2014 | Hunan | 2404 | 96 | 105 | moderate |
| Huang X[69](#_ENREF_69) | 2015 | Guangdong | 339 | 8 | 8 | moderate |
| Li H[70](#_ENREF_70) | 2012 | Guangdong | 653 | 12 | 12 | moderate |
| Li H[71](#_ENREF_71) | 2013 | Guangdong | 769 | 12 | 12 | moderate |
| Li H[72](#_ENREF_72) | 2015 | Guangdong | 768 | 9 | 9 | moderate |
| Li S[73](#_ENREF_73) | 2008 | Henan | 265 | 6 | 6 | low |
| Li X[74](#_ENREF_74) | 2012 | Sichuan | 109 | 4 | 4 | moderate |
| Liao Z[75](#_ENREF_75) | 2015 | Jiangxi | 700 | 8 | 8 | moderate |
| Liao Z[76](#_ENREF_76) | 2015 | Jiangxi | 165 | 7 | 7 | moderate |
| Liu Y[77](#_ENREF_77) | 2015 | Guangdong | 283 | 2 | 2 | moderate |
| Nie X[78](#_ENREF_78) | 2012 | Yunnan | 433 | 5 | 5 | moderate |
| Qi L[79](#_ENREF_79) | 2013 | Shandong | 652 | 4 | 4 | low |
| Shang H[80](#_ENREF_80) | 2015 | Xinjiang | 1659 | 16 | 17 | moderate |
| Wang X[81](#_ENREF_81) | 2013 | Shanxi | 126 | 1 | 1 | low |
| Wang Y[82](#_ENREF_82) | 2012 | Shandong | 267 | 14 | 14 | moderate |
| Wen Y[83](#_ENREF_83) | 2014 | Guangdong | 1258 | 33 | 33 | moderate |
| Xie J[84](#_ENREF_84) | 2012 | Zhejiang | 658 | 7 | 7 | moderate |
| Xie L[85](#_ENREF_85) | 2010 | Jiangsu | 560 | 8 | 8 | low |
| Xu C[86](#_ENREF_86) | 2014 | Shandong | 320 | 9 | 9 | low |
| Yun R[87](#_ENREF_87) | 2014 | Inner Mongolia | 311 | 4 | 4 | moderate |
| Zhang Q[88](#_ENREF_88) | 2014 | Jiangxi | 401 | 11 | 11 | moderate |
| Zhao D[89](#_ENREF_89) | 2014 | Guangdong | 1461 | 37 | 39 | moderate |
| **Oncology hospitals** |
| Gong G[90](#_ENREF_90) | 2010 | Jiangsu | 739 | 8 | 9 | moderate |
| Gong G[91](#_ENREF_91) | 2015 | Jiangsu | 890 | 7 | 7 | moderate |
| He G[92](#_ENREF_92) | 2009 | Guizhou | 350 | 15 | 16 | moderate |
| Hou J[93](#_ENREF_93) | 2010 | Henan | 794 | 26 | 26 | low |
| Huang Y[94](#_ENREF_94) | 2011 | Zhejiang | 560 | 26 | 27 | moderate |
| Ji Y[95](#_ENREF_95) | 2013 | Jiangsu | 804 | 32 | 37 | moderate |
| Li L[96](#_ENREF_96) | 2009 | Jiangxi | 1031 | 54 | 54 | moderate |
| Li W[97](#_ENREF_97) | 2013 | Sichuan | 1554 | 87 | 97 | moderate |
| Liu S[98](#_ENREF_98) | 2009 | Henan | 1261 | 57 | 65 | moderate |
| Long J[99](#_ENREF_99) | 2013 | Guizhou | 737 | 36 | 36 | moderate |
| Su J[100](#_ENREF_100) | 2012 | Xinjiang | 3824 | 230 | 230 | moderate |
| Wang M[101](#_ENREF_101) | 2013 | Jiangsu | 836 | 8 | 8 | moderate |
| Wang S[102](#_ENREF_102) | 2014 | Shanghai | 1121 | 23 | 30 | moderate |
| Wang Y[103](#_ENREF_103) | 2016 | Zhejiang | 3286 | 138 | 138 | moderate |
| Wu D[104](#_ENREF_104) | 2016 | Shandong | 5131 | 78 | 81 | low |
| Xu X[105](#_ENREF_105) | 2014 | Zhejiang | 1740 | 90 | 91 | moderate |
| Yang X[106](#_ENREF_106) | 2016 | Hebei | 4856 | 324 | 361 | moderate |
| Yang R[107](#_ENREF_107) | 2013 | Shanxi | 294 | 11 | 12 | moderate |
| Zhai R[108](#_ENREF_108) | 2014 | Shanxi | 1558 | 108 | 120 | moderate |
| Zhang M[109](#_ENREF_109) | 2014 | Shandong | 498 | 15 | 15 | low |
| Zhang X[110](#_ENREF_110) | 2012 | Henan | 2053 | 96 | 100 | moderate |
| Zhao L[111](#_ENREF_111) | 2016 | Shanxi | 5333 | 427 | 458 | moderate |
| Zhao X[112](#_ENREF_112) | 2014 | Henan | 6537 | 254 | 274 | moderate |
| Zheng H[113](#_ENREF_113) | 2013 | Shandong | 321 | 15 | 16 | moderate |
| Zhou H[114](#_ENREF_114) | 2012 | Jiangsu | 742 | 6 | 6 | low |
| Zhou Y[115](#_ENREF_115) | 2009 | Hunan | 1602 | 76 | 76 | moderate |
| Zou Y[116](#_ENREF_116) | 2015 | Jiangsu | 3913 | 87 | 89 | moderate |

