美国华裔教授学者协会 2017 春晖学术交流团总结

美国华裔教授学者协会

由美国华裔教授学者协会（US Chinese Scholars Association）组织，得到中国教育部资助，旨在帮助中国高校建设和发展的2017春晖学术交流团九名成员，陈岳云（博士，教授,经济/金融），胡克勤（博士，教授,医学），谭智群（博士，研究副教授,神经科学），鲁建业（博士，教授,英语和文学），吴仲和(博士，教授,美国教育)，郦永刚（博士，教授,地球物理和地震學），容跃（博士，环境健康科学工程），李博（博士，助理教授,运营及供应链管理），颜利平（博士，土木工程），对中国南昌大学，江西师范大学，江西华东交通大学，山东青岛大学，山东青岛理工大学进行学术访问交流。参访团给学生提供超过15场次交流演讲，对口学术交流超过20场次，参访团多名成员被聘为客座教授或外聘导师。参访团还分别与江西省教育厅和山东省教育厅举行了工作座谈，为今后协会的春晖访问奠定基础。这次访问可谓硕果累累。以下是参访团成员的总结报告。

陈岳云（博士，教授,经济/金融）

交流内容：大学，专业，对接项目和人员

I visited Nanchang University from May 25 through May 28. I met Dean Liu of the College of Economics and Management and had extensive discussions on possible cooperation with Dr. Xie, Chair of the Department of Finance.

I also had extensive discussions with officers at the Foreign Affairs Office of Nanchang University.

交流成果以及对一流学科可能起到的作用

I gave a special seminar on **the Productivity, Economic Structure and Middle-income Trap—Can China Avoid this Trap?** There were about 100 participants. Students were enthusiastic about this topic and asked many good follow-up questions.

My lecture is based my latest study on the subject. It tries to answer whether China has fell into the trap? How Can China avoid this trap?

I had a group meeting with about 10 professors from College of Economics and Management in the morning on May 26 and exchanged ideas on research issues in finance and particularly I shared my thoughts on research methods.

I also met the Vice President of Huadong Transportation University during the meeting at the Bureau of Education Affairs of Jiangxi Province. His university and our university signed the cooperative agreement several years ago. We

briefly discussed how to continue our cooperation. I have arranged him to visit our campus during this summer.

Through my visit and discussions, I have established personal relationship with individual professors for the future possible joint research; also we have discussed the possibility of establishing cooperation between our university and Nanchang University.

I personally have had extensive experience in think-tank developments and have provided advises to the Director of the Foreign Affairs Office on how Nanchang University may start its own think-tank.

胡克勤（博士，教授,医学）

非常感谢中国高教部的资助及江西省教育厅的联系，我有幸作为 2017 年美国教授协会春晖计划访问团的一员，参加对南昌大学的访问及交流。作为一名在美国医学院工作的内科教授和肝病专家，我于 5 月 24-27 日访问了南昌大学医学院分管科研的罗副院长，交流医学科学研究的进展及经验，及转化医学的重要性。通过与科研处的叶处长长时间的会谈，我们交流了中美科技管理的系统及经验。

参观了南昌大学医学院附属第一医院感染科的病区与病房。与张主任和全科医生进行了学术交流。访问期间，我做了3个演讲：

1. 美国医疗系统简介及临床学术科室的构成
2. 肝硬化及并发症的诊断与治疗进展
3. 急性肝竭的诊断与治疗进展

全体团员于南昌大学国际合作与交流处，付处长和尹处长进行了长时间的会谈，认真探讨了南昌大学与美国教授协会长期合作的意向，及南昌大学与美国大学合作开办联合培养本科生项目的可能性。

总体而言，此次访问是非常成功的。我们希望此次访问能推动一些进一步的交流与合作。

谭智群（博士，研究副教授，神经科学）

2017 年5 月24 日至5 月28 日，作为华裔教授学者协会春晖计划的成员，我访问了坐落在著名的红色根据地古城江西省省会南昌市的南昌大学，与该校生命科学学院进行了广泛而深入的学术交流。在这次交流活动期间，我先后与该学院院长田小利教授及其团队、学院内从事与人体衰老或老年疾病相关的实验室的教授及研究生等就学科进展、研究生的知识结构培养、实验研究技能的培养等方面进行了深入的交流讨论。除此之外，还专门与研究生就科学研究与人生价值的关系问题结合自己的成长经历进行了长时间的交谈。

我于2017 年5 月24 日午后抵达南昌大学。在入住南昌大学国际学术交流中心之后，下午即在田小利院长的亲自陪同之下，游览了南昌大学前湖校区，同时与其就南昌大学及其生

命科学学院的基本情况包括学校历史、现状、学科设置、人才培养等具体问题进行了细致的交谈。2017 年5 月25 日，在参观完了田院长的实验室之后，我即安排与生命科学学院的研究生座谈，与在实验室工作的20 多位学生重点讨论了分子生物学研究的特点。在介绍和对比分析了国内与加州大学的研究生教育与实验室的异同特点之后，我即结合自己的亲身经历介绍了如何将书本上的知识、发表的论文或者各种数字媒体上所描绘叙述的实验方法有效地转化为自己的准确而熟练的操作；同时，还与田院长一道，共同就研究生同学在实验过程中经常出现的一些误区、操作失误、实验记录规范、结果分析技巧、以及研究论文的写作与发表等涉及生物医学实验研究的具体细节等问题与参会的研究生学生进行了近三个小时的讨论。这些内容为相关的实验室的研究生培养提供了丰富的
最直接的可借鉴的资讯。

2017 年5 月26 日中午：为南昌大学生命科学学院做了题为 “神经退行性疾病中的朊病毒样蛋白质病变” 的学术报告。参加的研究生学生及教师近50 人，报告及问答时间一起近三个小时。报告首先介绍了各种神经退行性疾病的共同的病理特征以及什么是 “朊病毒样” 的蛋白质病变，随后则重点结合自己实验室在相关领域的最新实验成果分享讨论了各种神经退行性疾病，尤其是老年痴呆症（阿兹海默症）病理发生过程中的 “朊病毒样” 特征及其诊断、监测、以及防治策略。报告之后，我又与田院长及其他几位研究方向相近的课题负责人一道探讨了相关领域的研究生长点及建立研究生访问机制的可能性及操作模式，从而为将来的进一步合作奠定了基础。

2017 年5 月27 日上午，在南昌大学国际处尹忠林副处长陪同下，与到访南昌大学的另外两位 “春晖团” 团员胡克勤教授和Bill Chen 教授一道参观了南昌市著名文化古迹 “八大山人馆” 及南昌大学“陶瓷艺术博物馆” 。在参访途中，通过与尹副处长的交流得知南昌大学正在寻求与国外知名高校建立合作，期望借建立独立学院的方式共同办学。随后，在中午又有傅春教授/处长加入座谈，进一步讨论了南昌大学有关合作办学的意愿与计划。为此，与一同来自加州大学欧文分校（UCIrvine）的胡克勤教授一道，我们已讨论商定在回来之后即与我们学校校长办公室积极联系，将努力促进南昌大学与加大欧文分校的相关合作。

2017 年5 月27 日下午，我会同到访江西省南昌市的全体春晖代表团的各位教授一道，与江西省教育厅黄小华书记和相关部门的领导进行了座谈。代表团在教授协会吴仲和会长的带领下，在座谈会上与江西省教育厅初步达成了一个共识：通过 “春晖” 机制，建立美国华裔教授学者协会与江西省的长期交流合作关系。作为第一次参加美国华裔教授学者协会春晖计划的我，通过这次访问活动，对国内大学相关专业的发展有了进一步的了解，对南昌大学以及江西省教育的高速发展深感惊奇和欣慰。但与此同时，我也对国内生物医学研究的相关领域与国际前沿的差距有了更具体的认识，相信随着祖国经济的发展和改革的进一步深入，这些差距也正在逐步缩小，也期望自己在未来的工作与学习中，尽管是身在异国他乡，依然期望为祖国的建设发展尽自己的一点微薄之力。

另外，借这次春晖团访问南昌大学之机，本人还顺道访问了广东中医药大学与广州宏韵医药科技股份有限公司。访问中我深切地感受到国内新兴高科技企业与传统中医药研究领域

对国外科技最新进展方面的信息和高端人才的渴求。因此，我建议，在往后的春晖活动中，亦可适当考虑针对国内传统企业的信息与人才交流活动。

鲁建业 （博士，教授,英语和文学）

很高兴成为 2017 年华裔教授学者协会春晖计划的一个成员。从 2017 年 5 月 23 日至 5 月 28 日，我跟吴仲和教授同行，对江西省华东交通大学和江西师范大学进行了访问、讲学、以及合作办学交流。

在南昌的近一周时间里，我做了两个较大型的演讲（每次 250-300 教师和学生）， 另加两次专业讲座（每次听众约 30 人左右）。此外，还与两所大学外国语学院的主管领导分别进行了合作办学以及学生交流方面的探讨。

2017 年 5 月 23 日下午：下飞机赶到华东交通大学，就参加了党委万明书记的热情接见。当天晚上，我为约 300 师生做了题为“美国大学英语专业本科生和研究生培养要素”的演讲，收到热烈反响。同时，除了有利于所有英语专业的师生，讲座中还分享了本人编辑的一些普通英语难点突破的系列案例，给非英语专业的听众带来兴趣和益处。

2017 年 5 月 24 日上午：我们一行两人与华东交大外语学院领导就如何开展双边交流进行座谈，就中美学生有效进行交流广泛地进行了交流。

2017 年 5 月 25 日上午：与江西师大外院的领导交流。首先院方详细地介绍了各学科的情况以及对外交流的历史与现状。双方探讨的重点是能否乃至如何合作办学，以及本人如何从其它方面提供帮助。这样的探讨很有意义。

2017 年 5 月 25 日下午：给江西师大外语学院的本科生和研究生作了一个题为“西方文论和最新动向”的演讲。参加的学生约 30 人。演讲结束后回答了教师和学生的提问。学生的兴致感人。

2017 年 5 月 26 日上午：先与江西师大外语学院的领导继续交流，然后给近 30 的师生作了一个专题演讲。

2017 年 5 月 26 日晚：为江西师大外语学院的师生提供了一个综合性的演讲，分成三个部分：普通英语特殊案例；美国英语专业本科及研究生培养要素；西方文论及最新动向。参加的学生约 300 人，演讲共进行 3 个多小时。学生的表达的兴趣和积极参与提问的热情令人难忘。

2017 年 5 月 27 日下午：我们全体参加江西省春晖的同行与江西省教育厅领导进行座谈。江西省教育厅黄小华书记和各相关部门领导参加了座谈。座谈会上我们的协会与江西省教育厅达成共识：江西省将作为美国华裔教授学者协会今后春晖的基地长期交流。

参加 2017 年美国华裔教授学者协会的春晖计划，对我来说，是非常有意义并且是难忘的一次远途活动。能为祖国的教育事业提升和发展贡献一点力量，是一件令自己十分感慨的

事情。通过这次讲学，看到国家教育部开始对人文科学表现出同样的重视，更坚信我们华人世界在文化和精神层面上大幅提升是可能而且正在进行中。

吴仲和(博士，教授,美国教育)

2017 年 5 月 23 日至 5 月 28 日，作为华裔教授学者协会春晖计划的成员，我对江西省华东交通大学，江西师范大学进行了访问交流。这次交流，我提供了四场演讲，四次对口专业交流，受到受访学校的好评，并受邀成为受访学校的客座教授。

2017 年 5 月 23 日下午：为华东交大中层以上干部提供题为“美国高校管理的共治”演讲，收到热烈反响。与会者对美国高校共治的含义，背景，和内容提出了许多值得讨论的问题，比如，如何调动教职员工的积极性以及共管的组织形式；对如何适应中国国情的管理方式的问题进行了讨论。

2017 年 5 月 24 日上午：与华东交大外语学院领导就如何开展双边交流进行座谈。

2017 年 5 月 25 日上午：与江西师大教育学院教职员工交流，就目前教育领域的前沿教学交换意见，重点对建设“核心素养”及其衡量的标准进行了讨论。

2017 年 5 月 25 日下午：给江西师大教育学院本科生和研究生提供题为“美国师范教育”的演讲。参加的学生约 250 人。演讲共进行 3 个小时，并为学生进行了问题解答。学生的参与度之高令人难忘。

2017 年 5 月 25 日下午：与江西师大领导会面交流，就美国高校在江西办分校的倡议进行了探讨。这个探讨延续为合作项目，建立了由江西师大国际办牵头的联系机制。

2017 年 5 月 26 日上午：给江西师大初等教育学院领导，师生提供美国小学学科教育以及评价的演讲和讨论。重点介绍美国核心课程，即语文，数学，自然科学，社会科学，体育的课程设置和评价标准。 为国内目前热门讨论的“核心素养”提供了可借鉴的素材。

2017 年 5 月 26 日下午：给江西师大教育学院学生提供题为“美国中小学教学大纲的设计和贯彻体系”的演讲。参加的学生达 300 人，演讲共进行 3 个多小时。演讲中，为学生作了教学示范，以此说明“以学生为中心”的教学理念。同样，学生的参与度之高令人难忘。

2017 年 5 月 27 日下午：会同全体参加江西省春晖的同行与江西省教育厅领导进行座谈。江西省教育厅黄小华书记和各相关部门领导参加了座谈。座谈会上代表协会与江西省教育厅口头达成共识：江西省将作为美国华裔教授学者协会今后春晖的基地长期交流。

我本人第一次参加美国华裔教授学者协会的春晖计划，收获很大：对国内相关专业的发展有了了解（通过交流知道国内同行在做什么，以及与世界前沿的差距）；对江西的发展有了了解，如江西作为航空大省的潜力。但国内大学的管理有待提高，特别是如何解决教职员工的积极性方面还有愤恨长的路要走。相信随着改革的深入，这些问题定有其解决的方法。

对春晖建议，我感觉到由上往下的方法，即由学校的相关领导参与能使访学得以顺利落实；对今后的春晖活动，建议多考虑受访学校的需求，这
样受访学校的积极性会更高。

郦永刚（博士，教授,地球物理和地震學）

在青島理工大学的讲学和交流活动

我和同团颜利平博士在青理工土木工程学院的訪问受到张明義书记、于德湖院長、呂平副院長热情接待。本人在工程院作的学术报告题名为 “地震断裂带共震破碎和震后愈合监测和模拟”。报告中介绍了我在美国加里福尼亚州断裂带发现断层导波并应用导波研究断层深部精细结构和岩体物理属性的前沿研究工作，解析和模拟地震断裂带共震破碎和震后愈合的动力学过程，对地震周期性研究具有指导意义。介绍了应用断层导波应用断层通导波确定汶川地震断裂结构为灾后重建选址提供科学依据。并建议对山東省境內我國東部最大断层郯庐断裂的监测和地震设防。专题报告内容丰富，博得好评。呂平副院长全程在场，十分重视我介绍的断层导波新方法。她在总结发言中向該校在山东临沂的分院推荐把断层导波新方法应用到郯庐断裂带研究中。

演讲结束时， 我向学院赠送由本人的新书(英文) ” 岩体各向异性， 动态破裂和地震評估” (Rock Anisotropy, Dynamic Fracture and Earthquake Assessment, by Yong-Gang Li， 2016)。該书由中国高等教育出版社 HEP 和欧洲 De Gruyter 出版社在国内外同时发行，供地震研究人员和大学研究生参考书目。并赠送本人最近发表的两篇有关汶川大地震和新西兰基督城地震深部断层构造论著。

我和同团颜利平博士参訪青理工市北校區中國聚尿技朮研发中心，与黄微波所长探讨他的研究团隊研发的聚尿基抗震材料在中美桥樑建造和大型建筑中应用。

我和同团颜利平博士与土木工程院結构设计及计算分析室师生座談，与室主任徐培蓁教授，刘文锋教授和朱立猛博士探讨应用断层导波計算深部隐断裂对地震波放大作用，在房屋设计评估建设场地地震风险中须引入这一因素，作为对常規资料的补充。

我和同团颜利平博士参訪该院隧道与地下空间系工程安全与灾后恢复重建研究所，我向所长张拥军教授赠送本人新书”岩体各向异性，动态破裂和地震評估” 。

我团四位专家在青理工南島分校理学院访问座谈。我介绍創新项目“地热并网发电科学工程深层地热发电 - 开发新型可持续无碳清洁能源” 。山东省地热资源丰富(例如即墨温

泉區)，建议引入国外地热发电的新技术和地热地质新理论，应用先进的勘探方法对山东地热区作深入调查。引进国外地热发电设备，建立地热并网发电示范基地，填补我国地热发电空白。自主研制先进高效地热发电装置，扶持产业转型。受到黄島校区办公室王维主任热情接待。

与青岛理工大学各学院分管外事的院長座谈

座谈会由青岛理工大学国际合作交流处李云芳副处长组织，人事处董建莉副长协办（该校主管外事李副校長和国际合作交流处刘春堂处长在英法訪问）。四位春晖计划青岛团成员与 10 余位处事院长座談高层次人才引进和中美教育方式的差异与优劣。探索今后联合举办夏季班邀请海外教授來校授课，使用中英文双语开课。并討论国內教师出國进修，组织短训班以及联合办海外創业中心议题。双方一致认为需加强合作，利用双方资源，促进国內大学国际化。

参访青岛高新园区

青岛大学国际合作交流处尼宏莉科长帶领，四位春晖计划青岛团成员访问位于黄島区青島市工业技术研究院和人才交流服务中心。参观青岛高創孵化器管理公司，与研究院院長滕云枫总经理和院长助理姜峰副总经理以及招商部銀红梅座谈双創科技项目引进。走访青島市黄島区人才交流服务中心与庄桂宝主任座谈高层次人才引进的具体优惠政策和需求人才。

美国华裔教授学者网及时转载引才信息

在访期间，我们把現场收到的青岛大学、青島理工大学和青島高新区人才招聘信息第一时间电传给美国华裔教授学者协会理事会，及时在 www.usacsa.org 网上转载。包括青島理工大学”诚聘海内外高层次人才 201706”，青岛大学”诚邀海外优秀人才申报青年千人计划”，青岛市黄島區“青岛西海岸新区高层次人才奖励政策”。

2017 年教育部” 春晖计划” 教授訪问团交流合作总结座谈会

春晖计划讲学交流活动最后一天，在青岛大学办公楼会议室举办 2017 年教育部”春晖计划” 教授訪问团交流合作总结座谈会。山东省教育厅国际交流与合作处江雨处長專程由省会济南市赶赴青島出席总结座谈会，帶來教育厅厅長向”春晖计划”赴青島团各位专家的親切问候和感谢。教育部”春晖计划” 在山东省开展讲学交流活动是第一次，指示两校做好接待工作，珍惜宝贵机会，体現省領导对教育部”春晖计划” 的大力支持。江雨处长肯定了这次在青岛大学和青島理工大学两所省级重点大学开展的教育部”春晖计划”

