

Supplemental materials for

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References

1. Zhang L, Bossert T, Mahal A, et al. Attitudes towards primary care career in community health centers among medical students in China. *BMC Fam Pract*. 2016;17(1):1–8.
2. General office of Shanghai people's government. Guidelines for reform and completion of the training and employment incentives for family doctors cultivating. 2019. Retrieved on Feb 14th, 2020 from <http://www.shanghai.gov.cn/nw2/nw2314/nw2319/nw12344/u26aw58014.html>

Supplemental Table 1. Standards and evaluation form of TUSM-affiliated community health center

| Primary Indicator | Secondary Indicator | Total Score | Content and Score | Internal (self) Evaluation | External (expert) Evaluation |
|-------------------------------------------|------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------|
| Comprehensive Clinical Performance | Population Served | 6 | <ol style="list-style-type: none"> 1. Serve more than 50k community residents and have population management and service record (2) 2. Population signed contracted service > 50% (2) 3. Concentrated population signed contracted services >80% (2) | | |
| | Services and functions | 10 | <ol style="list-style-type: none"> 1. Comprehensive services and functions, including general health services, health education, preventive services, family planning and rehabilitation, and the abilities to precept in those areas (5) 2. National/Municipal recognition of excellence in health services or training base (5/3) | | |
| | Medical equipment and supplies | 4 | <ol style="list-style-type: none"> 1. The facility, medical equipment and supplies allow daily routine practice (2) 2. The facility, medical equipment and supplies support teaching and training (2) | | |
| | Investment in family medicine discipline | 20 | <ol style="list-style-type: none"> 1. Specific funding from the administration that allocates for human resource, discipline construction, teaching, training, and research (6) 2. Ongoing research projects and funds (4) 3. Research and training management personnel (2) 4. Domestic and international journal publications (4) 5. Patent for invention (2) | | |
| Faculty and staff | Educational structure | 8 | <ol style="list-style-type: none"> 1. Faculty/physician ratio > 30% (2) 2. All faculty members have bachelor's degrees (3) 3. Percentage of faculty with at least Master's degrees | | |

| | | | | | |
|------------------------------------|------------------------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| | | | (3) | | |
| | Professional structure | 6 | 1. All faculty members have family medicine attending title (3) 2. Percentage of faculty with associated chief title >30% (3) | | |
| | Teaching ability | 12 | 1. Faculty organize clinical teaching adjusted to family medicine health care model in the community (5) 2. Faculty take responsibilities of TUSM family medicine course and rotation (3) 3. Faculty take roles in international family medicine education (4) | | |
| | Training Experience | 10 | 1. Faculty took training in educational sessions organized by TUSM (3) 2. Faculty took training in national/municipal faculty training sessions or conferences and acquired certifications (3) 3. Percentage of faculty had oversea family medicine training experiences (4) | | |
| | Faculty/student ratio | 4 | 1. Every three trainees have at least two faculty (2) 2. One more preceptor with extra two trainees (2) | | |
| Teaching/training condition | Family medicine clinic | 5 | 1. Equip with family medicine teaching clinic and facility (2) 2. Family medicine experts precepting periodically (2) 3. Family medicine teaching and research office (1) | | |
| | Teaching facility | 6 | 1. Teaching clinics (1) 2. Training rooms (1) 3. Computers (1) 4. Visual teaching equipment (1) 5. Projectors (1) 6. Simulation lab or dummy (1) | | |
| | Library | 4 | 1. Library and study rooms (1) 2. Medical journals subscription (1) 3. Online access to literature databases (1) | | |

| | | | | | |
|--------------------|---------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| | | | 4. Information technology and data systems (1) | | |
| | Regulation and evaluation | 5 | 1. Director is responsible for teaching and research office (1) 2. Regulations for training and teaching ready in place (1) 3. Rigid teaching and precepting evaluation mechanism (1) 4. Teaching activities records in place (1) 5. Teaching and precepting incentives in place (1) | | |
| Total Score | | 100 | | | |

Notes: TUSM, Tongji University School of Medicine. Internal evaluation was asked to conduct by each center prior to site visit and external evaluation.