**Supplementary Table 3.** Information of healthcare-associated infection and GDP by region

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Region** | **Province** | **Hospital setting, N** | **Total, N** | **Patients** | **HAI** | **HAI prevalence** | **GDP per capita** |
|  |  | GH | CH | MCH | OH |  | N | (N | % (95% CI) | CNY |
| Eastern  | Shanghai | 3 |  |  | 1 | 4 | 211,444 | 8216 | 3.73 (3.44-4.03) | 103,796 |
| Jiangsu | 2 | 2 | 2 | 6 | 12 | 41,922 | 1235 | 2.26 (1.57-2.95) | 87,995 |
| Zhejiang |  |  | 1 | 3 | 4 | 6244 | 261 | 3.73 (1.74-5.72) | 77,644 |
| Anhui | 2 |  |  |  | 2 | 111,428 | 2226 | 1.99 (1.91-2.07) | 35,997 |
| Fujian | 5 |  |  |  | 5 | 322,308 | 11,314 | 3.47 (3.32-3.63) | 67,966 |
| Jiangxi |  | 1 | 3 | 1 | 5 | 4,721 | 225 | 3.85 (1.52-6.18) | 36,724 |
| Shandong | 1 | 1 | 3 | 3 | 8 | 19,124 | 321 | 2.05 (1.45-2.64) | 64,168 |
| Southern  | Guangdong | 1 | 2 | 7 |  | 10 | 28,322 | 799 | 2.28 (1.66-2.90) | 67,503 |
| Guangxi | 1 |  | 2 |  | 3 | 8875 | 181 | 2.34 (1.42-3.25) | 35,190 |
| Hainan | 1 |  |  |  | 1 | 3122 | 170 | 5.45 (4.68-6.30) | 40,818 |
| Central  | Henan |  | 4 | 2 | 4 | 10 | 12,484 | 532 | 4.23 (3.21-5.24) | 39,123 |
| Hubei | 5 |  |  |  | 5 | 158,502 | 5299 | 3.51 (3.18-3.84) | 50,654 |
| Hunan |  | 2 | 1 | 1 | 4 | 8470 | 433 | 4.92 (3.88-5.96) | 42,754 |
| Northern  | Beijing | 1 | 2 |  |  | 3 | 64,144 | 1329 | 1.73 (0.80-2.66) | 106,497 |
| Tianjin | 1 |  |  |  | 1 | 29,513 | 996 | 3.37 (3.17-3.59) | 107,960 |
| Hebei | 3 | 4 |  | 1 | 8 | 18,936 | 869 | 3.89 (2.34-5.43) | 40,255 |
| Shanxi |  |  | 1 | 3 | 4 | 7311 | 547 | 4.93 (1.69-8.17) | 34,919 |
| Inner Mongolia | 4 |  | 1 |  | 5 | 120,390 | 2463 | 2.06 (1.82-2.31) | 71,101 |
| Western  | Chongqing | 1 |  |  |  | 1 | 20,432 | 985 | 4.82 (4.53-5.12) | 52,321 |
| Sichuan | 3 |  | 2 | 1 | 6 | 255,927 | 6179 | 2.72 (2.37-3.08) | 36,775 |
| Guizhou | 5 |  |  | 2 | 7 | 254,012 | 6970 | 2.78 (2.38-3.19) | 29,847 |
| Yunnan | 1 | 1 | 1 |  | 3 | 6422 | 266 | 3.64 (1.20-6.08) | 28,806 |
| Xinjiang | 2 |  | 1 | 1 | 4 | 84,478 | 1826 | 2.87 (1.69-4.05) | 40,036 |
|  | Overall | 42 | 19 | 27 | 27 | 115 | 1,798,531 | 53,642 | 3.12 (2.94-3.29) |  |