海外专家回國讲学和交流活动。指出”春晖计划” 不只是讲学，还有人才引进工作。要求两校总結成功经验。要求我们继续保持联系，在海外宣传山东省教育形势和人才需求。青岛大学夏东伟副校长会见”春晖计划”赴青島团四位专家。在座谈会上介绍青島大学的光辉历史和峥嵘岁月。夏校長对青大教学和科研发展如数家珍，用大量数据说話，不愧是数握科学与软件工程资深教授。夏校长对我团专家在青大讲学交流表示感谢，期盼加强今后合作交流。对我们协会协助青大引进高层次人才寄于厚望。座谈会上青理工国际交況处李云芳副处長对我团专家在該校敞讲学交流活动表示感谢。

我团四位专家在会上先后发表感言，衷心感谢中国驻洛杉矶总领館教育组，山东省教育厅，青島大学和青島理工大学各级领导对我们这次顺利开展中国教育部”春晖计划”回国讲学交流活动提供的大力支持和妥善安排，保证本次活动完滿成功。每位成员都与对接学院师生作了初步交流，达到预期目际，为今后深化合作交流打下基础。同时也感受到国内大学和研究部门对引入高端人才的紧迫需求，可谓求才若渴。作为海外专业协会(美國华裔教授学者协会）责无旁贷愿为青島和山东省教育事业与国际接轨尽力。在本次讲学交流活动中我团李博教授已应聘为青岛大学商学院外聘导师，获得“外聘导师”聘书。回美后，我们将扩大宣传，利用我们协会新建的”人才资源庫”，推荐更多高端人才到山东青島就創业。

结语

在中国驻洛杉矶总领馆教育组支持和袁东教育参赞指导下，美国华裔教授学者协会组织的2017 年”春辉计划”回国讲学交流活动(赴青島团队取得完滿成功。通过这次访问更加深了海外华裔对祖国的感情，让我们更感受到国内大学对于高层次人才的迫切需求，求才若渴。作为海外华裔高层次专业协会，将为此多加努力，竭尽棉力，为国内大学引进国外优秀人才和先进技术，提高知识创新能力服务。

美国华裔教授学者协会将与青島理工大学签订合作框架协议。正在拟写协议书。与青大和青理工校院领导交流中双方对于国外教授利用暑假短期到两校授课(中英双语） 覺得比较可行。两校教师可利用教育部高等学校学科创新引智计划”（简称“111 计划”，旨在推进中国高等学校建设世界一流大学的进程）经费到国外大学进修。我们协会将作相应协助。

容跃（博士，环境健康科学工程）

我与其它 3 位“春晖计划”学者（郦永刚教授，颜利平博士，李博教授）于 2017 年 6 月 5 日到 9 日分别到山东青岛大学和山东青岛理工大学进行了学术访问交流。我和李博教授二人去了青岛大学四个学院共做了 5 个报告。这四个学院分别是商学院，环境科学与工程学院，计算机学院，网路和软件学院。我本人在环境科学与工程学院做了“健康风险评估及污染场地修复政策制定”及“科技英文写作应注意的地方”两个报告。还在计算机学院和网路和软件学院分别做了“科技英文写作应注意的地方”报告。学生们聆听和交流效果良好。

这次交流的最大收获是促进二线城市大学同学与美国学者的接触和交流，也给我本人机会了解中国国内二线城市大学专业和向大学教授和同学们学习。二线城市大学在资源上可能不如一线城市大学，所以十分需要有更多的机会与外国学者接触和交流。春晖计划恰恰给了他们这个机会。

我在春晖计划交流结束后与主办单位总结时提到，要把山东青岛大学和山东青岛理工大学提升到世界一流大学，要走出去和请进来。由外国教授教的夏季短课可以是一种形式。另外，鼓励同学们要多提问题（我做了 4 个报告，只有 2 个问题是同学问的）。美国有学者认为，要做一个领军的科学家，需要有 3 个条件：（1）好奇心，（2）创造力，（3）逆向思维。所以我们鼓励同学们要“逆向思维”。逆向思维不是证明老师不对，而是要同学们从另外一个角度考虑老师是否正确。由于我们中国文化上的关系，中国同学们在这方面更需要鼓励和加强。这点中国同学在国外学习时可能感觉更深。

对春晖计划改进的建议是对学者国内的安排需要规范化，不要各校不一样。例如交通报销，文宣公告，专业对接，等。

李博（博士，助理教授,运营及供应链管理）

2017 年 6 月 5 日至 6 月 9 日，作为华裔教授学者协会春晖计划的成员，我对山东省青岛大学和青岛理工大学进行了访问交流。这次交流，我提供了三场专业演讲并参加多次交流和访问活动，受到受访学校的好评，并受邀成为青岛大学外聘导师。

2017 年 6 月 6 日上午：为青岛大学管理学院的师生提供了题为“大数据和新科技时代的供应链创新”演讲，并对管理学和高新科技的结合点，学生培养模式和职业发展方向等师生感兴趣的问题，进行了深入的讨论。同时关于贵学院及其物流专业的未来发展的问题，提供了一定的建议。

演讲后，又与院系领导进行座谈，就青岛大学商学院的发展机遇，和与加州州立大学洛杉矶分校商学院的合作机会及优势互补等方面，进行了深入的探讨。根据讨论得出的计划，我在回美国后，已经开始一一落实，并在逐步实施中。

同时，非常荣幸地获得青岛大学商学院颁发的“外聘导师”聘书。

2017 年 6 月 6 日下午：为青岛大学计算机科学学院的师生提供演讲，介绍了我以理工科的背景从事商学院管理学研究的体会，为计算机科学系在实际商业环境的应用以及学科交

叉的重要性提出了一系列的思路。对师生提出的跨学科研究的方向和方法，出国深造的机会，以及计算机新科技对社会发展的功与过等问题，进行了讨论和交流。

2017 年 6 月 7 日上午：与青岛理工大学各个学院的院长及副院长交流，重点讨论了学科建设，对外交流，联合培养，和人才引进等问题。

2017 年 6 月 7 日下午：为青岛大学数据科学及软件学院师生提供演讲。介绍大数据时代，贵学院师生的重要使命和广阔前期，强调跨学科研究的重要性和必要性。对跨学科研究的机会和途径，美国博士培养的方式，在国际知名期刊发表论文的注意点等师生关心的问题，进行了深入的交流和分享。

2017 年 6 月 8 日上午：参观黄岛科技新区

参观了科技高新区和数家企业，深入理解了青岛新区的发展建设现状和未来规划，以及在引进人才和项目合作方面做出的积极努力。

2017 年 6 月 8 日下午：参观青岛理工大学新校区，并和新校区领导及黄岛新区领导会见座谈。对青岛的高速发展，以及对教育和人才的重视印象深刻。

2017 年 6 月 9 日上午：参观青岛知名企业和文化圣地，对青岛的辉煌历史和现在的飞速发展有了更全面和直观的认识。

2017 年 6 月 9 日下午：向江处长，夏校长等领导做了总结汇报。结合一周的访问，对青岛大学和青岛理工大学的人才引进，人才培养，学科发展， 和长期目标的制定等方面，进行了分享和交流。

我本人第一次参加美国华裔教授学者协会的春晖计划，收获很大：对国内城市的迅猛发展和大学学科建设和人才引进的重视，印象非常深刻。同时也为能通过春晖计划为祖国的发展尽自己的一点绵薄之力感到自豪。

最后非常感谢中国教育部，驻美总领馆，和美国华裔教授学者协会提供这次难得的交流学习机会。同时非常感谢郦教授，吴会长，及青岛各位领导老师的组织安排，以及荣博士和颜博士的同行和支持，才使这次春晖之行取得圆满成功。

颜利平（博士，土木工程）

一. **概要** 我 2017 年 6 月 3 日凌晨离开洛杉矶，6 月 4 日清晨到了北京；接着转机，中 午到了青岛。 6 月 5 日至 6 月 9 日，在青岛（主要是青岛理工大学和青岛大学）进行了学术 交流。6 月 13 日到了广州，6 月 14 日在广州铁路职业技术学院进行了一天的讲 学。6 月 15 日到了武汉，6 月 16 日下午在武汉大学进行了半天的讲学。我 6 月 18 日中午离开武汉到了北京，接着转机在晚上离开北京返回了洛杉 矶，成功结束了这次短期回国服务。

二．**青岛学术交流** 6 月 6 日上午，我们访问了青岛理工大学土木工程学院。先与学院领导张明义 书记和吕平副院长及教师们进行了座谈交流，然后参观了结构实验室和土工实验 室。 6 月 6 日下午，我们在青岛理工大学土木工程学院给老师和研究生作了学术报 告。我报告的题目包括“掩埋结构地震土压力离心机试验的数值模拟”和“结构刚 度对支挡体系的土压力影响”。我介绍了解决四个不同工程实际问题的思路和具体 方法，也回答了提问。 之后，我赶往青岛大学商学院给大学生作了一场讲座，讲座的题目是“给毕业 生们进入职场的秘籍宝典”。我给同学们分享了如何为进入职场做好准备的一些想 法和建议。结束后，有几位同学走过来和我进行了讨论。 6 月 7 日上午，我们出席了青岛理工大学合作交流研讨会。研讨会由青理工国 际交流与合作处李云芳副处长主持，国际学院孙玉洁院长及 17 个学院分管国际交 流与合作的副院长参加了研讨会。我们就促进青理工与国外的交流与合作进行了详 尽的讨论。 2 6 月 7 日下午，我们再次访问了青岛理工大学土木工程学院。我和郦永刚教授 先去参观了功能材料研究所，然后与学院从事岩土及抗震方向研究的教师们进行了 细致的交流。 6 月 8 日上午，我们乘车跨过胶州湾跨海大桥，到了青岛市红岛区，参观访问了 如下机构或单位：(1) 青岛高新技术产业开发区规划展示厅； (2) 青岛市工业技术研究院展厅； (3) 工研院园区内培育孵化的高新科技企业 – 融智公司与合创公司。 我们还和工研院有关负责人进行了座谈交流。 6 月 8 日下午，我们来到青岛市黄岛区，考察了国际海洋人才港，看了情况展示，并听取了有关人才政策的介绍。之后，我们参观了青岛西海岸经济新区规划展览馆。 6 月 9 日早上，我和郦永刚教授应邀与青岛理工大学土木工程学院院长于德湖 教授和副院长吕平教授共进早餐。我们就学会与学院以后的合作进行了广泛而深入 的讨论。 6 月 9 日下午，我们到了青岛大学，看了校园，出席了"春晖计划"访问团交流合作总结座谈会。山东省教育厅国际处江雨处长特地从济南赶来与会，青岛大学夏东 伟副校长在百忙之中会见了我们。

三．**结语和建议** 这次短期回国服务，大有收获。增进了学术水平，推动了中美之间的学术交 流。为青岛理工大学和青岛大学的学科发展作出了一些贡献，也对以后两校的国际化和人才引进工作的开展以及进一步科研项目的合作打下了良好基础。此外，在广 州铁路职业技术学院和武汉大学的讲学也收到了一定的正面效果。 我衷心感谢中国驻洛杉矶总领事馆教育组对这次回国服务的大力支持，感谢教 育部“春晖计划”的资助。我也要表达对吴仲和会长的深深谢意，对这次回国服 务，他事无巨细，进行了精心的筹划和安排。青岛团带队的是郦永刚教授。我和郦 教授同进同出，一起参加了在青岛的所有活动；郦教授认真负责、扎扎实实的学者 态度以及谦虚大度、为他人着想的君子风范给我留下了深刻的印象。 经过深思熟虑，我有如下建议： 1．“春晖计划”是非常好的计划，能有效地帮助到非第一档次的学校。值得 推广应用到更多的专业和院校。 2．一旦接待院校确定了，一定要求院校定下学院层的相应负责人，便于专业 对接，有效地安排活动。 3．中国正在进行经济转型和创造中国品牌，职业教育十分重要。美国等发达 国家的职业教育有很多值得中国学习和借鉴的地方。因此，中国的留学基金和“春 晖计划”应该给职业技术学院（大专）留出专门名额，以便它们有资源出国或有外 国专家来访。目前，它们与本科大学一起竞争，很难得到机会。

华裔教授学者协会与中国大学建立长期合作关系

春晖团队与江西省教育厅和山东省教育厅交流并确定长期合作意向。

左图为在江西省教育厅与厅领导会面（从左至右）：省厅郭以珊副厅长，协会 Bill 陈教授，协会鲁建业教授，省厅工委黄小华书记，协会吴仲和教授，协会谭志群教授，南昌航空大学党委书记郭杰忠教授，华东交大范勇副校长。

右图为与山东省教育厅领导会面（从左至右）：青岛大学国际交流合作处刘琪处长， 协会李博助理教授，协会容跃博士，颜利平博士，山东省教育厅国际交流与合作处江雨处长，青岛大学夏东伟副校长，协会郦永刚教授， 青岛理工大学国际交流与合作处李云芳副处长，青岛理工大学人事处董建莉副处长，青岛大学高层次人才服务办公室張利主任。

医学教育与人文教育相融合的人才培养研究
--青海卫生职业技术学院复合型护理人才培养模式为例

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摘要：首先阐述了医学教育与人文教育相融合的理论基础及融合培养意义，其次着重分析了该院提升教育理念，培育学院文化，创建以“沙棘”为精神物化的学院精神；以培育护士职业态度与人文精神为轴心建立医学人文教育核心课程体系；营造浓厚的人文素质教育环境氛围特色；构建加强医学教育与人文教育相融合的基础和保障的人才培养途径。
关键词：医学教育；人文教育；融合培养；护理教育

医学模式已经转变为生物一社会一心理医学模式，医疗卫生服务已经从单纯治病向预防、治疗、康复、保健一体化转变，护理工作者已不在是单纯的、被动的执行医嘱，而是“以维护和促进健康、减轻痛苦、提高生命质量为目的的实践者以及健康教育的宣教者”[1]。随着疾病谱、死因谱的明显变化，心理疾患、行为习惯、环境污染等已成为影响健康的重要因素，需要护士为病人提供生理、心理、社会广泛内容的护理。人们对医学目的重新审视与反思，以及医学人文关怀的急切呼唤，使得人们对拥有较高医学专业能力素养、医学人文素质、人文修养、人文精神的复合型医护人员的需求呼声越来越高。这就要求医学高职院校从教育创新的战略高度，注重医学教育与人文教育的融合提升，更新人才观、教学观，将人才培养质量放在重要位置上。青海卫生职业技术学院（以下简称“我院”）在建院六十多年的教学实践中，积极探索与创新，形成了比较独特的护理学生医学教育与人文教育相融合的复合型人才培养模式。

1 医学教育与人文教育的相关概念及相融合培养的意义

1.1 医学教育

医学是人学，是以治疗预防生理疾病和提高人体生理机体健康为目的一种科学，研究内容包含了人的生命活动、心理、精神、健康、疾病、预防、治疗、康复、保健、人口、生态、环境等等的科学，是一门自然科学与人文、社会科学交叉的学科。

医学教育，是一种传授医学知识、培养医学精神、提高医学素养的教育，以学科知识为主要内容，使人们掌握知识、发展能力、推动医学发展。医学教育以物为中心，关注人与物的关系、人与自然的关系、人与物质世界的关系。其主要任务是教会人们利用医学知识处理问题的能力。体现在护理教育中，就是以探索求知的理性精神、实事求是的严谨精神和敬业奉献精神指导工作。使学生牢固掌握专业知识和操作技能，改革创新，勇于实践，确保护理技能正确实施。

1.2 人文教育

“人文”通常是指人类的各种文化现象，特别是指人类的精神文化。人文精神是一种普遍的人类自我关怀，它尊重人的价值，强调人的尊严，重视对人类处境的终极关怀。

人文教育包括两个方面，一是传授给学生人文学科的知识，一是通过外在教育活动使受教育者展现人文精神。人文教育传授人类优秀的文化成果，以发展学生对人己关系、物我关系的认识能力和处理能力，把医学生培养成为尊重人、关心人、尊重生命、敬畏生命，关怀人的生命和健康，具有高尚职业道德的人类健康守护者。人文精神回归到护理教育中，体现在护士要用专业的护理知识竭尽所能为患者解除病痛同时以一种情感关怀去照顾病人，注意与病人沟通和互动，尊重病人的想法和意愿，形成和谐温馨的护患系[2]。

1.3 医学教育与人文教育的相融合培养的意义

医学与人类相伴而生，医学一开始就是为人服务的，医学与人文有着天然的不可分割的联系。他们同源共生、不断发展、促进社会不断进步。概括来说，人文教育是研究“如何做人”，其核心是“求美、求善”，强调“以人为本”。而医学教育是研究“如何做事”，其核心是“求真”。“真” “善” “美”的高度统一则构成了人类医学知识的整体。

护理学本身就是医学与人文相融合的综合性学科它既包含了医学知识又渗透着人道主义。护理的对象是人，而且是有疾病痛苦甚至生命危险的病人，他们除了要求护士掌握专业知识和技能外，更有一种心理上的期望，如对病人的尊重、关心、同情等，这就决定了护理职业的人文特征，它要求护理工作者在临床实践中，实现现代医学与人文精神的结合。可见，人文文化的渗入将使医学科技形成某种协调，从而完善医学技术，完成人文与医技的互补；人文知识的灌输有利于树立正确的医学护理理念，并应用到护理文化建设中来，营造更为和谐、更为优秀的文化环境，激发护士的自觉行为，从而完善护士的职业形象[3]。

2 医学教育与人文教育相融合的提升的途径

我院经过 60 年创新发展，特别是在护理学复合型人才培养过程中，在医学教育与人文教育融合培养方面，大胆探索，勇于实践，收到了良好的社会效果，形成了具有地方特色的高职医学教育模式。

2.1 提升教育理念，培育学院文化，创建以“沙棘”为精神物化的学院精神.