Supplemental Table 2. Pre- and post-affiliation parameters of TUSM-affiliated community health center

| | CHC 1 | | CHC 2 | | CHC 3 | | CHC 4 | | CHC 5 | | CHC 6 | | CHC 7 | |
|---------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Pre | Post | Pre | Post | Pre | Post | Pre | Post | Pre | Post | Pre | Post | Pre | Post |
| Clinical parameters | | | | | | | | | | | | | | |
| Annual outpatient visits (#) | 400661 | 437821 | 477287 | 471350 | 815945 | 819088 | 489962 | 500351 | 503554 | 503338 | 867296 | 865787 | 312502 | 375047 |
| Contracted patients (#) | 41045 | 54388 | 36729 | 62050 | 46170 | 70436 | 66778 | 72499 | 36686 | 44879 | 52131 | 51338 | 30447 | 50315 |
| Contract rate (%) | 24.1% | 31.8% | 20.1% | 33.9% | 22.8% | 36.3% | 36.4% | 40.4% | 36.6% | 44.8% | 42.7% | 36.4% | 20.2% | 33.5% |
| Human resource development (#) | | | | | | | | | | | | | | |
| Signed external experts | 4 | 9 | 6 | 6 | 4 | 11 | 2 | 4 | 8 | 12 | 7 | 11 | 9 | 12 |
| Physician practice multi-sited | 0 | 5 | 1 | 1 | 1 | 6 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 |
| Family Physicians | 82 | 89 | 36 | 40 | 97 | 103 | 78 | 89 | 67 | 67 | 85 | 82 | 43 | 55 |
| Faculty development (#) | | | | | | | | | | | | | | |
| Faculty with master degree and above | 12 | 15 | 3 | 3 | 7 | 8 | 7 | 9 | 0 | 0 | 2 | 2 | 1 | 3 |
| Faculty underwent domestic training (Times) | 3 | 5 | 3 | 6 | 11 | 15 | 24 | 26 | 25 | 34 | 9 | 2 | 33 | 43 |
| Faculty underwent oversea training (Times) | 1 | 2 | 2 | 1 | 7 | 9 | 8 | 8 | 0 | 1 | 2 | 2 | 7 | 5 |
| Clinical teaching (#) | | | | | | | | | | | | | | |
| Annually trained residents | 1 | 2 | 3 | 4 | 18 | 17 | 7 | 12 | 2 | 2 | 2 | 3 | 18 | 7 |
| Annually trained medical students and interns | 13 | 19 | 46 | 51 | 160 | 194 | 127 | 80 | 21 | 24 | 9 | 6 | 16 | 46 |
| Preceptors | 12 | 19 | 20 | 20 | 41 | 42 | 26 | 26 | 25 | 27 | 20 | 20 | 25 | 27 |
| Research funds within 5 years (10,000 RMB) | | | | | | | | | | | | | | |
| University level funds | 0 | 45 | 20 | 15 | 39.7 | 38.5 | 0 | 4 | 6.3 | 17.5 | 10 | 40 | 0 | 55 |

| | | | | | | | | | | | | | | |
|---------------------------------|----|------|---|---|------|------|---|----|---|---|----|----|----|----|
| Regional level funds | 44 | 44 | 2 | 5 | 126 | 118 | 6 | 20 | 2 | 2 | 18 | 18 | 30 | 39 |
| Municipal and above level funds | 6 | 16.5 | 0 | 0 | 76.4 | 64.5 | 0 | 0 | 8 | 8 | 0 | 20 | 30 | 33 |

Notes: TUSM, Tongji University School of Medicine; CHC, community health center. The names of affiliated CHCs were not displayed here to protect their privacy.