GDP: gross domestic product based on the national bureau of statistics of China (2015); GH: General hospitals; CH: Children hospitals; MCH; Maternal and child health hospitals; OH: Oncology hospitals. Note: The data of GDP per capita and indices in China are derived from China Statistical Yearbook 2016, which was compiled by National Bureau of Statistics of China.[117](#_ENREF_117)

**Supplementary Table 4.** Antimicrobials use in general hospitals, children hospitals, maternal and child health hospitals, and oncology hospitals --- Systematic review on healthcare-associated infections in Mainland China, 2006-2016

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hospital type** | **Publications** N | **Patients**N | **Antimicrobial Use**N | **Proportion**% |
| General Hospitals | 32 | 1,365,327 | 544,887 | 39.91% |
| Children hospitals | 18 | 13,574 | 9023 | 66.47% |
| Maternal and child health hospitals | 27 | 16,532 | 7381 | 44.65% |
| Oncology hospitals | 26 | 51,334 | 9729 | 18.95% |
| Overall | 103 | 1,446,767 | 571,020 | 39.47% |

**Supplementary Figure 1.** Weighted prevalence of healthcare-associated infections in the different provinces of China – Systematic review on healthcare-associated infections in Mainland China, 2006-2016



Boxes show prevalence of healthcare associated infections and their 95% confidence intervals. The bars show the 95% CI of the prevalence of healthcare associated infections for the total sample population.

**Supplementary Figure 2.** Weighted point prevalence of healthcare-associated infections in intensive care, internal medicine, surgery, pediatrics, and gynecology and obstetrics in general hospitals – Systematic review on healthcare-associated infections in Mainland China, 2006-2016

1. Intensive care B. Internal medicine



C. Surgery D. Pediatrics



E. Gynecology and obstetrics



**Supplementary Figure 3.** Association of healthcare-associated infection prevalence and gross domestic product per capita in Mainland China – Systematic review on healthcare-associated infections in Mainland China, 2006-2016



\* HAI prevalence decreases by 2.2% with an increase of 1,000 Chinese Yuan (CNY) in GDP per capita.[117](#_ENREF_117)

**REFERENCES**

1. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Lancet* 2007;370:1453-1457.

2. Chen L, Qiu Z, Yang H, et al. Cross-sectional survey on healthcare-associated infection in Miao and Dong Autonomous Prefecture of Guizhou province in 2014. *Chin J Infect Control* 2016;15:10-14 (in Chinese).

3. Chen L, Qiu Z, Yang H, et al. Point prevalence of healthcare associated infection and antimicrobial use in Buyi autonomous prefecture hospitals in Guizhou province. *Chin J Infect Control* 2016;15:155-159 (in Chinese).

4. Chen P, Liu D, Wang H, Wang Z, Cheng Y. A survey of point prevalence rate of nosocomial infection in Chongqing area. *Chongqing Med* 2011;40:3660-3661 (in Chinese).

5. Cui Y, Hu B, Gao X, Tao L, Zhou Q, He L. Prevalence surveillance of healthcare associated infection in 70 Shanghai hospitals in 2009. *Chin J Nosocomiol* 2010;20:1667-1669 (in Chinese).

6. Fu T, Wei S, Huang L, Yang J, Zhan C. Cross-sectional surveys of prevalence of nosocomial infections in tertiary hospitals of Sanya and analysis of risk factors. *Chin J Nosocomiol* 2016;26:1159-1161 (in Chinese).

7. Gan Y. Prevalence survey of healthcare associated infection in Nanning, Guangxi, 2010. *Chin Med info* 2011;24:4955-4957 (in Chinese).

8. Huang H, Zhang S, Qiu L, Ye L, Qin W, Lian X. Prevalence rate of nosocomial infection in Xiamen. *Chin J Nosocomiol* 2014;24:5291-5293 (in Chinese).

9. Huang W, Zhuang H, Li S, et al. Survey and analysis on prevalence of hospital-acquired infections in 23 hospitals from Sichuan Province on the day of June 25, 2011. *Chin J Multi Organ Dis Elderly* 2016;15:657-661 (in Chinese).