教育理念指人们对自己学校的定性、定位及职能的认识。简单地说，就是要把学校办成什么样的学校，培养什么样的人才，是建立在教育规律之上，反映教育本质，对教育发展起指导作用的纲领性思想认识。

在医学教育与人文教育相融合建设过程中，我院突出“先做人，再做事”人才培养理念，凝炼和培育学院文化，研究和打造富有医学人文特点的仁道文化，突出“仁道”（即仁心、仁爱、仁术、仁义、仁慈、仁德，仁和），争创一流。明确“扎根高原，立足青海，面向西部，服务基层。”的服务面向定位。

“沙棘”是一种落叶性灌木，其特性是耐旱抗风沙，可在盐碱地上生存，用于水土保持。在高寒、干旱、缺氧、贫瘠的土地上向世人展示着自己无私的奉献、无限的生机和高尚的心灵，它正好是我院的精神所在，创建以沙棘为精神物化的精神标示，并凝练为学院精神，用坚韧、奉献、平凡、淡薄、忍耐的学院精神为青海医疗卫生战线培养“下得去、留得住、干得好”素质全面（思想素质、职业素质、人文素质、身心素质）、技能良好、团结协作、关爱生命的技术技能复合型护理卫生人才。

为了保证护理学生从思想深处扎根青藏高原，从入学教育开始即注重对他们进行省情教育和高原常识教育，安排高资历的临床一线教师讲授在高原的亲身体会和经历，讲授什么是高原精神，什么是沙棘精神，要求同学们用坚韧、奉献、平凡、淡薄、忍耐的学院精神搞好自己的学习，准备去为青海卫生事业献自己的青春。

通过参观学习建立在青海省红十字医院的《阳光医学历史博物馆》、《医院院史馆》、《人体解剖病理标本馆》，从医学人文与文明的角度诠释医学文明的发展轨迹，了解先哲们在人类医学发展历程中经历的挫折和磨难、艰辛和奉献，使护理学生能够以一种相对正确的视角和心态看待医学、理解医学。

通过开辟第二课堂和参观社会实践活动，早期接触临床实践，树立以病人为中心的思想；早期进入护生角色，先学做人，再学做事。使护生能够把护理医学与人文素养有机地交融在一起，从而逐渐产生指导他们今后护理实践的内在价值导向和行为准则的因素。

将学院文化、学院理念、学院精神融入到学院教学工作的方方面面，让学院的文化在各项规章制度中体现出来，使文化理念的“软约束”与规章制度的“硬约束”达到有机结合。既要重视专业教育，更要重视学生人文素养的培养，使培养的学生有知识，而且会做事，更要会做人。

2.2 以培育护士职业态度与人文精神为轴心建立医学人文教育核心课程体系

课程的结构决定学生的素质结构。课程教学是人才培养的最基本途径，自然也是加强人文素质教育的重点。我院积极推进课程体系改革，向人文教育拓宽，重视文医学科的综合，有目的地建立一系列有利于提高学生人文素质的具有广泛性、交叉性和时代特征的医学人文教育核心课程体系。一年级学生重点加强人文知识理论学习，提高人文素养；二年级学生增加人文活动课，重点培养沟通、 合作、信息管理等人文技能；临床实习阶段强调应用，通过临床实践提高职业态度。真正将医学人文课程贯穿于医学教育全过程,使护理学生毕业后对护士的角色认同、临床应变能力得到提升。

2.2.1 加强“政治理论课” 与人文素质教育的融合. 我院把“政治理论课’’作为全面推进素质教育的重要阵地之一，是医学生的必修课，开设的课程有《毛泽东思想和中国特色社会主义理论体系概论》、《马克思主义基本原理》、《思想品德修养与法律基础》、《形势与政策》等。教学过程中，在“政治理论课”中增加有关人文教育的内容,使师生认识到人文素质教育是当代社会、政治、经济、文化发展对教育提出的必然要求,是加强思想道德建设的有效措施。同时发挥“政治理论课”的主阵地作用，渗透人文教育,把人文精神渗透到教育和教学的各个环节中去。帮助医学生树立正确的世界观、人生观和价值观，确立为中国特色社会主义奋斗的理想信念，增强服务社会的责任意识。

2.2.2 增设人文素质选修课，实行文、医课程交叉开设. 实行文、医课程交叉开设是实现医学教育和人文教育融合的基本途径之一。开设的多种人文素质选修课，课程相互联系，根据学生年级不同，分阶段渐进，贯穿医学生入学到毕业的全过程。

我院开设《医学史》、《护理伦理学》等医学人文的道德伦理素质课程，帮助医学生具备宽阔的学术视野，敏锐的问题意识，良好的学术修养和高尚的职业精神。开设《文化与医学生素养》、《戏曲鉴赏》等医学人文的文化艺术素质课程，帮助护生了解和掌握

中国的历史文化传统，提高艺术文化品位，增强民族意识和爱国主义。开设《大学生伦理健康教育》、《人际沟通与交往艺术》等医学人文的身心健康素质课程，帮助医学生掌握工作压力之下的心理调适方法和技巧，养成良好的身心素质。开设《卫生法学》、《大学生礼仪修养》、《医患关系与医疗质量管理》等医学人文的技能素质课程，帮助医学生提高对市场经济的理解能力、医患沟通的操作能力、对医学美学的运用能力。

2.2.3 人文素质教育融入到护理学基础课和专业课中. 人文精神的培养绝不能仅仅局限于人文课，要贯穿在护理的专业课程之中。在护理学基础课和专业课教学中，强调教师要把教书与育人统一起来，不仅把课堂教学作为传授护技的场所，更作为育人的渠道，善于掌握专业教材中的人文精神来启发学生，例如在《护理学基础》绪论教学中，除认真讲解护理学概念等基本知识外，还应详讲南丁格尔的生平及事迹，使学生树立热爱护理事业的崇高理想。教学过程坚持以病人为中心准备教学案例，将正确的价值观念引入临床教学中，利用哲学、伦理学等学科内容引导护理学生正确评估医学，把医学人文理论知识用于实践，学会从医学、道德、法律等不同角度去研究、解决医疗问题。让教师懂得，只重视狭窄范围内的专业知识和技能的传授，培养出来的人只能是专业人、技术人，而不可能是道德高尚、知识技能合理的高素质护理人才。

2.2.4 在护理实践中发扬人文精神. 实训、见习、顶岗实习是医学教育与人文教育相融合的重要环节，护理实践集中表现为护理心理、行为与专业知识、技能的统一，因而掌握了护理基本知识和技能的护生，明确了人文素质的内容、目标后，在护理实践中融入人文精神的科学理论，并在实践中得到检验，使学生正确面对社会实践中遇到的新问题及新挑战。

例如，在护理操作培训中，可引导护生进行角色互换，让护生自己当病人，进行情境训练，熟悉、了解病人的生理、心理反应，进行有效的护患沟通，以减轻病人痛苦，增进健康，促进护理模式的转变和护患关系的改善。

在实习中要求护生认真作好护理工作的每一个细节，例如:护士给病人做任何处置时，都与病人亲切地打招呼、做解释，即使是昏迷病人也如此。需暴露病人身体时，首先拉上窗帘或用屏风遮挡；与卧床病人说话时，护士应蹲下，以便与病人保持同等高度；…… 这些都是对病人关爱与尊重的充分体现[4]

在人文教育领域，情感体验永远比理论说教对人的影响要大。让护生在体验中反思，在反思中提高，真正将人文精神渗透到护理科学中去，充分发扬充满人性的护理学精神

2.3 营造浓厚的人文素质教育环境氛围

校园的环境、人文的氛围，对学生是一种示范，一种教化，一种熏陶，一种强大的潜移默化。我院在以下几方面开展了有 益尝试:

如将“一切为了健康”、“健康所系，性命相托”等大幅标语布置在醒目的位置，它能提醒学生，未来的护士，病人的生命与健康至高无上。在楼道、教室挂上南丁格尔的肖像和誓言，使学生深刻体会到护士这一职业的神圣和无私奉献精神。在软环境上，要求学生和老师都能在互相见面时面带微笑进行问候。这些都有利于营造庄严神圣又不失温暖的氛围。对于学生陶治情操、激发满足感、塑造自我具有潜移默化的影响。

通过举办护理科普展览、护理技能大赛、护理伦理辩论赛，职业道德演讲赛，模拟招聘面试，直接与临床护理专家对话等方式讨论潜在护患纠纷等，训练护理学生的评判应变能力，换位思考能力、沟通合作能力和解决实际问题能力，让学生拓展知识视野，奠定学术基础，感受护理科学氛围，提高科学素养。

开展内容丰富的“5.12”护士节才艺表演、心理讲座、开展各种书画、摄影、艺术展览等社团活动等，弥补课堂不足，感受校园文化氛围真正做到寓教于乐。

加强社会实践活动。我院充分利用寒暑假的学生社会实践活动以“文化科技卫生三下乡”社会实践活动为龙头，同时不定期开展社区义诊、健康知识宣传等不同形式的志愿活动和社会实践活动，使学生有较充分的时间接触并体验社会，拓展视野，增加知识，帮助学生正确认识自我、认识社会，增强社会责任感。

2.4 构建加强医学教育与人文教育相融合的基础和保障

在医学教育与人文教育相融合人才培养过程中，我院积极探索医学教育与人文教育相融合的途径和措施，使之逐步完善，并加以制度化、规范化。根据医学人文素质教育的需要，引进具有人文社会科学背景的高层次人才；加强对现有教师的培训，尤其加强了对医学专业教师的文化素质教育培训，便于在专业教学中有效地利用和开发医学的人文内涵；学院设立医学生人文素质教育专项经费，用于人文素质教育的载体建设，即为人文素质教育提供充足的图书资源，增加现代化教学、实践教学等各种现代教学手段；支持医学教育与人文教育相融合教育科研，不断探索医学生人文素质教育的新理论和新途径。

医学教育与人文教育融合培养方面，我们体会到，既需要轰轰烈烈的大张旗鼓的舆论宣传，经常性的规范化工作，更需要潜移默化、春雨润物细无声式的渗透。

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紫海战略与城市群发展

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摘要：本文重点分析了城镇化与城市及城市群发展的关系，工业化、服务业发展与城市、城市群发展的关系，据此指出了不断提高城镇化比率与水平， 加快工业化程度,改进专业化分工与协作,不断提高服务业比重、水平、质量对巩固发展城市群的关键作用。 本文亦借鉴国际上城市群发展的经验与教训，并引用紫海战略，对中国城市群的发展提出相应的战略与建议。
关键字：城市群，城市发展，城镇化，竞争战略

Purple Ocean Strategy and the Development of Urban Agglomerations

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Abstract： This paper discusses the relationship between urbanization and the development of cities and urban agglomerations, and between the development of industrialization and service industry and the development of cities and urban agglomerations. It emphasizes the importance of increasing the urbanization rate and its level, speeding up industrialization, improving the specialized division of labor and collaboration among each other, and increasing the proportion of the service industry, its level and quality to the advancement of urban agglomerations. It also explains the experiences and lessons of urban agglomerations in western countries and discusses how the purple ocean strategy can be used to better advance urban agglomerations in China.

Keywords: urban agglomerations, urban development, urbanization, competition strategy

一、城市及城市群的特点及作用

城市是与乡村或农村相区别的一个生活、经济活动与社会组织形式。有别于乡村，城市具有人多且集中， 经济活动频繁，相互联系紧密，社会化分工、管理程度高等特点。绝大多数城市位于平原上，往往是经济活动、交易或贸易、资本中心。古代的多数城市，以其独特的地理位置而形成，而现代许多城市则多据于资源开发,生产（工业化）或贸易汇聚而崛起。

城市在经济、社会发展中起了极其重要的作用。美国有超过 70%的人，居住、生活在不到 2%的土地上。世界上亦有超过 53%的人，生活在城镇中。中国近几年城镇化率不断提高，有近 57%的人，生活及工作在城镇中。即使欠发达的国家，城镇化率也在加速提高、推进。按照联合国 2014 年的统计，从 1950－1975 年，欠发达国家的城镇化率从 16.7%提高到 28%；但从 1990－2014 年，其城镇化率从 35%提高到 48%。

中国近二十多年快速的经济发展，工业化程度的提高，外贸出口的快速增长，带动了城镇化率的显著提高及城市、城市群的崛起。如何更好地利用城市及城市群的发展来带动区域经济及整体经济的发展，进一步推动城镇化率的提高，解决农业人口转移问题，解决地区发展不平衡问题，及收入、财富分配不均衡问题;及如何更好地规划、布局、建设城市及城市群，避免大城市病，使城市的生活更和谐、协调、绿色、环保，使城市的管理、运作更有效率，使城市间的协作及城乡关系更和睦、顺畅、互惠互利，这是摆在我们目前的急迫课题。

上述问题的解决，必须依据中国的国情，各个地方的历史、文化、资源等实情，而采取不同的规划、方法与措施。同时，我们亦应借鉴其他国家，特别是西方发达国家城市及城市群发展的经验与教训，它山之石，可以攻玉。

本文在分析城市特点的基础上，讨论了城市发展的条件与规律，重点讨论了现代城市及城市群的发展，有赖于城镇化率不断提高，有赖于工业化的发展及服务产业的发展；并列举了西方发达国家在城市、城市群发展中遇到的问题与挑战。本文最后探讨了如何应用紫海战略来更好地协调、规划城市群，更好地发展现代城市。

二、城市及城市群发展的条件与规律

一个城市的发展必须满足一定的条件和遵循一些规律。

1、城市发展的条件：

凝聚性—吸引人，吸引资本，吸引交易、贸易；

规模性—足够大，具有生产、消费、运输等的规模经济；

幅射性—能影响附近的地区，其经济与生活活动；

人文性—不仅经济活动，并具丰富的人文、社会活动；

集成性—产业与生产链的集聚，从而带来集成（约）效应；

分享性--各种资源、设施的分享与共享；

外溢性—各种技术、知识、资本等外溢性及外溢效应；

综合性—基础及各种设施，各种生产、社会生活，功能俱全、完备；

2、城市发展的规律：

城市的发展潮起潮落，为了保持城市的发展，必需具备：

开放性—对外的开放，吸纳新鲜的人才，思想，文化，教育；

竞争性—企业在竞争中成长、壮大，城市亦如此；

创新性—不断改革创新，技术、开发、管理、组织的创新；

平衡性－各种利益、关系、职能/功能的平衡；

进取性－不满足现状，不断奋斗，努力；

持续性－环境、人才、资源的可持续性；

包容性－不同文化、教育、种族、宗教的包容，对不同收入水平人的包容；

特色性－各个城市在文化、经济等方面，有其特色。

三、城镇化与城市、城市群的发展

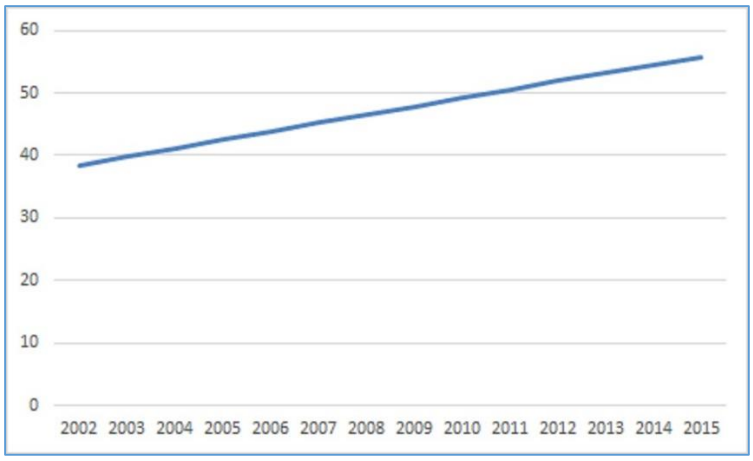
一个国家与地区，城市与城市群的发展，离不开其总体的经济发展，特别是其总体城镇化的发展。综观世界各国，凡其城镇化率高，其城市及城市群就多，发达程度就高。表 1 为世界有关国家的城镇化率。图 1 为中国城镇化率的变化。表 1 中数字表明，中国的城镇化率只略高于世界的平均水平，比发达国家低得多。图 1 说明，中国逐年城镇化率的提高。2016 年中国的城镇化率大约是 57%。中国的目标城镇化率是 65%。与所有西方国家相比，中国的城镇化率仍然很低；特别是其城镇户籍的城镇化率现在只有约 35%。

城镇化与城市、城市群发展相辅相成。城市及城市群的发展，会带动城镇化率的提高，而城镇化率的提高，会形成新的城镇，并形成更多的城市群。中国每年需解决新增的两千多万人的城镇化人员其居住与生活问题,只有大力发展城市及城市群，才能解决这样的问题。

表 1 世界有关国家城镇化率 (2014)(世界平均水平 52.1%)(世界银行)

	中国	美国	日本	德国	印度	韩国
人口总数	1,357,380,000	316,497,531	127,338,621	80,645,605	1,279,498,874	50,219,669
城镇化率	54.7%	82.4%	91.3%	73.9%	31.3%	91.6%

图 1 中国城镇化率（世界银行）



四、工业化、服务业发展与城市、城市群发展

如前所述，现代许多城市的形成与发展，是因工业化而起。工业化的发展，带来许多新的产品，从而形成了许多大型及超大型的工厂。工业化需要许多新的大量的原料、资源，此亦带动了原始资源的开发，从而形成了新的产业基地。工业化需要大批的员工，从而聚集了大批的人员。工业化创造了许多全新的技术，不仅提高了生产率，生产规模，亦对相应的教育、科研提高了要求，从而带动了教育、科研产业的形成与发展。所有这些，都对现代城市、城市群的形成与快速发展提供了动力与保障。

以下表 2 为世界有关国家三大产业的分布情况。表 3 为中国近几年三大产业变化的情况。这些表格数字表明，中国已从农业为主的经济体，逐步转为以工业与服务业发展并举的经济体，并正在向服务业为主导的经济体发展。

与其他发达国家相比，中国农业在经济体中的比重仍然过高，农业从业人员比率更高。解决此一问题，就需要提高城镇化率，进一步巩固发展工业，大力提高服务业，大力改进提高农业的生产率。

现代城市的发展离不开服务的发展。各种服务业的提升与发展，特别是社会服务、公共服务、金融服务、通迅服务、生产服务的发展，是现代城市发展的基础与保障。中国城市的总体服务内容、程度都在不断提高，但许多服务领域，特别是公共与社会服务仍明显不能适应社会的需求。这是城市与城市群建设与发展中需解决的一个突出问题。

表 2 世界有关国家三大产业分布（世界银行 2013）

	中国	美国	日本	德国	印度	韩国
农业 GDP %	9.41	1.45	1.21	0.86	17.96	2.34
工业 GDP %	43.67	20.50	26.21	30.71	30.73	38.41
服务 GDP %	46.92	78.05	72.58	68.43	51.31	59.25
总劳动人口	781,054,640	157,632,611	66,740,831	41,936,673	471,277,041	24,955,811
农业劳动人口 %	36.70	1.60	3.70	1.60	51.10	6.60
工业劳动人口 %	28.70	17.20	25.60	28.40	22.30	17.00
服务劳动人口 %	34.60	81.20	69.70	70.00	26.60	76.40

表 3 中国三大产业分布变化（中国国家统计局）

	2016	2015	2014	2013	2012	2011	2010
农业 GDP %	8.6	8.9	9.2	10.0	10.1	10.0	10.1
工业 GDP %	39.8	40.9	42.7	43.9	45.3	46.6	46.7
服务 GDP %	51.6	50.2	48.1	46.1	44.6	43.4	43.2

五、城市及城市群发展的国际经验

中国可以借鉴、学习其他国家，特别是西方国家城市发展的经验与教训，包括：

1. 更多的超级(特大)城市形成，人口向特大城市集中；

2. 中小城市发展更稳定、更快;

2.许多大城市人口的急剧下降;

3.城市郊区的快速、稳定发展;

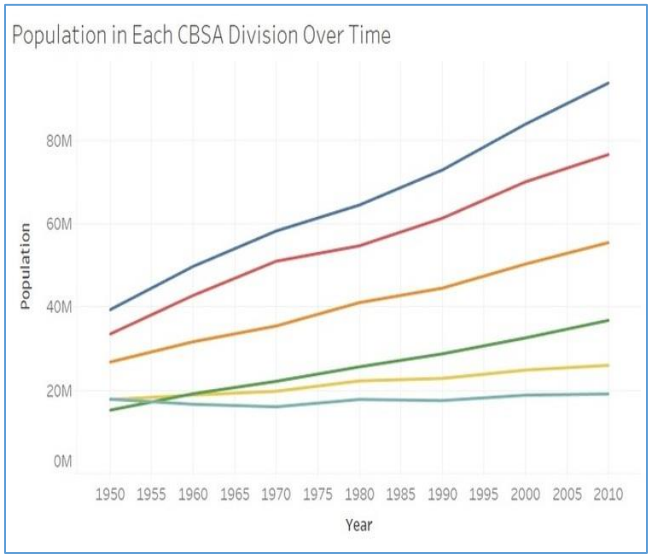
4. 大城市、超大城市市中心的衰落;

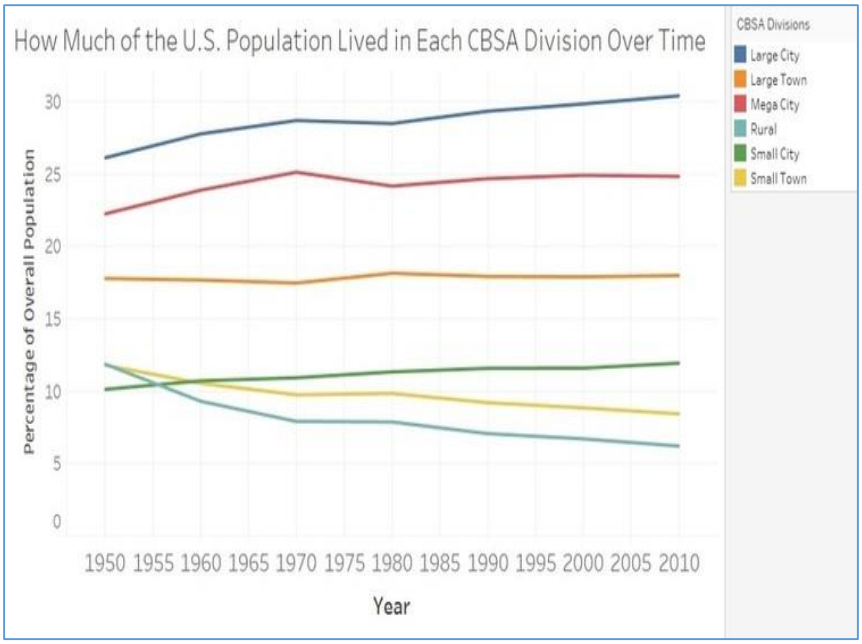
5.大城市中，区域发展的分化及贫富分化。

根据联合国 (2014 年）报告，世界有更多的超级(特大)城市和更多的人搬到了这些超大规模的城市。在 1990 年，共有十大"超级城市"(1000 万居民或更多)，略低于当时全球城市人口的 7%。在 2014 年，有 28 特大城市,约 12%的世界城市居民。到 2030 年，全球预计将有 41 特大城市。

虽然美国大多数的人口和经济增长发生在大型都市地区，但许多以资源为基础的经济体或地下水储量缺乏地区已苦于人口和经济的严重下降。一些大城市中心和二线城市也经历了几十年的下降。例如，费城、巴尔的摩、匹兹堡、克利夫兰、底特律、圣路易斯和新奥尔良自 1960 年以来失去了三分之一或更多的人口。即使城市郊区仍在增长，许多城市中心已经失去了税收基础和经济活动的居民；贫穷已成为常见的情况。

在 1960 年，Jean Gottmann 曾预言，到 2000 年，美国一半多的人员，会居住生活在三大城市群。但实际上，在过去 50 多年中，这三大城市群的人员出现了下降。美国过去 100 多年中，人员增加最大的是城郊地区，从 1960 年的 31%，增加到 2010 年的 51%；而在市中心的人口，从 1960 年的 30%，只增加到了 2010 年的 33%。





上图(Byler 2017)为美国人口在不同城市的分布，其中：特大城市有 500 万或更多人，大城市有 100 万至 500 万人，小城市有 500,000 到 100 万人，大城镇 10 万到 500,000 人和小城镇有少于 10 万人。美国约有 30%的人居住在大城市，25%在超大城市，18%在大的城镇，13%在小城市，其余在小城镇及乡村。

在美国,自 1969 年以来,八大城市群的 GDP 增长率，只是其他三类较小规模城市年增长率的三分之一。2008 世界经济与金融危机后，欧洲绝大多数大城市经历了冲击、衰退，但许多附近的中小城市并未受影响，反而稳定成长。

根据以上城市与城市群发展的国际经验，中国在发展中应注意并解决以下的问题：

1、超大城市及城市群的形成与发展仍有潜力与空间。特别是中国人口多，中国人喜欢生活、工作在大的城市。另外，目前中国像北上广深这样的超大城市，人口密度仍比有些世界大城市低。所以需进一步改善、发展这些超大城市，吸引更多的人口，转移不必要的生产、制造功能，使之更具可居性、文化性。

2、加快中小城镇的发展，特别是大城市卫星城市的发展及特色城镇的建设与发展，为加快城镇化建设提供条件与保证。

3、由于交通、生活习惯等问题，中国的城郊目前不可能吸引太多的人居住、生活，但随着城市轨道交通的发展，城郊将会越来越具吸引力。有规划地发展城郊地区，特别是大城市间的郊区，对大城市及城市群的发展意义重大。

4、中国目前大部分大城市并未显现市中心衰落的问题。但未雨绸缪，应加强对大城市市中心的投资、规则与建设，使其保持活力、吸引力。

5、重视并解决大城市中不同区域不同人群分化问题，对稳定社会、和谐发展至关重要。合理、均衡的投资，相应的策略与措施，公共设施的建设，社会福利安排等，是解决这些问题的关键。

六、紫海战略与城市群发展

正确有效战略的制定与实施，对一个企业的发展至关重要，城市与城市群的可持续发展，竞争力不断提高，亦有赖于其正确而有效的战略。

有三类不同的战略一红海、蓝海及紫海战略。下表是三种不同战略的概要总结。城市群的发展应更多借鉴紫海战略的思路与要略，注重平衡、综合与协调，善于把各个战略要点有机地联结起来，形成一个战略面，战略优势，发挥集聚，整合形势，善于创新而兼顾传统，富有特色而不失大众。鼓励、提倡、支持企业家精神，创新、创业，敢于冒险，不断进取，永不满足，善于寻找机会，并果断决策。

紫海战略--介于红海和蓝海之间

红海战略 (Michael E. Porter)	紫海战略 (Stephen Cummings)	蓝海战略 (W. Chan Kim)
在已有市场空间竞争	在已有市场空间竞争,但通过增加一点点意料之外的额外产品或服务而脱颖而出	创建一个毫无争议的市场空间
击败竞争对手	与竞争对手差异化	与竞争对手不相关
利用已有的需求	利用当前的客户基础以降低损失，提高忠诚度，提升口碑	创造并抓住新的需求
成本价值型交易	打破交易型市场经济心态，增加价值，超越期望	打破成本价值型交易
根据其差异化或者低成本策略，来设计公司的全局行为	通过增加价值来追求差异化，进而设计公司的全局行为	通过追求差异化和低成本，来设计公司的全局行为

城市及城市群的发展需要平衡。不同城市间的平衡，合理布局、规划、分配与协调。各个城市自身需要平衡，包括各种生产、生活、社会活动，教育、科研等设施的安排与布置。不同层次资源、人才的平衡。环境与人类生活及生产制造的平衡与协调。

城市及城市群的发展需要创新及企业家精神。没有创新就没有活力，没有创新就没有发展。许多城市的没落，就是因为缺乏创新。企业家是社会及经济发展的推动力。不仅企业发展需要企业家精神，社会发展包括城市发展更需要这种精神。城市的各级领导人，亦需要这种精神，敢于冒险，勇于尝试，不满足于现状，不断求新、求变。

城市及城市群的发展需要竞争。不同城市群之间需要竞争，城市群内不同城市间需要竞争，城市内亦需要竞争。不仅竞争性行业及产品需要竞争，公共（公益）性行业及服务亦需要竞争。企业及个人在竞争中长大，社会及城市亦在不断竞争中发展。

城市及城市群的发展需要以人为本，以人为中心。城市是人类集居、生活、工作的地方。城市的发展有赖于对人，特别是各种优秀人才的吸引力，凝聚力。不断更好地满足不同阶层人们的各种需要，创造并提供各种人才施展理想、抱负的各种条件，形成与发展和谐、便利、安全、绿色、开放、包容、活力的整体环境，这样的城市自然就有吸引力，生命力。

城市及城市群的发展需要以教育、科技为依托。综观世界各国大城市、超大城市，几乎都有世界著名的高等教育及科研机构，或者说，他们都拥有超大及著名的大学及科研机构。

七、总结

本文简要分析了城市及城市群的特点及作用，探讨了城市及城市群发展的条件与规律。重点讨论了城镇化与城市及城市群发展的关系，工业化与服务业发展与城市及城市群发展的关系。分析、列举了国际上城市及城市群发展的经验、教训，并重点控讨了如何借鉴紫海战略，来更好地规划、发展城市群。

中国的经济发展，城市及城市群的崛起与发展，史无前例。过去十多年大量基础设施的建设，特别是城市内地下、地上、及空中交通的投资与建设，城际轨道与其它交通的建设与高速铁路的布局与建设，为城市、城市群的发展提供了基础与保障。如果我们能充分借鉴国外城市及城市群发展的经验与教训，充分认识各个不同城市、区域的历史、文化、传统及其它各种特点，特别考虑到人的基本需求，经济发展的内在需求，注重特色、平衡、可持续性，包容性与创新，我们的城市及城市群发展一定能更快、更好，对经济、社会发展起到更大的推动作用。

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Clinical Implications and Management of Chronic Occult Hepatitis B Virus Infection

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Abstract

Purpose of Review: The purpose of this review is to discuss the clinical implications of occult hepatitis B virus infection (OBI) and management options.

Recent Findings: Data regarding the role of OBI as a co-infection and its ability to facility progression of cirrhosis and hepatocellular carcinoma remain conflicting. In a recent meta-analysis, those with chronic hepatitis C and occult hepatitis B co-infection were found to be at increased risk for development of hepatocellular carcinoma. There remains limited data on how to manage these patients to prevent disease progression.

Summary: OBI refers to the presence of hepatitis B viral (HBV) DNA in serum or hepatocytes in the absence of detectable HBV surface antigen (HBsAg) with or without serological markers of previous exposure. As our understanding of the virology has progressed, so has our understanding of the clinical implications of OBI. Despite the growing evidence of the clinical implications of OBI, there are also several conflicting reports in the literature. After years of research, we have further understanding of the pathogenesis of OBI, but many questions remain unanswered. What we do know is that what was once felt to be a relatively innocuous entity is now regarded as a clinically very relevant disease process requiring appropriate assessment and individualized clinical management.

Keywords: Hepatitis B virus (HBV), occult hepatitis B virus infection (OBI), reactivation of hepatitis B, chronic liver disease, hepatocellular carcinoma

Introduction

Hepatitis B virus (HBV) prior or current infection is incredibly prevalent. It is estimated that the number of hepatitis B surface antigen (HBsAg) positive patients worldwide are 240-248 million (1-2). Those that are HBsAg negative but have other serologic of prior HBV infection or presence of HBV DNA in serum or hepatocytes are defined as occult hepatitis B infection (OBI). Occult hepatitis B infection continues to present a challenge for both basic scientists and

clinicians. Much work over the last decade has elucidated that OBI does have significant clinical implications that were previously unknown. The current definition of OBI as established by the national expert meeting in Taormina (Italy) in 2008 is the following (3):

a.) Presence of HBV DNA in the liver, with detectable or undetectable HBV DNA in the serum, but negative HBsAg test.

b.) When detectable, the amount of HBV DNA in the serum is usually low, less than 200 IU/mL

c.) It can be classified into seropositive OBI (anti-HBc and/or anti-HBs positive) or seronegative OBI (anti-HBc and anti-HBs negative).

The goal to establish the standard criteria for diagnosis of OBI was to allow for proper comparison among different research results and reports. Despite the standardization of the definition, clinically the diagnosis of OBI can be difficult. First, obtaining liver biopsies specimens to assess for the presence of HBV-DNA is infrequently done. Second, for individuals with a negative serum HBsAg test, further HBV serology or HBV DNA tests are usually not done routinely, resulting in missing diagnosis of OBI. The most reliable method of detecting OBI is the serum PCR testing for HBV DNA. The sensitivity of the test has improved with ability to detect low levels down to < 5 IU/mL of serum HBV DNA.

During OBI, the HBV viral covalently closed circular DNA (HBV cccDNA) persists in the nucleus of infected hepatocytes and is able to maintain an HBV-specific memory T-cell response (4). There is strong evidence to suggest that OBI is oncogenic and patients with OBI are at higher risk for developing hepatocellular carcinoma (HCC). OBI has also been implicated in increasing the rate of progression of liver fibrosis and development of cirrhosis. Furthermore there is retained risk of transmission. Understanding the clinical implications of OBI is paramount for the clinician in order to address specific management strategies.

OBI as a Transmissible Pathogen

The risk of HBV transmission is felt to be attributable to three factors: the duration of viremia, the activity of HBV replication, or concentration of HBV particles in the plasma, and the frequency of contact between host and recipient (5). Currently, the best measurement of infectious HBV particles is by using a surrogate marker, levels of HBV DNA. Understanding the clinical scenarios where patients are at highest risk for transmissions is of paramount importance for prevention. Patients receiving blood transfusions, hemodialysis, liver transplantation, and maternal-fetal transmission are populations at highest risk for OBI-mediated transmission.

Transfusion Medicine. OBI is transmissible by blood transfusion, although the risk rate is considered to be very low. The risk of HBV transmission through blood transfusions was significantly reduced after the introduction of serologic screening of donors for HBsAg and anti-HBc. In 2009, the United States started screening blood donors for HBsAg, anti-HBc, and HBV DNA which has reduced the rate of HBV transmission to 1 in 1million (6). The risk of transmission is dependent on the immune status of the recipient and HBV DNA viral load of the donor. The presence of anti-HBs in donors reduces the risk of HBV transmission (7). Plasma based blood products have also been reported to carry a higher infective potential than low plasma blood products (i.e. red blood cells) (8, 9). In higher endemic regions, the risk for transmission appears lower than in lower endemic regions as most transfusion recipients have been exposed to the virus (10). Prevention of transmission is the primary management strategy. This entails ensuring HBV vaccination of potential recipients and universal screening of all blood donors and products (11).

Hemodialysis. Patients on hemodialysis (HD) are at increased risk for transmission HBV as they are immunosuppressed, receive more blood transfusions than the general population, and share dialysis machines. The prevalence of OBI in HD patients ranges from 0-58% (12). The significant variability in prevalence in this population is largely due to variations in diagnostic testing and HBV prevalence (13, 14). Patients undergoing HD should all be screened for OBI as nosocomial transmission of the virus is well documented in these individuals (15, 16). It is recommended that staff and patients be vaccinated for hepatitis B and have been given boosters to maintain protective antibody levels. Staff should also be educated about proper cleaning techniques and prevention to decrease risk of transmission (17, 18).

Transplantation. The risk of OBI transmission in patients undergoing organ transplantation is important to recognize. The rate of transmission is highest in orthotopic liver transplantation as hepatocytes are the reservoir for HBV cccDNA compared to other organ transplantation (19, 20). Also, the need for immunosuppression post-transplantation can induce HBV reactivation after liver transplantation, causing acute hepatitis or even liver graft failure, if prophylactic HBV treatment were not given. The transmission of OBI donors to recipients were reported at a rate of 17%-94%, without prophylactic HBV treatment (21-23). Because of this high risk of transmission, prophylaxis is recommended to prevent HBV reactivation (21). A retrospective study of 119 liver transplant patients without chronic HBV who received anti-HBc+ livers showed minimal differences in reactivation rates when comparing lamivudine (5/62, 8%) with adefovir (5/33, 15%), tenofovir (0/3), or entecavir (0/1) (24). Although data is limited in this patient population, studies have reported that Entecavir has the advantage of not being nephrotoxic and tenofovir has the advantage of better long-term efficacy in cases of lamivudine resistance, making them the agents of choice today (25).

Pregnancy. In a prospective study, the authors performed HBV-DNA testing of the sera and cord blood 202 healthy pregnant women (26). Six (3%) women were OBI positive and 4 of these 6 women were evaluated for HBV DNA, all were HBV-DNA negative. The authors concluded that vertical transmission through cord blood is negligible, but warrants further investigation (26).

OBI as a Coinfection

HIV and OBI Co-infection. There is a wide variability in the reported prevalence of OBI-HIV co-infection. In a recently published review the estimated prevalence ranged from 0.63% to 88.4% (27). This variation is due to multiple factors; the individual prevalence differences in the populations studied, the type of high risk groups (co-infection, hemodialysis, intravenous drug users) included in the analysis, and also the differences in the sensitivity of the diagnostic tests used.