10. Ji Z, Wang M. Survey on hospital infection rate in the county hospital. *Chin J Disinfect* 2013;30:1050-1051 (in Chinese).

11. Li H, Zhong Q, Liang Z, et al. Cross-sectional survey on nosocomial infections in 64 hospitals. *Chin J Nosocomiol* 2013;23:5143-5145 (in Chinese).

12. Liu JY, Wu YH, Cai M, Zhou CL. Point-prevalence survey of healthcare-associated infections in Beijing, China: a survey and analysis in 2014. *J Hosp Infect* 2016;93:271-279.

13. Liu W, Xing H, Yang X, Su R, Yan Z. Prevalence rate of nosocomial infection in 40 hospitals in Inner Mongolia Autonomous Region in 2010. *Chin J Infect Control* 2011;10:445-448 (in Chinese).

14. Liu W, Zhang K, Yan Z, Hai Y, Cao Q, Zheng Z. Prevalence survey on healthcare associated infection in 91 hospitals of Inner Mongolia Autonomous Region in 2013. *Chin J Infect Control* 2014;13:690-692 (in Chinese).

15. Liu W, Xian B, Xing H, Yan Z, Su R. Survey on inpatients hospital infection prevalence in Inner Mongolia Autonomous Region. *Chin J Disinfect* 2014;31:1066-1067 (in Chinese).

16. Liu W, Tian Y, Zheng Z, Li Z, Qin L. Prevalence rate of nosocomial infection in 2014. *Chin J Nosocomiol* 2015;25:4894-4896 (in Chinese).

17. Liu X, Liang J, Deng B, Xu G. Prevalence rate of nosocomial infections in Wuhan. *Chin J Nosocomiol* 2012;22:4992-4994 (in Chinese).

18. Shao Y, Ma H, Wei X, Zhang L. Investigation and analysis about the prevalence rate of nosocomial infections in fourty hospitals in Anhui province. *Chin Med Herald* 2007;4:35-36 (in Chinese).

19. Shen Y, Hu B, Gao X, Zhou Q, Cui Y, Sun W. Prevalence of healthcare associated infections in 72 hospitals of Shanghai. *Chin J Nosocomiol* 2013;23:1503-1506 (in Chinese).

20. Sun S, Ni G. Investigation and analysis of prevalence of nosocomial infections. *Chin J Nosocomiol* 2012;22:2026-2028 (in Chinese).

21. Wei X, Wang X, Yi X, Song H. Investigation of prevalence rate of nosocomial infections in Xuzhou. *Chin J Nosocomiol* 2015;25:1070-1072 (in Chinese).

22. Wu X, Zhan R, Zeng B, et al. Prevalence survey on nosocomial infection and community-acquired infection in 116 hospitals in Fujian province. *Chin J Infect Control* 2011;10:181-184 (in Chinese).

23. Xiang Q, Wei D, Zhou Z, Liu H, Dai M, Chen S. Cross-sectional survey on healthcare associated infection in 248 hospitals of Sichuan province in 2011. *Chin J Infect Control* 2013;12:186-189 (in Chinese).

24. Xie DS, Xiong W, Xiang LL, et al. Point prevalence surveys of healthcare-associated infection in 13 hospitals in Hubei Province, China, 2007-2008. *J Hosp Infect* 2010;76:150-155.

25. Xiong W, Xie D, Xu M, Wang H. Prevalence rate of hospital associated infection in 6 university hospitals in Hubei province in 2008. *Chin J Nosocomiol* 2010;20:3116-3118 (in Chinese).

26. Xu C, Xu M, Liang Y, Xiong W. Risk factors analysis of nosocomial infection in a prevalence survey of 75 hospitals. *Modern Prev Med* 2015;42:2266-2268 (in Chinese).

27. Xu F, Ma X, Zhang X, Wang M. Prevalence rates of nosocomial infection in 27 hospitals. *Chin J Nosocomiol* 2011;21:2677-2679 (in Chinese).

28. Xu X, Zeng B, Zhan R, et al. Cross-sectional survey of nosocomial infections in Fujian province from 2010 to 2012. *Chin J Nosocomiol* 2014;24:5543-5545 (in Chinese).

29. Yang H, Wang B, Yao X, Zhou Y, Lu C. Epidemiology cross-sectional investigation on healthcare-associated infection of 132 hospitals in Xinjiang in 2014. *Chin J Infect Control* 2015;14:676-680 (in Chinese).

30. Yang L, Zhao L, Yu R. Prevalence survey of healthcare-associated infections in 15 hospitals in Changzhou in 2011. *Chin J Infect Control* 2012;11:444-447 (in Chinese).

31. Yang L, Yang Y, Guo Y, Yang Y, Tian H, Zhao X. Cross-sectional survey of prevalence of healthcare-associated infections in 2013. *Chin J Nosocomiol* 2015;25:5390-5392 (in Chinese).

32. Yu L, Gu L, Wang P, Zhu Y, Ding L. Report on nosocomial infection prevalence survey of 11 hospitals in Xinjiang Uygur Autonomous Region. *Chin J Disinfect* 2015;32:44-45 (in Chinese).

33. Yu W. Prevalence survey of healthcare-associated infection in 4 tertiary care hospitals in Handan. *J Hebei Med University* 2013;34:1076-1078 (in Chinese).

34. Yu W. Prevalence survey of healthcare-associated infection and community-associated infection in 19 secondary general hospitals in Handan. *Chin J Infect Control* 2013;12:123-125 (in Chinese).

35. Zeng B, Zhan R, Wu X, et al. Cross-sectional survey on nosocomial infection in Fujian. *Chin J Nosocomiol* 2011;21:1098-1100 (in Chinese).

36. Zhan R, Chen J, Chen L, Xu X, Nie Y, Wu X. Prevalence survey on nosocomial infection in 63 hospitals of Fujian province 2007. *Chin J Nosocomiol* 2009;19:748-751 (in Chinese).

37. Zhang J, Wang C, Li Q, et al. Investigation and analysis of hospital infection rates of 108 hospitals in Guizhou 2010. *Chin J Nosocomiol* 2011;21:5162-5164 (in Chinese).

38. Zhang L, Su H, Ma H, Wu J, Qin F, Zhang L. Investigation of nosocomial infection prevalence in all thirteen grade 3 first-class hospitals in Anhui province. *Chin J Dis Control Prev* 2013;17:514-516 (in Chinese).

39. Zhang M, Yang H, Mou X, et al. Cross-sectional survey of nosocomial infections in different scale hospitals in Guizhou in 2014. *Chin J Epidemiol* 2015;36:1040-1041 (in Chinese).

40. Zhang M, Yang H, Mu X, et al. Prevalence rates of nosocomial infections in Guizhou province in 3 years. *Chin J Nosocomiol* 2015;25:2495-2498 (in Chinese).

41. Zhang W, Zheng L, Wu J, Xiang Q, Lu J. Cross-sectional study on hospital infection in Sichuan province, 2013. *Med J National Defending Forces in Southwest Chin* 2015;25:922-925 (in Chinese).

42. Zhao Y, Yang Y, Wang R, et al. The analysis of the prevalence of hospital infection and the use of antibiotics in Kunming hospital. *Chin J Clin Rational Drug Use* 2010;3:41-43 (in Chinese).

43. Zhu W, Xu H, Wang Y, Zheng X, Fu Y. Prevalence rates of healthcare-associated infection in medical institutions in Pudong New Area for two consecutive years. *Chin J Infect Control* 2016;15:476-480 (in Chinese).

44. Geng R, Wen C, Liu H. Investigation and analysis of prevalence rate of nosocomial infections in children’s hospital in 2013. *Chin J Nosocomiol* 2015;25:1186-1188 (in Chinese).

45. Guo Q, Zhao D, He T, et al. Prevalence of healthcare-associated infection in a children’s hospital in Guangzhou in 2014. *Chin J Infect Control* 2016;15:238-240 (in Chinese).

46. Hao Y. Prevalence of nosocomial infection in surgery department in children’s hospital, 2008. *Chin Prac Med* 2009;4:243-244 (in Chinese).

47. Hu M, Ao L. A survey on prevalence rate of nosocomial infection in children’s hospital. *Chin J General Prac* 2010;8:1576-1578 (in Chinese).

48. Hu Y, Yuan X, Xian Z, et al. Prevalence survey and countermeasures of nosocomial infection in Children. *Chin J Nosocomiol* 2010;20:3322-3323 (in Chinese).

49. Huang K, Ouyang Y, Guo R. Prevalence survey of nosocomial infection in a children’s hospital in Chenzhou. *Studies of Trace Elements and Health* 2016;33:18-20 (in Chinese).

50. Jia Y, Peng X, Zhao X, Shi J, Wang Y. Prevalence of nosocomial infection in winter in children’s hospital: an investigation analysis. *Med Info* 2011;24:394-396 (in Chinese).