The overall prevalence of OBI reactivation in HIV patients has not been well elucidated. Filippini et al. conducted a multicenter prospective study on 115 consecutive HIV-positive patients, 86 of whom with at least 6 months of follow-up. A hepatic flare occurred more frequently in those with OBI than in those without (64.7% *vs* 24.6%; $P < 0.005$) (28). The author also noted that lamivudine based anti-retroviral therapy was effective in suppressing HBV

replication, but approximately half of the lamivudine treated patients began to have detectable HBV DNA again after 12-40 months and was associated with a hepatic flare (28). In a review published by Sagnelli et al., the authors felt that Lamivudine was inadequate for a long-term prevention of hepatic flares in HIV-positive patients with OBI and possibly in reducing the risk of HBV oncogenicity. They recommended that for OBI-HIV patients, a high potency high genetic barrier nucleos(t)ide analogue should be preferred (29).

There remains limited data on the oncogenic potential of OBI-HIV co-infection and the rate of progression of liver fibrosis in these patients. Future larger prospective studies are needed to address the estimated prevalence and clinical implications of OBI in HIV patients.

Hepatitis C and OBI Co-infection. The estimated prevalence of OBI and chronic hepatitis C(CHC) co-infection was 33% when HBV sequences were found in liver tissue from 66 of 200 HCV infected patients (30). The clinical implications of co-infection are felt to be progression of liver fibrosis and development of HCC. A recent review analyzed studies that used presence of HBV DNA in liver tissue to define OBI and rate of progression to cirrhosis (31). Three studies were identified and two of the studies showed increased rate of progression of fibrosis (20, 32) and one study showed no difference (33). Due to the conflicting evidence, the authors felt that there was limited data to assess whether OBI alters the natural course of fibrosis in CHC (31).

In a recent meta-analysis, the authors noted an increased risk for development of chronic liver disease (CLD) in those with CHC and OBI (OR=7.4, %95 CI =2.7-20.4) (34). Data at this time remains conflicting as to whether OBI does increase rate of progression to fibrosis in those with CHC and requires further investigation.

The risk of developing HCC in those with CHC and OBI has also been evaluated. Coppola et al. reviewed all published studies that used HBV DNA in the liver tissue to define OBI to assess for development of HCC (31). In total, there were six studies that met their inclusion criteria. Three studies showed that there was a higher rate of patients with HCC with OBI and CHC (32, 35, 36), and three studies showed no difference (37-39). Shi et al. performed a recent meta-analysis of 16 studies which met their inclusion criteria and found that OBI increased the risk for HCC in CHC patients (RR = 2.83, 95% CI = 1.56–4.10) (40).

Due to the uncertainty regarding the clinical implications of OBI and CHC and its role in progression of fibrosis and HCC, there are at this time no formal guidelines or strategy for

management of these patients. Further large prospective studies are warranted in this population to better understand the clinical implications.

OBI as a Carcinogenic Etiology

The carcinogenic potential of chronic hepatitis-B (CHB) infection is evident in the markedly increased rates of HCC in this patient population. There are two possible mechanisms by which CHB exerts in carcinogenic potential, both directly and in-directly. The direct mechanism is felt to be due to HBV DNA integration into the host genome to induce mutagenesis, proliferation, and alter differentiation (41, 42). Indirectly, the CHB has been shown to induce liver injury which provokes repeated cycles of apoptosis and regeneration, and promotes progression to cirrhosis (43-45).

In OBI, the hypothesized mechanism of carcinogenesis is similar to CHB. Several studies have shown that OBI can integrate into the host genome and induce mutagenesis (35, 36, 46-48). Also, OBI has been shown to maintain capacity to replicate and transcribe low levels of viral proteins (35, 49-53). Finally, there are studies showing persistent necroinflammation in the liver which promote progression to liver cirrhosis (54, 55). A combination of these three mechanisms is felt to be the cause of the OBI's carcinogenic potential.

There have been several clinical studies that have addressed the implication of OBI on non-hepatitis B or C (NBNC) related HCC. There have been variable results with several studies showing a positive, or absent correlation between OBI and NBNC development of HCC (56). A meta-analysis found an increased risk for HCC in NBNC populations (OR = 10.65, 95%CI = 5.94–19.08) (40). Further research still needs to be done to elucidate if there is a clear association in this patient population.

OBI in Immunosuppressed Patients

Reactivation of CHB is a serious complication of immunosuppressive treatment. There have been several studies to date that have assessed the efficacy of anti-viral therapy in prevention of reactivation (57-71). Reactivation can cause acute liver failure that could be life threatening (72). The risk of reactivation is higher in those with overt HBV infection (ie, HBsAg +), compared to those with OBI (73). Patients with onco-hematologic malignancies, those receiving hematopoietic stem cell or solid organ transplantation, and patients with autoimmune disorders are all at risk based on the degree of immunosuppression needed for treatment. Medications most commonly associated with HBV reactivation are fludarabine, anthracyclines,

high dose corticosteroids, and anti-CD20 monoclonal antibody rituximab or with monoclonal anti-CD52 antibody alemtuzumab (74-83). The use of tumor necrosis factor (TNF) inhibitors has also been reported to cause reactivation of CHB (84-88). To assess the risk of reactivation in OBI patients, Lee et al. conducted a meta-analysis and found reactivation in only 8 (1.7%) of 468 HBsAg-negative/anti-HBc positive patients with rheumatologic diseases treated with anti-TNF (86). For those with solid tumor malignancies on chemotherapy Paul et al. published a recent meta-analysis on the rate of reactivation of overt and OBI in solid tumor malignancies (73). In those patients with overt infection not on prophylaxis the risk ranged from 4% to 68 % (median, 25%) compared to OBI which was much lower (0.3% to 9%) (73).

In a review published by Sagnelli et al., the decision to initiate prophylaxis against reactivation in OBI patients should be based on (1) HBV serologic status (anti-HBc-positive or -negative), (2) the underlying diseases (onco-hematological diseases, hematopoietic stem cell transplantation or others), and (3) the type of immunosuppressive treatment (rituximab, high doses of corticosteroids, anthracyclines, or others) (29).

Management of patients with OBI who are receiving immunosuppression is difficult as there remains ambiguity in consensus guidelines from major international societies. In general, OBI patient with hematological malignancies, hematopoietic stem cell transplantation, liver transplantation from anti-HBc positive donors, and those who are being treated with anti-CD20 (rituximab) or high dose steroids are at highest risk for HBV reactivation and should receive anti-viral prophylactic treatment (19, 76, 89, 90). Based on major society guidelines, prophylaxis should be started prior to initiating immunosuppression and should be extended 6-12 months after cessation of immunosuppression. Lamivudine will only be sufficient in a finite and short-term course of immunosuppressive therapy. In those patients with elevated HBV DNA viral load and/or in those receiving prolonged immunosuppression, entecavir or tenofovir is preferred due to their higher potency and stronger barrier of resistance (91-94).

OBI and Chronic Liver Disease

The association between OBI with development of CLD has also been evaluated by several international groups. The frequency of OBI in patients with cryptogenic cirrhosis has ranged from 4.8% to 40% in previous studies, depending on the prevalence of HBV and the type of specimen examined (liver or serum) (86-88). In a recent meta-analysis published by Covoloa et al., they found that the overall risk for CLD in patients with OBI was markedly increased

(OR=8.9, %95 CI= 4.1-19.5). Sub-group analysis of OBI patients that were negative for HCV also had an increased risk of development of CLD as well (OR=14.4, % CI= 4.2-49.3) (34).

In a study conducted by Chemin et al., the authors found marked fluctuations in HBV DNA and transaminase levels when following OBI patients prospectively. The authors hypothesized that repeated episodes of hepatitis predict the development of cirrhosis or HCC, and serial monitoring of HBV DNA levels is necessary for monitoring disease activity and deciding on initiating anti-viral therapy (95). However, further prospective studies in this arena are needed as the role of OBI in accelerating the development of cirrhosis remains unclear. Also, if OBI does accelerate fibrosis, management strategies to prevent progression and suppress viral replication should be explored.

Future Clinical Research Direction

Further work is clearly needed in this arena as many questions remain unanswered. Our initial goal should be to accurately, with a high degree of sensitivity, and in a cost-effective manner be able to identify patients with OBI. HBV DNA PCR is a very sensitive test in its ability to detect even very low serum levels of virus, but not economic and affordable as a routine laboratory test in many countries. This test in addition to serologic markers should be available to clinicians at a low cost internationally so that patients at risk can be easily identified.

Once patients are diagnosed accurately, the goal then should be prevention of transmission. This involves educating care providers and family members that are in close contact with patients with OBI. Also, those needing vaccination should be identified and vaccinated as well as boosters for those with weakened immune systems or HD patients.

The role of OBI as a carcinogen should be further assessed. Larger long term studies are needed to further characterize the true oncogenic potential of OBI. Further assessment of OBI also as a risk factor for progression to cirrhosis also needs to be done. With the advent of new non-invasive technology to accurately stage fibrosis (i.e. hepatic elastography), future studies can closely evaluate the progression of fibrosis in those with OBI alone and those with CLD and OBI. Also, with the continuing rapid development of new immunosuppressive therapies for treatment of cancer and inflammatory conditions, the research community must stay vigilant to new reports of reactivation and investigate these fully.

Conclusion

OBI is a complicated process that has yet to be fully illuminated in its potential to be transmissible source, carcinogen, and accelerator of liver fibrosis. Data at this time remain conflicting in many aspects. More work is needed to clearly define OBI and its clinical consequences. Clinicians should be well aware of the risk of transmission and reactivation from OBI in this patient population. Management strategies for those with OBI depend on the individual patient and their risk for transmission, reactivation, or progression of liver disease. All patients on potent immunosuppression or biological treatment should be screened for active HBV infection or OBI and monitored or treated accordingly. Future work should be done to prevent transmission, vaccinate those not immune, recognize risk for reactivation, and investigate further the risk for HCC and CLD.

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Feasibility Study of College's Online Education in Online College of East China University of Science and Technology

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Abstract

Nowadays, with the further development of network technology and modern learning theories, Online Education has gradually become an indispensable part to human's education; more learners choose the internet to carry out their study. Since entering the information era, people's study and life style have encountered unprecedented challenges and opportunities. Thus, how to reasonably and effectively take the advantage of the network to improve modern education as become the focus gradually. Because Online Education possesses its own form, nature and behavior pattern; thus, it is meaningful and of great significance to design and develop the platform of network education. On the basis of previous studies about the construction of network college in China and abroad, the quality control of network education, etc., the author aims to study the development of network college in Shanghai, and take the famous Network College of East China University of Science and Technology as the case study. Through reviewing relative literature, interview and field questionnaire, the author aims to figure out the development of network college in Shanghai, students' learning motivation and attitude to online education, the advantage and disadvantage. Finally, improvement and suggestions will be put forward; thus, this study is of significance for Chinese colleges to further develop its network education.

Introduction

Online Education as a kind of education, which is different from the traditional classroom education, has been carried out in China for many years. It is proved that the Online Education is an important part to the current education system, and plays an important role to realize the popularization of higher education. In 1998, the State Council of China pointed out that the Education Department of China should implement "Distance Education Project" and "Network

Education". In 1999, Ministry of Education of China approved 4 universities that could carry out network education, including Tsinghua University, Hunan University, Zhejiang University and Beijing University of Posts and Telecommunications, which indicates the Online Education of China has got on track (Wang & Gao, 2007). So far, there are 69 Online Education colleges in China； by the end of 2009, 69 Online Education schools recruit students with a total of 4.98 million students with 1784 majors, covering the economics, management, education, literature and other 10 disciplines (Ying & Qian, 2009). The appearance of network college possess its inevitability as follows.

The informationization of education

"National Informatization Development Strategy 2006-2020" issued by the State Council pointed out that it is necessary to accelerate the scientific research of education informationization (Zhu, 2011). It emphasized on the promotion of the basic education, higher education and the degree of education informationization; what is more, this document aimed at the sustainable development of "Modern Distance Education" in rural areas, so as to realize the resources sharing of quality education and promote the balance of education in China. Therefore, it is imminent to establish and improve the quality of network platform of education and scientific research in order to improve the utilization of Online Education and scientific research based on this platform.

Research Purpose

The development of Online Education has accelerated the popularization a of higher education in China, especially to cities such as Shanghai with highly developed economy, which has greatly eased the shortage of the supply for higher education, and also provide some opportunities for adults to get further study. In 2009, China's Online Education enrolled 1.66 million undergraduates. It indicates that the development of Online Education in China has reached a certain scale. The author aims to find out if network college is mature in Shanghai market; what about the motivation for students to study in network college; and if this kind of education has been accepted by the society and companies.

Therefore, this research will take the network college of East China University of Science and Technology (one of the best university in Shanghai) as the case study, through literature study and questionnaire analysis, to research the feasibility of Online Education in Shanghai, as well as the problems and deficiency, and to figure out the solution to these problems.

Research Questions

Through the empirical research, the author tries to figure out the following questions;

- Whether Shanghai's network college is mature enough ?
- Whether students recognize Online Education with this new education model ?
- Compared to the traditional university education, what are the advantages and disadvantages of the network college ?
    - Compared to the traditional university education, whether students from Shanghai network university can successfully find the appropriate job ?

Literature Review

Construction of Online Education Abroad

Under the internet era, education has already breaks the concept of a country; most developed countries have carried out network education, and the trend of globalization of education is becoming more obvious. Europe, United States, Britain, Japan and other countries desire to take the advantage of internet to promote the overall development of national education, and aims to provide free learning resources, based on the expansion of its educational influence.

The Construction of Online Education Resources in the United States

In the aspect of non-academic education, American government attaches great importance to the construction of network education. Syracuse University constructs GEM (The Gateway to Education Material) which attracts government, schools, foundations and other resources through metadata record library, to provide a series of integration, including economic, political, education and other fields with one-stop network learning services.

For traditional education in 2011, MIT announced that in the next ten years, it would upload its courses to the internet, providing free learning resources to people who want to learn; that is Open Courseware (OCW). The project of OCW is currently the largest and most frequently mentioned open courses, which are free of charge to global users. The number of course increased from 500 in 2003 to 6200 in 2012. OCW released teaching resources on the internet; without any registration, visitors and users could carry out non-business teaching and study. The significance of this project is not limited to provide open educational resources, but also to introduce the concept of "resource sharing" to the public. It aims to provide free and to the public, to encourage the world's academic research continues to get the progress (Allen et al, 2013).

China's Network Education

At present, there is few empirical research about network college in China; Yang Qiang (2011) took Yangtze University as an example, who investigated network college students with their e-learning behavior; on the basis of this, e-learning behavior of them is analyzed in detail. Hou Fengzhi (2010) took "multimedia technology" as the basis, who took a specific online course to study the design of learning activities, and figured out that there are many factors influence the quality of online learning such as learning experience, motivation and attitude, etc.. He also proposed that it is significant for learners to establish a correct attitude towards learning, to improve their learning motivation. E-learning aims to organize, monitor, guide learners with their studies.

Xiao Aiping et. al (2009) studied the situation of network college based on literature review and field investigation, found out a series of factors that may influence learners with their behavior online. They also analyzed learners with their basic information, such as gender, education background, environment, etc., to further study the study behavior online. Huang Hailin (2011) based on the study of internet environment and e-learning behavior, constructed a model of network education. Her research adopted some technologies and learning theories to assess learners, including their learning status, degree of development, etc.. Then, he found problems produced in their learning process; thus, her finding could better serve and monitor their learning behavior on the internet.

In conclusion, although some researchers have studied the psychological factors of network college, such as individual characteristics, learning styles, motivation and behavior; however, there are few systematic and empirical studies on the internal driving force, psychological mechanism and behavior characteristics of network learners that would be a new direction for future research.

This research will analyze one of the most famous network college in China-Network College of East China University of Science and Technology, to analyze the development of Online Education in Shanghai, learners with their attitude and motivation. In addition, the author will make the comparison between network college and traditional college, explore the employment situation, etc.

Methodology

Literature Analysis

Theoretical research depends on literature as the reference. In this study, the author collected information from articles, magazines, books, journals related to Online Education and online course sharing, to lay the theoretical framework for this research.

Questionnaire

The author will produce a questionnaire, which will contain open and closed questions. The interviewees of this questionnaire are students from East China University of Science and Technology. Open questions aim to collect qualitative data; and closed questions aim to collect quantitative data for the further data analysis. These questions are " Do you think Online Education of East China University of Science and Technology is reliable ?", " If students from Online Education of East China University of Science and Technology can get an appropriate job after graduation ?". 500 sets of questionnaire will be released to campus of East China University of Science and Technology, then these questionnaires will be recovered. The author will calculate the rate of the recovery and the rate of validity. These data will be processed through SPSS 22.0 that will help the author to get the finding of this questionnaire.

Findings

Based on the previous analysis of the relevant literature, the author produced the questionnaire, aiming to students at Network College of East China University of Science and Technology, and divided the network college into 6 aspects, including interest in learning, career progress, life changing, social service, external expectations and social relation In China, scholars generally believe that the most common learning motivation includes learning interest, career progress, life change, social service, external expectations and social relations. According to the previous research results in China, the author designed 24 questions in the questionnaire, aiming to reflect learners' motivation to network college. More than that, the questionnaire adopted scoring with 4,3,2,1.

According to the requirements of the research methodology, the author firstly conducted the "reliability test" to 100 students from Network College of East China University of Science and Technology, and calculated that the R=0.82. Therefore, the test results reached author's intention. Moreover, he made the corresponding amendments based on the "reliability test".

The author released the questionnaire on December 12th, 2016 with 500 copies of questionnaire and received 500 copies of questionnaire with the recovery rate of 100%. Through

the review of every copy of questionnaire, the author got 442 copies of effective questionnaire with the effective rate of 88.3 %. Data entry and processing mainly adopted Excel and SPSS 22.0.

In the field of network college, there exists huge difference in learning content. Age, gender, education background, marital status, occupation, income, ethnicity and some other personal characteristics determine their motivation to network education. In this research, the author selected students from Network College of East China University of Science and Technology with different fields, thus possessing a certain representativeness. In order to accurately reflect the characteristics of participants in this research, the author divided these students into 4 groups, including <25, 26-30, 31-39, 40<. More than that, the author divided participants into male group and female ones. According to the education background, the author divided them into with undergraduate degree and without ones. According to the marital status, he divided 500 participants into married group and unmarried group. According to their income, the author produced 4 groups, including 3000-3999, 4000-4999, 5000-5999 and above 6000. In addition, the author also divided participants into urban group and rural ones; according to their occupation, he divided this group into civil servants, enterprise employees, teachers and freelance.