51. Liu F, Yu L, Qin X. Prevalence rate of nosocomial infection in children’s hospital during past three years. *Chin J Nosocomiol* 2014;24:203-205 (in Chinese).

52. Liu H. Investigation and analysis on the prevalence of nosocomial infection of 372 inpatients in children’s hospital in Zhengzhou, 2009. *Chin J Mod Drug Appl* 2010;4:234-235 (in Chinese).

53. Sun L, Liu L. Prevalence of nosocomial infection in children’s hospital: an investigation analysis. *Chin J Nosocomiol* 2010;20:3476-3477 (in Chinese).

54. Wang J. Investigation and analysis on the prevalence of nosocomial infection of 507 inpatients in children’s hospital, 2007. *Chin J Prac Nervous Dis* 2008;11:157-159 (in Chinese).

55. Wang J, Wen C, Sun L. Investigation and analysis on the prevalence of nosocomial infections in children’s hospital in 2014. *Modern Prev Med* 2015;42:3426-3428 (in Chinese).

56. Wang X, Yan X. Prevalence rate of nosocomial infection in children’s hospital: investigation and analysis. *Chin J Nosocomiol* 2011;21:46-48 (in Chinese).

57. Xu Y. Investigation and analysis on the prevalence rate of nosocomial infection in 2012 in children’s hospital. *Chin Prac Med* 2013;8:249-251 (in Chinese).

58. Yin A, Ma L, Deng L, Chen X, Tang A. Cross-sectional surveys on healthcare-associated infection in a children’s hospital. *Chin J Infect Control* 2015;14:769-771 (in Chinese).

59. Zhang L, Wang J, Liu H. A Survey on the prevalence of nosocomial infection in rehabilitation centers of children’s hospital. *Chin Prac Med* 2010; 5: 240-241 (in Chinese).

60. Zhang L. Prevalence of nosocomial infection in a children’s hospital, 2011-2014. *J Contemporary Clin Med* 2015;28:1485-1487 (in Chinese).

61. Zhang Y, Zhou X, Sun L, et al. Prevalence rate of healthcare-associated infection in a children’s hospital in 2014. *Chin J Infect Control* 2015;14:629-632 (in Chinese).

62. Zhao X, Yan X, Wang X, Peng H. Investigation of the nosocomial infection prevalence rates of child inpatients in 3 consecutive years in children’s hospital. *Chin J Disinfect* 2015;32:40-43 (in Chinese).

63. Chen T, Xu W, Lu Q, Yang L. Prevalence of nosocomial infection in a maternity and child healthcare hospital: investigation and analysis. *Med Info* 2014;27:70-71 (in Chinese).

64. Deng Y, Chen J. Prevalence rate of healthcare-associated infection in a maternal and child health care hospital in Guangxi. *Uygur Med* 2013;4:190-191 (in Chinese).

65. Fan D. Investigation and analysis on prevalence rate of nosocomial infection in a hospital in Sichuan province. *J Mod Med & Health* 2013;29:210-211 (in Chinese).

66. Fu R. Investigation and analysis of cross-sectional survey of hospital infection, 2011. *Chin Med Guide* 2013;11:238-239 (in Chinese).

67. Huang G, Liao D, Li X. Investigation of nosocomial infection prevalence in maternal and child health hospital of Guangxi in 2008 and 2009. *Chin J Nosocomiol* 2011;21:3141-3143 (in Chinese).

68. Huang S, Jiang H, Huang J. Prevalence rates of healthcare-associated infection in a maternal and child health hospital in 2010-2014. *Chin J Infect Control* 2014;13:747-749 (in Chinese).

69. Huang X, Zhu H, Liu Y. Prevalence of nosocomial infections in a maternal and child health hospital. *Strait J Prev Med* 2015;21:40-41 (in Chinese).

70. Li H, Zhu Y, Gao X, Zhong Q, Lin C, Gong R. Prevalence rate and related factor for nosocomial infections. *Chin J Nosocomiol* 2012;22:3224-3226 (in Chinese).

71. Li H, Zhong Q, Gao X, Jin S, Liu J, Lin C. Cross-sectional survey on healthcare-associated infection in a maternity and child healthcare hospital. *Chin J Infect Control* 2013;12:229-230 (in Chinese).

72. Li H, Gao X, Zhong Q, Liu J, Lin C, Shen J. Prevalence rate of healthcare-associated infection in a maternal and child health care hospital. *Chin J Infect Control* 2015;14:336-338 (in Chinese).