From the table 4.1, it can be found that 85.6% of participants are below 40, therefore, most network learners are young people. Among these participants, male learners accounts 61.2% that is more than female learners. Among these participants, 59.1% of them has got the undergraduate degree that a little higher than the other group. This phenomenon indicates enterprises improve their standard to employees. 61.4% of them are unmarried that is obvious higher than married ones. This results show besides work pressure, married learners need also consider burden of their families. 91.8% of their income within 6000 Yuan that is in line with income situation in Shanghai. Urban students account 70.3% that more than rural ones that indicates urban learners show stronger learning motivation compared to rural learners. The last but not the least, enterprise employees and teachers account most of the proportion.

Table 4-1 Sample overview

Basic statistics	Variable	Number	Proportion %
Age	<25	88	20.1
	26-30	175	39.7
	31-39	114	25.8
	40<	65	14.4

Gender	Male	271	61.2
	Female	171	38.8
Education background	Without undergraduate degree	181	40.9
	Undergraduate degree	261	59.1
Marital status	Unmarried	271	61.4
	Married	171	38.6
Monthly income	3000-3999	127	28.8
	4000-4999	147	33.2
	5000-5999	132	29.8
	6000<	36	8.2
Urban or rural	Urban	311	70.3
	Rural	131	29.7
Occupation	Civil servants,	80	18.2
	Enterprise employees	108	24.3
	Teachers	130	29.3
	Freelance	36	8.4
	Others	88	19.8

Discussion

Motivation to Network Education

The research of learners' motivation to Online Education is crucial to the entire research. The previous research indicates that Online Education is not only limited to the basic condition of the individual but also constrained by personality and external environment. Among them, individuals rink in the first place. The personality mainly refers to the two aspects, including learning style and self-efficacy. The external environment mainly refers to network environment and support from teachers.

External Environment and Motivation

Network Environment

Respectively 39.8, 31.9%, 37.6%, 37.8 and 3.7% of participants thought the network transmission, the network platform, the network library, online courseware and online forum could efficiently improve the network education. Respectively 51.2%, 48.9%, 47.3%, 50.1% and 52.2% of participants thought Online Education could achieve great effect, better effect, poor effect, extremely poor effect. It can be obviously found out that students are satisfied with the current network education.

Table 5-1 The influence of network facilities on learning effect %

Item	Network transmission	Network platform	Network library	Online courseware	Online forum
Great effect	39.8	31.9	37.6	37.8	38.7
Better effect	51.2	48.9	47.3	50.1	52.2
Poor effect	8.5	10.2	9.8	9.2	8.6
Extremely poor effect	0.5	9.0	5.3	2.9	0.5

Respectively 26.7%, 25.8%, 28.9% and 23.4% of participants thought case library, test database, virtual software library, online communication and other software resources could significantly improve their network education. Respectively 30.1%, 32.6%, 35.8% and 39.7% participants thought the effect of Online Education was great while 40.8%, 41.3%, 33.1% and 31.8% of them thought it was poor. In addition, respectively 2.4%, 0.3%, 2.2% and 5.1% of them thought Online Education was extremely poor. These information indicates that network students are not satisfied with the current source and software of network education.

Table 5-2 The influence of network source on learning effect %

Item	Case library	Test database	Virtual software	Online communication
Great effect	26.7	25.8	28.9	23.4
Better effect	30.1	32.6	35.8	39.7
Poor effect	40.8	41.3	33.1	31.8
Extremely poor effect	2.4	0.3	2.2	5.1

Support from Teachers

Participants thought the communication between teachers and students, the care from teachers are poor in the Online Education construction with respectively 56.4% and 50.1%.

Table 5-3 Deficiencies in the process of Online Education %

Item	Face to face guidance	Interaction with other students	Communication with teachers	Care from teachers
Proportion	30.9	39.5	56.4	50.1

More than that, 21.8% and 5.9% thought teachers are hardly or never guide students.

Table 5-4 The guidance from network teachers

Item	Never	Hardly	Often	Extremely often
Proportion	5.9	21.8	55.4	11.9

Personality and Motivation

Learning Style

Talking about the learning style and adaptability to network education, Chinese scholars have conducted huge research on cognitive bias currently. They mainly study on the relationship between cognitive style and learning activities, as well as the differences in the learning activities based on different preferences. Because independent learners have strong organizational ability and cognitive flexibility, thus are prominent in learning interest and career progress. Others are strongly dependent on others and are good at communicating with others; they are more obvious in social relations and external expectations.

Table 5-5 The influence of cognitive style on learning motivation %

Motivation	Interest in learning	Career progress	Life changing	Social service	External expectations	Social relation
Independent	92	93	80	78	81	79
Dependent	80	81	85	80	92	95

Sensory modality preferences reflect learners with their different sensory modality preferences when they receive the outside information. Sensory modality preferences can be divided into visual, auditory and kinesthetic. Through the investigation, the author found that these 3 types did not influence learners with their learning motivation significantly. In comparison, visual students show great interest in social relation and external expectations. Auditory students show great interest in career progress and interest in learning while the kinesthetic group show great motivation in life changing and social services.

Table 5-6 The influence of sensory modality preferences on learning motivation %

Motivation	Interest in learning	Career progress	Life changing	Social service	External expectations	Social relation
Visual	85	85	87	80	93	95
Auditory	92	94	85	79	81	82
Kinesthetic	81	85	90	93	82	80

Self Efficacy

Students who process high self efficacy could affirm their ability and value, and think their personal ability is the key to their success. Therefore, these students always pay great efforts and could achieve the target. Their learning motivation reflects on interest in knowledge, social service and life changing. While students with low self efficacy always doubt their abilities and think the failure because of the difficulty. They show negative attitude in learning activities. Therefore, their motivation reflects on career progress, external expectation and social relation.

Table 5-7 The influence of self efficacy on learning motivation %

Motivation	Interest in learning	Career progress	Life changing	Social service	External expectations	Social relation
High	96	80	96	94	82	86
Low	44	88	86	47	90	92

Individual Condition and Motivation

Individual condition includes age, gender, education background, marital status, economic income, source, occupation category, social class, ethnic groups, etc.. In this research, the author found that the first 4 factors produce most influence on learners' learning motivation.

Age and Motivation

Learners below 25, their motivation of Online Education is to purse better education background and degree who put career progress in the first place. Learners with 26-39, their motivation career development and family maintenance. Learners above 40, their motivation of Online Education is to meet the requirement of their cognitive interest in learning and social services.

Table 5-8 The influence of age on learning motivation %

Motivation	Interest in learning	Career progress	Life changing	Social service	External expectations	Social relation
<25	65	95	89	61	86	45
26-30	68	89	85	45	92	42
31-39	86	78	88	80	95	35
>40	88	77	69	85	62	32

Gender and Motivation

Female learners show stronger motivation in life changing, social relation and interest in learning. More female learners would like to change their career and get more income through network education. More than that, they desire to construct strong social relation in the process of network education. They are not satisfied with household relation, and are eager to enlarge their social circle through study.

Table 5-9 The influence of age on learning motivation %

Motivation	Interest in learning	Career progress	Life changing	Social service	External expectations	Social relation
Male	75	85	89	90	92	70
Female	90	76	93	65	60	92

Education Background and Motivation

Learners wit poor education background desire to improve their education background through Online Education that is benefit to their career progress, external expectation and life changing. Learners with better education background show stronger motivation on interest in learning, social service and social relation.

Table 5-10 The influence of education background on learning motivation %

Motivation	Interest in learning	Career progress	Life changing	Social service	External expectations	Social relation
Without undergraduate degree	65	92	91	72	91	80
Undergraduate degree	90	62	80	91	75	90

Marital Status and Motivation

Unmarried learners always put their career in the first place. At the same time, their life is dull that is easily to produce loneliness. Their motivation of Online Education aims to get more social activities. While married learners participate in Online Education mainly because of their external expectation.

Table 5-11 The influence of marital status on learning motivation %

Motivation	Interest in learning	Career progress	Life changing	Social service	External expectations	Social relation
Unmarried	50	95	80	48	82	30
Married	65	94	92	62	96	39

Conclusion

Diversity of Learning Motivation

Network learners come from the various walks of life while their education backgrounds are totally different. In addition, they possess different world view. All the above factors will directly lead to the diversity of network education. Some of them participate in Online Education out of social services, relation and external expectation. Some of them choose to participate in Online Education because of interest in learning, career progress, life changing, etc.. In a word, their motivations to Online Education are totally different.

Students of "interest in learning" aim to enlarge their existing knowledge who show great interest in a certain field. Students of "career progress" and "life changing" try to get the diploma to get the promotion and get the respect from others. Students of "social service" try to take the advantage of Online Education to improve themselves and make more contribution to the society. Students of "external expectation" try to improve themselves to better cater for the requirement from others. Students of "social relation" try to enlarge their social circle through the participation of network education.

The Improvement of Resource Integration

Online Education does not put enough emphasis on the importance of autonomous learning, mainly reflecting the investment of facilities and the integration of software and resources. Currently, network colleges pay enough attention to the network hardware construction, network transmission and network platform while network courseware, digital library and other network resources have begun to take shape. On the other hand, the case library, test library, virtual software and other resources lack the planning and integration.

The Interaction between Teachers and Students

Support from teachers are essential in the progress of network education. Through the interview and questionnaire, the author found that teachers are hardly communicate with network students face to face, and do not care students with their emotion and attitude in learning. More than that, teachers do not pay enough attention to the guidance online that significantly reduce students' motivation and passion in network learning.

The Change of Learning Motivation

The marketization of economy and the diversification of society will inevitably influence learners with their learning motivations. These motivations are changing under certain circumstances. For example, the power of the diploma is weakening. In China, the diploma is strong related to the honor, position, title, income, etc.. However, more enterprises pay more attention to personal knowledge and ability instead of the diploma. Meanwhile, a lot of network students thought knowledge and skills are more important than the diploma itself.

In conclusion, Shanghai's network college is not mature enough, reflecting on integration of facilities and platforms and the interaction with teachers. More students would like to choose Online Education after the graduation to get the undergraduate diploma or graduate one; others choose Online Education to improve their knowledge and enlarge their social circles. Therefore, students have recognized Online Education with this new education model in Shanghai. Compared to traditional school, network college possesses several advantage such as more feasible and more convenient, meanwhile it also reveals some disadvantage such as poor interaction between students and teachers, poor integration of learning resources, etc.. The diploma produced by network college is of great help for students to find a better job or get promotion; however, enterprises gradually put more emphasis on individuals with their capabilities and skills in a certain field.

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基于基层岗位需求的高职高专
临床医学专业人才培养体系的探索

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【摘要】高职高专临床医学专业是应国情、地区医疗卫生事业发展需要而设置的人才培养途径,其任务是培养具备临床医学的基本理论和医疗预防等基本技能，能在基层医疗卫生单位从事医疗、预防及保健等工作的应用型技能型人才。随着我国医疗卫生服务模式的转变，基层医生作为社区卫生服务和初级卫生保健的中坚力量，在提供医疗、康复、预防、保健服务的基础上，将最大限度地满足公众追求健康生活的需求。青海卫生职业技术学院作为青海省唯一一所卫生类高职高专院校，根据青海基层医疗卫生岗位人才需求和办学实际，依托卫生职教集团，不断深化专业人才培养模式改革。通过优化课程体系，改进教学方法等途径，以信息技术助推课程评价考核模式，大力建设校内外实训基地，提升人才社会服务能力，积极推进专业与行业发展的一体化进程。

【关键词】 基层　高职高专 临床医学 人才培养体系

一、学院及临床医学专业概况

（一）学院概况

青海卫生职业技术学院是青海省唯一一所卫生类高职院校，学院始建于 1948 年，时称省立高级护士职业学校，1960 年改名为“青海省卫生学校”。1993 年经省教委评估，被定为“省部级重点中专学校”。2001 年被教育部评为“国家级重点中等职业学校”。2003 年经教育部专家组评估，在青海省卫生学校的基础上升格为“青海卫生职业技术学院”，属于专科层次的普通高等院校。2012 年学院被省教育厅评为“省级重点高职院校”建设单位。

学院现有非直属附属医院 5 所，84 个校外教学医院。共有临床医学类、护理类、药学类、医学技术类、卫生管理类五大类、共十七个专业，其中护理专业、临床医学专业、口腔医学专业、医学检验技术专业、卫生检验与检疫技术专业和药学专业被确定为青海省重点专业。学院是“青海省乡村医生培训中心”、“青海省社区全科医生培训中心”、“青海省护理实践技能培训基地”、“青海省临床技能培训基地”和“青海省急救技能培训基地”等挂牌单位。学院在近 70 年的办学实践中，为青海医疗卫生战线培养了近 3 万名优秀的卫生人才。毕业生遍布青海山川、祖国大地，甚至异国友邦，涌现出了一批颇有影响的卫生类高级人才，如第 43 届南丁格尔奖章、“五一劳动奖章”、“优秀医务工作者”、“黄炎培职业教育杰出教师”等国家级荣誉称号。学院近五年毕业生当年平均就业率 98%，在省内高职院校中名列前茅。

（二）临床医学专业概况

临床医学专业的历史沿革同步于学院的发展，其前身为省卫生学校的医士专业，1987 年设置医疗专业，2003 年更名为临床医学专业。2005 年，经教育部批准，正式设置了专科层次的临床医学专业，2012 年临床医学专业被定为省级重点建设专业。2012 年成为全国首批“卓越医生”教育培养计划试点高校，成功申报了“3+2”三年制专科临床医学教育人才培养模式改革项目。临床医学系自 2006 年成立以来，认真贯彻“以服务为宗旨，以就业为导向”的办学指导思想，紧紧抓住国家加强农村三级卫生服务网络建设和推行农村新型医疗合作制度的新形势，推进临床医学专业人才培养模式的建设进程，制定了为社会主义新农村培养“下得去、用得上、留得住、干得好”的人才培养目标。据统计，在青海省县、乡两级医院医生业务骨干中，我院临床医学专业毕业生占 80%以上，支撑着青海卫生事业的“半壁江山”，承担着为青海基层广大农牧区群众的健康保驾护航的重任。

二、高职高专临床医学专业建设背景

（一）设立专科层次临床医学专业是我国卫生事业发展的需要

中国自西部大开发战略实施以来，西部地区的基础设施建设和生态环境整治取得重要进展，城市卫生事业有了很大发展，医疗卫生条件明显改善，服务规模不断扩大，人民健康水平不断提高。但是，在我国卫生事业发展中，卫生人才资源过分向城市大医院集中，社区尤其是偏远农牧区优秀卫生人才资源不足、服务能力不强，不能完全满足基层群众基本卫生服务需求。城市社区及农村基层卫生服务是建设小康社会的重要组成部分，是实现人人享有初级卫生保健的基本途径，也是促进社会公平、维护社会稳定、构建和谐社会的重要内容。大力发展社区及农村基层卫生服务，构建以社区卫生服务为基础，预防保健机构和医疗服务机构分工合理、协作密切的新型卫生服务体系，对于落实预防为主、防治结合的卫生方针有着非同寻常的意义。特别是在优化卫生服务结构，方便群众就医，减轻医疗费用负担，建立和谐医患关系等方面的作用不可小觑。

近年来，我国对县级医院、乡镇卫生院和社区卫生服务中心基础设施的投入力度史无前例。中央累计安排资金 400 亿元，支持 1877 所县级医院、5169 所中心乡镇卫生院、2382 所城市社区卫生服务中心和 1.1 万所边远地区村卫生室建设，财政部还安排 130 多亿元用于县、乡、村三级医疗卫生机构的设备购置。针对基层医生不足这一制约基层医疗服务质量的瓶颈，培养一批“下得去、留得住”的本土型健康“守门人”是解决基层群众“看病难”的有力举措。设立专科层次临床医学专业有利于全面提高社区、农村医疗卫生队伍的整体素质，有利于实现人人享有卫生保健的全球卫生战略目标。

（二）设立临床医学专业是建设富裕、文明、和谐新青海的需要

青海省地处青藏高原，作为联系大西北和大西南的重要通道，是全国除西藏外最大的藏族聚居区。青海省总面积为 72 万平方公里，平均海拔 3500 米以上，全省人口 562 万，是一个“面积大省、人口小省、资源富省、经济穷省”。“十三五”期间是青海省全面贯彻落实科学发展观，调整经济结构，转变发展方式的重要时期，也是青海省落实国务院有关文件精神，加强生态保护、改善民生、发展经济和维护稳定的关键期。但青海省城乡发展不均衡，广大农牧区一直是全面建设小康社会的薄弱环节，“看病难”仍是导致群众生

活健康水平低下的重要制约因素，而农牧区医疗卫生人才的缺乏是导致这一现象的根源。青海卫生事业的发展急需一大批掌握最新科技知识与技能、具有创新能力的现代卫生行业工作者。但面对地处高原、寒冷缺氧，留住人才囿于气候恶劣、经济欠发达的省情，迫切需要培养一大批专科层次的“下得去、留得住、用的上、干的好”的技能型卫生人才，迫切需要加大对现有基层医疗卫生人才实用技能培训。加强卫生技术人才培养，提高乡（镇）、村卫生技术人员的学历及实用技能，建立健全医疗卫生服务体系的工作迫在眉睫。根据省卫计委规划“实用型”、“本土型”卫生专业技术人才的培养要求，从青海基层医疗卫生事业实际需求出发，主动适应卫生岗位人才市场需求，培养高职高专临床医学专业学生是符合地区医药卫生事业发展需要的。

三、基层医疗卫生现状及人才需求调研

（一）医疗卫生现状调研

根据国务院提出的现代职业教育要以“提高质量、促进就业和服务发展为导向”的精神，按照现代职业教育内涵建设 “三对接”（即专业设置与产业需求对接、课程内容与职业标准对接、教学过程与生产过程对接）的要求，为了满足基层医疗卫生机构人才需求，切实提高临床医学专业毕业生的就业率和专业对口率，临床医学系组织教师深入基层就我省基层医疗卫生现状及岗位人才需求状况开展调研工作。调研团队走访调研了县、乡（镇）、村等 40 多家医疗机构，通过专题会议，与医务人员座谈以及发放调查问卷等形式详细了解基层医疗现状及医疗岗位工作任务，广泛征求了用人单位对临床医学专业人才培养方案、课程设置、教学管理、实验实习和教学改革等意见和建议。