73. Li S, Jin W, Song X. Investigation on the prevalence of nosocomial infection in women and children’s health hospital in Luoyang. *Chin J Misdiagnostics* 2008; 8: 3779-3780 (in Chinese).

74. Li X, Zhang J, Yuan Z. Survey and analysis of point prevalence rate of nosocomial infection in Sichuan provincial hospital for women and children. *J West Chin Med* 2012;27:1299-1301 (in Chinese).

75. Liao Z. Investigation and analysis of hospital inpatient infection rate. *Contemporary Med* 2015;21:82-83 (in Chinese).

76. Liao Z. Investigation and analysis of nosocomial infections in a maternal and child health hospital. *Contemporary Med* 2015;21:45-46 (in Chinese).

77. Liu Y, Huang X, Zhang Z. Investigation and analysis of prevalence rate of inpatient nosocomial infection. *Modern Hosp* 2015;15:111-113 (in Chinese).

78. Nie X. An investigation and analysis on prevalence of nosocomial infection in a maternal and child health hospital in Qujing of Yunnan province. *Med Frontier Chin* 2012;36:391-392 (in Chinese).

79. Qi L, Wang C. Nosocomial infection point-prevalence survey report for 2012. *Chin Prac Med* 2013;8:262-263 (in Chinese).

80. Shang H, Xing J. Investigation on prevalence rates of healthcare-associated infection in a maternal and child health hospital in 2009-2014. *J Xinjiang Med* 2015;45:1787-1790 (in Chinese).

81. Wang X, Liu J. Investigation and analysis of prevalence rate of nosocomial infection in a women and children health hospital. *Primary Healthcare Med* 2013;17:33-34 (in Chinese).

82. Wang Y. Investigation and analysis of prevalence rate of nosocomial infection in women and children healthcare hospital in Shandong province. *Chin J Nosocomiol* 2012;22:514-515 (in Chinese).

83. Wen Y, Lin L. Survey on the prevalence of nosocomial infections in maternal and child health hospital in 2010-2012. *Pract Prev Med* 2014;21:1114-1116 (in Chinese).

84. Xie J, Zhu L, Shen L. Investigation on prevalence rates of healthcare-associated infection in a maternal and child health hospital. *J Zhejiang Med* 2012;34:1772-1773 (in Chinese).

85. Xie L, Tang Y. Investigation and analysis on current prevalence rate of infectious diseases on the premises in a gynecology and obstetrics hospital. *Chin J Nosocomiol* 2010;20:1700-1701 (in Chinese).

86. Xu C, Wei N, Zhao Q. Investigation and analysis of prevalence rate of nosocomial infection in a women and children health hospital. *Chin Prac Med* 2014;9:260-262 (in Chinese).

87. Yun R. Investigation and analysis on the prevalence of nosocomial infection in women and children’s health hospital in 2013. *J Inner Mongolia Med* 2014;46:830-832 (in Chinese).

88. Zhang Q, Zou Q. Investigation and analysis on the prevalence of hospital infection in a maternal and child health hospital in 2012. *J Gannan Med University* 2014;34:88-90 (in Chinese).

89. Zhao D, Guo Q, Situ M, Zhang S. Investigation of prevalence rate of nosocomial infection in a certain women and children’s hospital in 2012. *Chin J Nosocomiol* 2014;24:1753-1755 (in Chinese).

90. Gong G, Zhou H, Wang M, Xu J, Wu X. Prevalence of nosocomil infection in a tumor hospital: an investigating analysis. *Chin J Nosocomiol* 2010;20:2936-2938 (in Chinese).

91. Gong G, Zhou H, Xu J, Wu X, Zhang X, Sun L. Investigation and analysis on prevalence rate of nosocomial infections in tumor hospital in 2013. *Chin J Nosocomiol* 2015;25:2499-2501 (in Chinese).

92. He G, An L, Zhang G, Xia G. Prevalence of nosocomial infection in tumor hospital: investigation and analysis. *Chin J Nosocomiol* 2009;19:1957-1958 (in Chinese).

93. Hou J. Investigation and analysis of prevalence rate of nosocomial infections in Anyang of Henan province. *World Health Digest* 2010;7:452 (in Chinese).

94. Huang Y, Wang Z. Prevalence rates of healthcare-associated infection in a hospital. *J Zhejiang Prev Med* 2011;23:41-42 (in Chinese).

95. Ji Y, Ni M, Zhang J, Gong G, Feng P. Cross-sectional survey of nosocomial infections in a tumor hospital. *Chin J Nosocomiol* 2013;23:4373-4374 (in Chinese).