“十二五”时期，我省工业化、城镇化、人口老龄化进程进一步加速，由生态环境、生产方式和生活方式变化导致的食品药品安全、饮水安全、职业安全和环境卫生问题日益凸显。鼠疫、艾滋病、结核病、肝炎、碘缺乏病、包虫病等重大传染病、地方病等危险危害因素尚未消除。人感染高致病性禽流感、手足口病、流感等新发传染病防治技术、手段、经验不足，突发公共卫生事件应急能力越到基层越薄弱。城乡居民高血压、糖尿病、心脑血管疾病、呼吸系统疾病、精神疾患等慢性非传染性疾病患病率持续增高，成为影响人群健康的主要卫生问题。在社区、乡、镇卫生院，基层医生的工作任务已经从传统的疾病防控诊疗拓展到公共卫生事业管理，如居民健康档案的管理、常见病多发病及慢性病的防控。

（二）基层岗位对专业人才需求调研

青海省通过深化医药卫生体制改革，各级医疗卫生服务体系基本健全，覆盖城乡居民的基本医疗卫生制度已现雏形。随着国家对农村、社区等基层医疗机构的关注，国家“V8 项目”深入基层各乡镇卫生院，基层医疗单位硬件设施得到很大改善。乡（镇）卫生院均配备 X 线机、心电图机、超声诊断仪等仪器设备。然而，基层医疗卫生机构专业人员的业务水平参差不齐，相关医技科室人员缺口较大，尤以影像、超声、心电图等技术技能型人才匮乏。部分医院医学影像仪器处于半闲置状态，造成了医疗资源的浪费。县、乡（镇）级医院亟缺会仪器操作的临床医学专业复合型人才，来满足岗位“一专多能”工作任务实际的需求，解决单位因编制限制人员不足等矛盾。基于以上调研结果，学院主动适应人才市场需求，在现有临床医学专业的基础上调整培养方向，加快临床医学专业（医学影像、

心电图、超声诊断）复合型人才的培养。通过用人单位调研反馈，基层医生除了专业知识、技能的常规要求外，更需要过硬的人际沟通、团队合作、组织协调与创新能力等综合素质能力。为我省基层医疗卫生机构培养能书写、会协调、肯钻研、善沟通的“下得去、用得上、留得住、干得好”的高素质技能型卫生人才是学院义不容辞的责任。

四、高职高专临床医学专业人才培养体系的探索

（一）以卫生职教集团为抓手，加大校、院（企）合作

为了适应现代卫生职业教育发展需求，达到产教深度融合、中高职衔接，打造青海特色、国家水平的现代卫生职业教育体系，2014 年 5 月在省卫计委和教育厅的领导与支持下，由学院牵头，联合了 99 家省内外医疗卫生单位、药企及医学院校，按照平等、互利、自愿的原则组建了青海卫生职教集团。经过三年的建设发展，集团已经发展成为一个拥有 125 家理事单位的“资源共享、人才共育、风险共担”的卫生职教集团。集团成立以来，临床医学系以专业建设委员会为主要载体，围绕校、院（企）合作共赢的建设发展思路，结合学院及集团发展和工作实际，积极探索和实践临床医学专业人才模式改革。校、院（企）通过共同制定专业人才培养目标、共同制定人才培养方案、共同实施教学、共同教育管理、共同建设实训基地、共同解决学生就业问题等途径积极构建临床医学专业人次培养体系。

（二）探索临床医学专业复合型人才培养

基于省基层医疗卫生岗位人才需求调研，整合校内外师资力量、实训基地等现有教学资源，依托青海卫生职教集团优势，临床医学系修订完成临床医学专业（医学影像诊断）复合型人才培养方案。与传统的临床医学专业人才培养方案相比，复合型人才的知识面更宽、掌握的技能更多，毕业后就业面宽、就业的机会也将更多。毕业生不但能够从事“防、治、保、康、健教、计”六位一体的基层基本医疗卫生服务和公共卫生服务工作，还能够从事医学影像诊断工作，真正成为一专多能的技术技能型卫生人才。传统的临床医学专业人才培养方案中，X 线检查、心电图诊断、超声诊断和 CT 诊断等内容均包含在《诊断学》课程中，学时所限，学生只能简单了解各种检查的临床应用范围，不具备从事医学影像学诊断工作的能力。复合型人才培养方案（医学影像诊断）中，除了专业必修课程外，增设了《断层解剖学》、《心电诊断技术》、《医学影像诊断学》、《医学影像检查技术》、《超声诊断学》课程，使学生全面掌握检查仪器操作技能和临床诊断技能。毕业生可获得教育部颁发的临床医学专业专科毕业证书和学院医学影像诊断专业课程研修结业双证书，成为真正意义的一专多能的技术技能型卫生人才。扩大了就业面，提升了就业率。

借鉴医学影像诊断复合型人才培养模式改革取得的经验及成果，根据我省基层医疗卫生机构事业的发展需求，将进一步探索临床医学专业一专多能的“心电超声诊断”、“健康管理”、“营养与保健”、“眼视光”、“医学美容”等复合型人才培养方案。在今后的专业招生中，按照就业市场需求及时调整专业招生计划，培养更多实用型卫生人才。

（三）优化课程体系 改革教学模式

以专业建设为龙头，以优化课程体系为核心，运用信息技术手段积极改革教学方法和教学手段，不断将人文教育融于医学教育，努力建设优质教学实训基地，构筑确保培养目标与培养方案实现的平台。临床医学系教师团队对基层医师岗位工作任务进行分析，根据完成工作任务所需要的职业能力，优化整合课程结构和教学内容，突出职业能力培养。课程内容以职业岗位所需的知识、技能、态度方面的要求为主线，融入临床执业助理医师资格考试所涉及的知识和技能。

1.建立“任务驱动、项目导向”的全新课程体系

课程体系开发是通过分解基层医院医生岗位任务，明确其职业能力包括职业基本素质、职业岗位基础能力、职业岗位核心能力和职业拓展能力四大模块。职业岗位核心能力模块由基层医院医生和乡村医生必需完成的预防、治疗、保健、康复和常用技术“五大任务”组成，突出职业性、实践性和开放性。由此逐级开发出课程，制订出符合高端技能型卫生人才培养的课程体系，进而开发出为其服务的基础知识、专业技能和拓展知识模块，形成任务驱动、项目导向的全新课程教学体系。主要突出职业核心能力的培养，熟练掌握农村基层医生岗位要求的基本知识和适宜技术，达到高端技能型卫生人才培养的目标。

2.按“工学结合”的要求科学设计课程教学内容

在教学内容的选择和处理上，适当弱化专业的学术性和理论性，强化临床技术、技能和应用训练。基础理论知识以“必需”、“够用”为原则，以能满足职业发展和专业知识需要为标准，把真正属于基础性的内容精选出来，突出重点；专业知识结合用人单位（基层医院）的岗位特征，并与基层医院的技术需求紧密联系起来，把与专业有直接和间接关系的最新技术知识及时充实进去，把最必需的知识教给学生。针对临床医学专业培养目标要求，能独立处理农村常见病、多发病及地方病，对急危重症能正确地初步诊治及转诊。具有较强的动手能力，既会诊治疾病又会预防保健，并愿意在农村服务。所以课程的设置必须使学生毕业后能较好地适应农村卫生工作的要求；加强教学内容的针对性和实用性，注意课程间教学内容的联系与衔接，实现与未来职业岗位要求的无缝对接。合理组织与安排教学内容，使之融知识传授、能力培养、素质教育于一体。

3.采用“一条主线、两个真实、三位一体”的教学模式

以“学科为主”的本科教学模式已不能适应现代高职医学人才培养模式的需求，为此，临床医学专业采用了“一条主线、两个真实、三位一体”教学模式。即以临床实际工作过程为主线，通过模拟真实和临床真实，教、学、做融为一体。立足于培养具有宽泛的基础医学、实用的基础理论及熟练的基本技能，尤其是要掌握适应基层医疗岗位需要的临床常用诊疗技术，从而能够在基层各级综合型医疗卫生机构为全体人群提供“预防、保健、诊断、治疗、康复、健康管理”六位一体的卫生服务工作。

4.实践教学的改革

依托教学工作委员会改进和制定更加适合岗位需求的“早临床、多临床，反复临床”的临床医学专业临床实践能力全程培养体系，将临床实践能力培养贯穿人才培养全过程--实现学生早期接触临床、多接触临床、反复接触临床。达到全面培养学生的临床思维能

力、知识综合应用能力和基本技能。该体系以实验、实训、实习相结合，通用能力与专业能力相结合，校内外实训相结合”；“以培养岗位工作操作技能为核心，以岗位工作任务操作流程为实训项目，强化职业综合技能训练。一是增加实训课程比例：结合岗位能力及课程性质，修订专业人才培养方案，实验实训课程由原来的30.6% 增加到62.9%。二是建立了“2+2+44”实训模式，即第4学期，在内、外、妇、儿等主干临床课程教学后期，组织学生集中去医院临床见习2周，见习医院依据见习计划，由临床医师分组带教，做到理论与实践的紧密结合；实习生进入实习前，在校内实训基地进行为期2周的临床技能培训，取得临床基本技能合格证书后，才能进入医院实习，为学生顺利进入实习岗位打下基础；第四学期末，学生进入临床实习基地后，主管部门依据实习大纲安排学生实习，通过44周的顶岗实习，学生基本具备基层医疗卫生机构辖区人群常见病、多发病的初步诊疗技术和预防保健技能。三是采用多种实践实训方式：课堂实训、实训室实训、学生临床技能大赛、集中见习及毕业实习。四是临床技能考核参照国家执业助理医师实践技能考核标准，临床技能采用三站式考核：第一站:病史采集及病例分析；第二站:体格检查与基本技能操作；第三站:辅助检查实验室检查。

5.将岗位能力设计融入专业教学过程中

将岗位能力及国家执业助理医师资格的标准融入专业教学过程中，紧紧围绕完成工作任务及岗位的需要整合理论知识与实践项目。同时，充分考虑学生对理论知识的掌握和应用，融合获取相关职业资格证书对知识、技能的要求，实现工学结合、课证融合。使学生通过三年的学习与实践，在知识和职业技能上均达到基层医院医生和乡村医生岗位标准要求，毕业后经过一年以上的基层医院医生和乡村医生岗位工作，再参加国家执业助理医师资格考试，获取资格证书带证上岗。

（四）借助信息技术，积极推进评价及考核模式改革

随着世界潮流的课程改革尤其是在线教育的急速推进，教育信息化、教育现代化、课程与教学改革、课程资源库建设当下成为我国教育革新的热点话题。加速医学职业教育信息化建设，利用先进的互联网技术建设数字校园、智慧校园，推动医学职业教育现代化进程，已成为医学类职业院校的发展方向。课程考核作为高等职业教育教学活动中的重要环节，发挥着评价、引导、建设课程的重要作用。医学类高职教育的目的不仅在于传授专业教学内容,更在于培养学生运用知识、强化技能、培养能力、开发思维的功能。因此，教育者必须转变教育观念,明确培养目的,树立以“素质为核心、能力为基础”的现代教育理念。形成以能力为中心,将素质教育观念内化于教学过程的各个环节。

国内医学类院校通用的考试虽较以前有所改进，注重了学生实践技能的考查,引导学生理论实践并重。但偏重于学生的基本知识、基本理论、基本技能的检测，忽视了基层实际工作岗位胜任能力的评价。考试内容大多仍停留在识记、理解、分析的认识层面上，实践、应用、创新不多。这种考核模式导致学生思维狭窄,应用和创新能力不够,尤其是忽略了学生的个体差异性，这与创新人才培养的要求是不相适应的，束缚了学生创造性思维能力的培养。在医学发展日新月异的今天，为适应当代社会对医学人才需求，医学生更需要具备终身学习能力、应变能力和创新能力，来更好的胜任今后的岗位需求[2，3]穆亚梅徐杰。

青海卫生职业技术学院是国内为数不多的开办临床医学专业的卫生类高职高专院校，医学专业课程的学习对其核心能力的培养及获得执业准入资格起到重要的架构作用，重点培养作为医生所需的素质、基本技能、临床思维和交流技巧，为学生今后全面开展基层医疗服务及持续发展奠定良好基础。学校自2015年起，基于第三方评价机构-麦可思大数据研究分析，结合职业岗位需求和医学未来的发展趋势，按照“创新和规范相协调，虚拟和实操融合、知识和能力并重”的目标，借助数字化信息技术改革课程考核模式。新考核模式实现集试题、3D资源、flash动画、虚拟仿真等综合一体的网络教学考核体系，借助虚拟仿真、训练考核系统平台，形成可供学生、临床医师学习、培训及考核为一体的综合实训基地。在信息技术支撑下，变教师单方考核于个人、团队、教师多重考核；变结果考核于过程考核；变知识考核于综合能力考核，变现场考核于非现场多样化考核。这种综合表现形式评价能较准确评价学生在真实情景下的问题解决能力、批判性思维能力、交流与合作能力等重要素质，非常适合医学教育测量与考试的特殊要求。

（五）大力开展校内外实训基地建设

在临床技能综合实训基地的基础上，建设资源共享、院校合作的临床实训教学基地；把临床医学专业实训基地建成集实践教学、医疗服务、职业培训为一体的校内外多功能临床技能综合实训基地，成为我省医学继续教育中心。临床医学专业校内实训基地建设与职场环境对接，院校合作共建，有医院专家参与，接近医院实际工作环境，模拟仿真，结合专业特点，以培养职业能力为中心，兼顾职业素质训导和职业资格证书的获取。及时引入行业新标准、新技术、按需更新设备，共同设计与开发实训项目，共同开展面向行业、社会培训与技能考核，实现基地服务功能的拓展，成为集教学、培训、鉴定于一体的综合性实训基地。根据高职高专实验室建设发展规划，依据专业培养目标要求和临床实践教学需要，组建了临床技能综合实训基地，共有十个实训室:外科综合、穿刺技能、妇儿技能、模拟诊查、中医综合技能、检体技能、心电超声技能、急救技能、康复保健技能、心理综合实训室。实训基地拥有较为先进的AIS高级生命支持模拟人、开放式辅助教学系统、智能化医学模拟系统、临床仿真模拟实训设备，每门课程的实训项目都有技能操作训练指导书，学生通过仿真电子病人模拟教学系统等硬件设施，在“高仿真”实训室中进行临床常用诊疗操作技能训练，有效提高了学生临床操作技能水平，缩短了与临床的距离。临床技能综合实训基地基本满足临床课程常规技能操作实训课、实习前培训、学生临床技能比赛和职业培训等需求。

（六）全面提升社会服务能力

临床医学专业教学团队充分利用实训基地，为完善终生教育体系服务，发挥为行业岗位培训、职业资格与技术能力等级的认证培训以及各种技能大赛的职能，积极推行更加开放、灵活、多样的教学形式，结合卫计委大力发展健康服务业的要求，为行业在职人员技能的更新培训，为社区居民的健康素养提供咨询服务，为失业人员、转岗人员从事健康服务业培训，满足社会对健康服务的多样化需求。临床医学系承担了全省乡镇卫生院临床基本技能、青海省妇幼健康服务年活动技能、中医类别全科医生转岗培训、青海省基层医务人员心电图基本知识与技能、急救技能、中医适宜技术、超声诊断基本技能、妇女保健与计划生育技术指导、全科医学基本知识等培训任务。通过培训，提高了社会影响力和认可度，取得了良好的社会效益和声誉。

五、体会与展望

临床医学专业依托“青海省重点高等职业院校建设项目”的支持，专业建设取得了突破性的发展。但是，面对高等职业教育改革的快速发展和我国卫生体制改革的不断深入，临床医学专业仍存在着院校合作机制不够深化，师资队伍建设及实习基地的质量监控与管理有待于进一步完善等问题。下一步，我们将鼓足干劲、不断进取，为将临床医学专业建设成为西北先进、省内一流的优势专业努力奋斗。

(一)加快实施“卓越医师”人才培养计划，提升基层实用人才培训层次

遵循高职高专医学教育规律，加强学院与基层医疗卫生机构的合作机制，以“服务需求，提高质量”为主线，医教协同，深化改革，强化标准，加强建设，全面实施国家卓越医生培养计划，提高临床医学人才培养质量，构建“3+2”（3 年临床医学专科教育+2 年助理全科医生培训）临床医学人才培养体系，建立 2-3 家卓越医生培养规范化培训基地，合理安排学生到较规范的社区卫生服务中心和乡镇卫生院进行见习、实习或实践，提升卓越医生的基本医疗卫生服务和基本公共卫生服务能力。同时面向我省各乡镇卫生院和村卫生室，开展助理全科医生培训，提升基层实用人才教育培训层次，为我省基层卫生计生事业发展和提高人民健康水平提供坚实的人才保障。

（二）深化专业内涵建设，提高专业人才培养质量

坚持“以服务发展为目标，促进就业为导向”，总结专业建设取得的经验及成果，深入开展与专业人才培养定位相适应的课程体系与教学内容的改革。根据我省基层卫生事业发展对卫生技术人才的实际需求，进一步探索高职院校临床医学专业“心电超声诊断方向”、“健康管理方向”、“营养与保健方向”、“全科医学方向”等复合型人才培养方案，不断地为我省基层医疗单位培养具有一专多能的技术技能型卫生人才，提高毕业生的就业率和专业对口率，使高职院校临床医学专业充满生机和活力。

（三）完善网络教学平台，全面实现优质教学资源共享

在不断完善省级精品课程《临床诊断基本技能》和《外科学》网络教学平台的基础上，积极开发《内科学》、《妇产科学与妇女保健》、《儿童保健与疾病诊疗》等专业核心课程的优质教学资源，逐步建立健全临床医学专业核心课程优质资源库，丰富学院网络教学平台，推进学生在线学习和在线考试等多途径学习方式，达到优质教学资源共享的目的。

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Research on Hierarchical Ordering of Schematic Knowledge Based on Relational-representational Complexity Model

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Abstract: It was revealed that schematic knowledge relating to word problems was organized hierarchically. In fact, the essence of hierarchy has been interpreted by the integration of representational complexity and knowledge base. Evidence was provided in the area-of-rectangle problems schema. The paper further showed the effectiveness of the explanation when it comes to more complex problems. Using the empirical study method, we have assessed schematic knowledge relating to Pythagorean theorem problems by asking 106 eighth grade students to judge the conditions on the calculation and classify problems in terms of whether the text of each problem provided insufficient, sufficient, or irrelevant information for the solution. The results suggest that schematic knowledge relating to Pythagorean theorem problems involved with the latter four templates was hierarchically organized and the hierarchical ordering could be explained from depth of representation and knowledge base. Moreover, depth of representation is not only reflected in the number of represented hierarchical relations as stated in the previous study, but is also correlated with complexity inside a relational representation and reasoning level required in a relational representation.