96. Li L, Huang H, Cai M. Investigation and analysis of prevalence rate of nosocomial infection in cancer patient. *Prac J Cancer* 2009;24:654-655 (in Chinese).

97. Li W, Wu C, Nie X, Pu R. A cross-sectional survey of nosocomial infection and its influence factors analysis of tumor patients. *J Cancer Control Treat* 2013;26:192-195 (in Chinese).

98. Liu S, Zhao X. Prevalence rate of nosocomial infection: an investigation analysis. *Chin J Nosocomiol* 2009;19:2561-2563 (in Chinese).

99. Long J, Liu Z, Yang T, Chen G. Prevalence rate of healthcare-associated infection in a tumor hospital. *Chin J Infect Control* 2013;12:126-128 (in Chinese).

100. Su J, Zhang G. Investigation and analysis of prevalence rate of nosocomial infections in tumor hospital from 2009 to 2010. *Chin J Nosocomiol* 2012;22:509-511 (in Chinese).

101. Wang M, Gong G, Zhou H, Wu X, Xu J. Prevalence of nosocomial infections in a tumor hospital in 2011. *Chin J Nosocomiol* 2013;23:3072-3074 (in Chinese).

102. Wang S, Zhang Y, Cai L, Zhang S, Duo K, Zhao J. Current prevalence analysis of nosocomial infection in a 3-A-grade tumor hospital. *Chin J Dis Control Prev* 2014;18:398-400 (in Chinese).

103. Wang Y, Ruan Y, Xu M, Yu Y, Xie S. Prevalence rates of nosocomial infections in a tumor specialized hospital. *Chin J Nosocomiol* 2016;26:462-464 (in Chinese).

104. Wu D, Rong Y, Ju G, Guo J, Jia S, Li W. Investigation and analysis on prevalence of healthcare associated infection in tumor hospital, 2014-2015. *Chin Health Care and Nutrition* 2016;26:290 (in Chinese).

105. Xu X, Zhou X, Yu Y, Wu Y. Cross-sectional survey on nosocomial infections in Zhejiang cancer hospital in 2011 and 2012. *Chin J Clin Infect Dis* 2014;7:405-408 (in Chinese).

106. Yang X, Wang X, Liu Z, et al. Nosocomial infection prevalence rate of inpatients in tumor hospital, 2012-2015. *Modern Prev Med* 2016;43:1334-1338 (in Chinese).

107. Yang R, Tong W. Investigation and analysis of prevalence of healthcare associated infection in a hospital, 2012. *J Prac Med Tech* 2013;20:958-959 (in Chinese).

108. Zhai R, Luo L. Investigation and analysis of prevalence rate of nosocomial infection in cancer patients. *J Shanxi Med* 2014;43:2751-2754 (in Chinese).

109. Zhang M, Huang M, Yang M, Wei R. Investigation and analysis of a prevalence of healthcare associated infection. *J Qingdao Med* 2014;46:236-237 (in Chinese).

110. Zhang X. Prevalence of nosocomial infection in tumor hospital in Henan. *Chin J Prac Med* 2012;39:95-98 (in Chinese).

111. Zhao L, Jing Y, Li H. Prevalence rates of healthcare-associated infection in a provincial tumor hospital from 2012 to 2014. *Chin J Infect Control* 2016;15:179-182 (in Chinese).

112. Zhao X, Guo Z, Zhang X. Investigation and analysis of prevalence rate of nosocomial infections. *Chin J Nosocomiol* 2014;24:6110-6111 (in Chinese).

113. Zheng H. Survey on point prevalence of healthcare-associated infection in a tumor hospital. *Chin J Infect Control* 2013;12:231-232 (in Chinese).

114. Zhou H, Gong G, Xu J, Wang M, Wu X. Investigation and analysis of prevalence rates of nosocomial infections in 742 cases of inpatients. *Chin J Nosocomiol* 2012;22:61-63 (in Chinese).

115. Zhou Y, Ouyang L. Nosocomial infection rate of the patients with tumor: an investigation analysis. *J Canc Control Treat* 2009;22:300-302 (in Chinese).

116. Zou Y, Zhou J, Hu X, Sun Y, Zhu J. Survey of prevalence rate of healthcare-associated infections in a specialized cancer patients in three consecutive years. *Chin J Nosocomiol* 2015;25:4900-4902 (in Chinese).

117. Data of GDP per capita and indices in China: China Statistical Yearbook 2016 (in Chinese).