Key words: mathematics, problem-solving, hierarchical ordering of schematic knowledge, relational-representational complexity

Introduction

Research on hierarchical ordering of schematic knowledge relating to mathematical problems mainly focuses on world problems. It mainly concludes that schematic knowledge relating to word problems is organized in an ascending hierarchical order according to schema generalization [1~3]. Ziqiang Xin concluded that the cause or essence of hierarchical ordering of schematic knowledge is based on the "relational-representational complexity model," which states that the more complicated the representation of the problem relation is, the higher the level of schematic knowledge will be[4]. This relational-representational complexity model proposes a feasible way to measure complexity of representation. Based on relational complexity of

problems, relational representation quality of subjects is measured by using relational complexity of problems from depth and width of representation. Depth of representation refers to the highest comprehension hierarchy of the relation, while width of representation refers to quantity of set relations that can be represented in the same hierarchy[5]. Ziqiang Xin studied hierarchical ordering of schematic knowledge relating to area-of-rectangle problems based on the relational-representational complexity model and found that essence of hierarchical ordering or difficulty degrees of template (schematic knowledge relating to problems)[4] could be interpreted by complexity of desired representation and knowledge base[1]. This verifies the theoretical explanation of the relational-representational complexity model and provides a new idea for hierarchical organization of schematic knowledge relating to problems. It has to be pointed out that all of these studies only focus on world problems of primary arithmetic and develop a new explanation model involving complexity of representation and knowledge base. However, whether the new model can explain hierarchical ordering of schematic knowledge relating with other problems (e.g. problems with higher complicated relations and higher requirements on knowledge basis) has to be further discussed. This is of important significance to test the explanation of the model and enrich studies on schematic knowledge relating to mathematical problems. In this paper, the Pythagorean Theorem problem was divided into six templates of depth of representation and knowledge base. The highest depth of representation reached 4 hierarchies and number of knowledge bases was 2 up to the most. These templates involved different types, including theorem and property. Schematic knowledge relating to problems on the templates was evaluated by two forms of technologies. On this basis, the hierarchical difference among different templates divided by the model was tested and the explanation capacity of the model was disclosed.

Research method

2.1 Subjects

A total of 106 students from two natural classes of the eighth grade in a middle school in Nanjing were selected as subjects.

2.2 Research materials

Research materials in this paper belong to the 6 templates of the Pythagorean Theorem problem. The highest number of hierarchies in the represented relation and number of knowledge

base varied in different templates. Six templates are shown in Fig.1, where number of knowledge base is used as the x-coordinate and the highest number of hierarchies in the represented relation is used as the y-axis. The first template (0,1) involves other knowledge bases unrelated to the Pythagorean Theorem which can be solved by representing one hierarchical relation. For example, "Lengths of two right-angle sides of a right triangle are known. Please calculate the hypotenuse." The third template (1, 2) involves knowledge related to one formula or theorem which can be solved by representing two hierarchical relations. For instance, "Given the area of one square, please calculate the diagonal length?" Similarly, the other templates can be inferred and each template contains 3~4 problems.

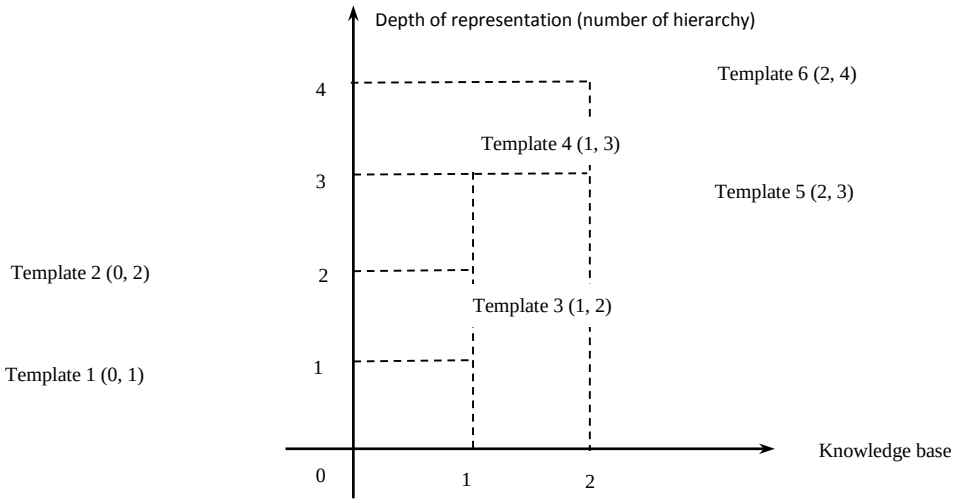

Fig.1 Structure of templates

2.3 Test form and procedures

Two schematic assessment modes were adopted in this paper. One is "conditional judgment" which asks subjects to calculate the desired variable under given conditions. It is used to investigate subjects' conditional knowledge relating to the Pythagorean Theorem. The other assessment is the "text editing" which involves three types of problems: information missing, information insufficient and information sufficient. Subjects are asked to distinguish different types of problems, further point out conditions for information missing or sufficient, and solve problems under sufficient information.

(1) "Conditional judgment": This requires subjects to make a judgment ("solvable" or "unsolvable") on problems. This test involves 11 problems which belong to 6 templates. Template 6 is one problem[1]; the other five templates each involve two problems. According to

judgment, one of the problems on the first three templates could be calculated, but the other one could not. The problems of the other three templates could be solved. All problems were in a random order. The judgment accuracy is used as the index. If accurate, the respondent gets one score; otherwise, 0. The score of one subject on one template is the mean score of all problems on the template.

(2) "Text editing": All problems have three options in the test paper: information sufficient, information insufficient and irrelevant information. Subjects are asked to choose one and then give specific answers accordingly. For problems with insufficient information, subjects shall choose the corresponding option and then supplement other essential conditions to solve the problem. For problems with irrelevant information, subjects shall underline the corresponding option. For problems with sufficient information, subjects have to solve the problem. This test covers 10 problems which belong to 6 templates. Two problems from template 2 are problems with sufficient information and insufficient information, respectively. Two problems from template 3 and two problems of template 6 are all problems with sufficient information. The other templates have one problem with sufficient information, respectively. All problems are in a random order and subjects can earn points for correct operations of both steps. If the subject chooses the right option, but makes a mistake in the operational steps, it is deemed that the subject has no schematic knowledge to solve the problem and can't earn points. However, subjects can get points for choosing the correct option for problems with sufficient information even though they get the wrong calculation results. In a word, subjects get 1 point for each problem for correct operations of both steps and a zero for any operation error. The score of one subject on one template is the mean score of all problems on the template.

Tests were carried out in two classes simultaneously at the end of the second semester. We and another teacher (familiar with test procedure, but don't know the specific test goal) from the middle school were monitors. Two tests were carried out successively. The "conditional judgment" test was administered first; it took 25 minutes. To avoid interference of the two tests, the monitors collected test papers. Subsequently, the "text editing" test was administered. Monitors passed out paper examples to the subjects and explain the answering requirements in advance. It took 50 minutes, excluding the explanation time.

Results and data analysis

3.1 Hierarchical ordering of schematic knowledge relating with problems in "conditional judgment" test

An analysis of variance on scores was conducted. It found that $F(5,486)=28.233$ and $p=0.000$ and there's significant difference among different templates. According to homogeneity test of variance, the significance probability was $p<0.05$, indicating the non-homogeneity of variance. Therefore, a multiple comparison was carried out using Tamhane method. Results are listed in Table 1.

Table 1 Multiple comparison of test scores of different templates

Type	Type	Mean difference	SD	*p*	Estimation in the 95% confidence interval	
					Lower limit	Upper limit
Template 1	Template 2	0.0732	0.03488	0.437	–0.0306	0.1770
	Template 3	0.1280*	0.03621	0.008	0.0202	0.2359
	Template 4	0.3171**	0.03900	0.000	0.2008	0.4333
	Template 5	0.2866**	0.04383	0.000	0.1557	0.4175
	Template 6	0.5183**	0.05814	0.000	0.3440	0.6926
Template 2	Template 3	0.0549	0.04128	0.954	–0.0678	0.1776
	Template 4	0.2439**	0.04375	0.000	0.1138	0.3740
	Template 5	0.2134**	0.04810	0.000	0.0703	0.3566
	Template 6	0.4451**	0.06143	0.000	0.2617	0.6286
Template 3	Template 4	0.1890**	0.04482	0.001	0.0558	0.3222
	Template 5	0.1585*	0.04908	0.023	0.0125	0.3045
	Template 6	0.3902**	0.06220	0.000	0.2046	0.5759
Template 4	Template 5	–0.0305	0.05117	1.000	–0.1826	0.1216
	Template 6	0.2012*	0.06386	0.030	0.0109	0.3916
Template 5	Template 6	0.2317**	0.06692	0.010	0.0325	0.4309

Table 1 reveals that there's no strict hierarchical ordering among the six templates. No significant differences between template 1 and 2, between template 2 and 3, template 4 and 5 were observed. The results were analyzed by combining specific problems.

Template 2 has one additional hierarchy based on the direct representation of Pythagorean relation in Template 1. It is necessary to represent the first-level relation between the rectangle diagonal and width firstly and then represent the Pythagorean relation among length, width and diagonal. According to comparison results, adding one hierarchy didn't form difference of schematic knowledge. It was speculated relating to prior schematic knowledge of subjects. Most

subjects had schematic knowledge to solve the problems in Template 1 and Template 2. The additional hierarchy in Template 2 is still in the schematic knowledge of subjects, thus failing to reflect hierarchical difference of schematic knowledge. Similarly, the small difference between Template 2 and 3 could be explained. They have the same hierarchies of represented relations. Compared to Template 2, Template 3 has one formula of perimeter or area which was mastered by most subjects. Therefore, there was no difference between schematic knowledge relating to the problems.

A comparison analysis of Template 4 and 5 revealed that the two problems in Template 4 had the same highest number of hierarchies in represented relations, but the relational-representational complexity in the same hierarchy is different. In Fig. 2, with respect to representation of the second-level relation in two problems, the left problem is the direct substitution of BD length based on the first-level relation, while the right problem has to cover the first-level relation thoroughly and combine with "*c–b=b–a*" in the condition. Relational representation has different requirements, resulting in different depths of representation for solving the problem. For problems on Template 6 (Fig.3), the upper and lower side lengths of the trapezoid *ABCD* are 11 and 25 and the lengths of the other two sides are 13 and 15. Is it possible to calculate the height of the trapezoid?

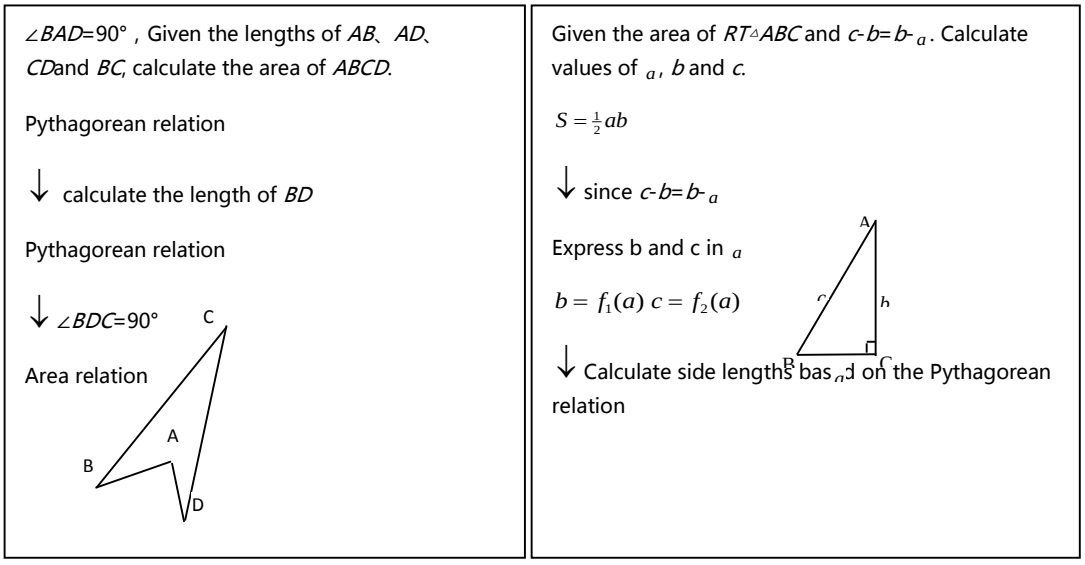

Fig.2 Problem (8) and problem (7) of Template 4

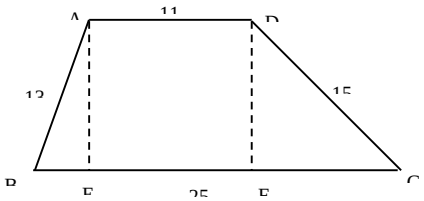

Fig.3 Problems of Template 6

To solve this problem, subjects have to represent two equal first-level Pythagorean relations (make assisting lines *AE* and *DF* perpendicular to *BC*. *E* and *F* are feet of a perpendicular, Fig.3) firstly, getting two equations involving four known variables: $AE^2+BE^2=AB^2$ and $DF^2+CF^2=DC^2$. On this basis, the second-level relation is represented, manifested by the recognition that *AE* is equal to *DF*. These two equations are converted into one equation involving two unknown variables (*BE* and *CF*): $AB^2–BE^2=DC^2–CF^2$. Next, the third-level relation is represented based on the understanding of the second-level relation: $BE+CF=BC–AD,$ which is manifested by the combination of one equation *BE* and *CF* in the second-level relation and another equation *BE* and *CF* in the third-level relation. Therefore, the length of *BE* (*CF*) can be calculated. Finally, the Pythagorean relation among *AB*, *BE* and *AE* is represented, which is conducive to calculate *AE*. The superior relation of this problem can't be used to inferior relations directly or obviously. Moreover, representation of inferior relations involves more than one superior relation.

Therefore, it is believed that representation difficulty of hierarchical relations varies. Depth of representation shall be combined with representation difficulty of each hierarchical relation except when measured by the number of hierarchies in the represented relation. The reasoning level among different relations shall be highlighted, that is, representational requirements for use of superior relations in inferior ones. With respect to two problems in the same hierarchy of representation relation, depth of representation might be different due to different reasoning requirements. Based on above analysis, it is necessary to compare two problems of Template 4 with those of Template 3 by *t*-test on the mean of two normal populations. Comparison results are shown in Table 2 and Table 3.

Table 2 Mean test between Template 3 and problem (8) of Template 4

	F	*Sig.*	*t*	*df*	*p*
Hypothesis of equal variance	1.726	0.191	–1.811	162.000	0.072
Hypothesis of unequal variance			–1.811	156.351	0.072

Table 3 Mean test between Template 3 and problem (7) of Template 4

	F	*Sig.*	*t*	*df*	*p*
Hypothesis of equal variance	99.512	0.000	7.442	162.000	0.000
Hypothesis of unequal variance			7.442	128.510	0.000

Table 2 and Table 3 revealed that there's no difference between Template 3 and problem (8) of Template 4 (p=0.072), but there's a significant difference in terms of problem (7) (p<0.001). This reflects different depths of representation on two problems of Template 4.

To explore the role of knowledge base, depth of representation must be kept similar between two comparison templates. Except for consistence on number of hierarchies in represented relations, representation difficulty of different hierarchical relations was considered in this paper. It found that reasoning requirements for relations in Template 2 and Template 3 are similar. In Template 5, relations between any two sides of the right triangle have to be represented firstly and then used to the Pythagorean relation. These are close to problem (8) of Template 4 and similar with Template 3. Since schematic knowledge of Template 3 is similar with that of problem (8) of Template 4 and both involve one knowledge base, Template 5 is compared with the combination of Template 3 and problem (8) of Template 4 to promise similarity of depth of representation between comparison templates as much as possible. Results are tested by *t*-test on the mean of two normal populations (Table 4).

Table 4 Mean-test results

between the combination of Template 3 and problem (8) of Template 4 and Template 5

	F	*Sig.*	*t*	*df*	*p*
Hypothesis of equal variance	23.011	0.000	–4.088	162.000	0.000
Hypothesis of unequal variance			–4.088	137.046	0.000

In Table 4, there's significant difference among different templates (p=0.000). It concludes that there's no difference of knowledge base between Template 2 and Template 3, but there's difference between Template 4 and Template 5..

3.2 Hierarchical ordering of schematic knowledge in the "text editing" test

A one-way analysis of variance on scores which subjects gained from 6 templates was conducted. It found that $F(5,546)=98.864$ and $p<0.001$and there's significant difference among different templates. According to homogeneity test of variance, the significance probability was $p<0.05$, indicating the non-homogeneity of variance. Therefore, a multiple comparison was carried out using Tamhane method. Results are listed in Table 5.

It can be seen from Table 5 that there's no significant hierarchical significance of represented relations between Template 1 and Template 2 as well as between Template 3 and Template 4, but there's significant difference between Template 5 and Template 6. Based on analysis of specific problems, two problems of Template 3 have different depths of representation, which is attributed to different representation difficulties of the same-level relations.

Problem (4) of Template 3 asks subjects to represent the first-level relation of area and calculate two sides and bring them into the second-level Pythagorean relation to calculate the hypotenuse. Problem (7) on Template 3 is: Given side lengths of the triangle *ABC*. *AD* is height on *BC* and D is foot of a perpendicular. Please calculate *BD*. To solve this problem, two equal Pythagorean relations ($AB^2=AD^2+BD^2$ and $AC^2=AD^2+CD^2$) have to be represented firstly. Secondly, the second-level relation has to be represented based on understanding of the first-level relation. Specifically, two equations in the first-level relation are converted into one equation with two unknown variables (*BD* and *CD*): $AB^2–BD^2= AC^2–CD^2$. Thirdly, it is combined with the second-level relation $BD+CD=BC$, thus calculating BC and CD. The problem is solved.

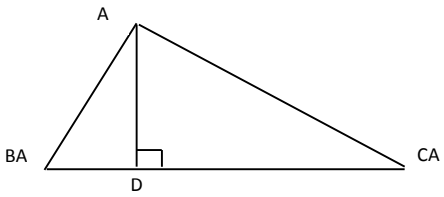

Fig. 4 Problem (7) of Template 3

The analysis revealed that the representation of reasoning from superior relation to inferior relation in the problem (7) is more complicated than that of problem (4), thus resulting in different depths of representation although number of hierarchies is same

Table 5 Multiple comparison on scores of different templates

Type	Type	Mean difference	SD	*p*	Estimation in the 95% confidence interval	
					Lower limit	Upper limit
Template 1	Template 2	0.0924	0.03480	0.127	–0.0116	0.1964
	Template 3	0.2935**	0.03730	0.000	0.1819	0.4051
	Template 4	0.2011**	0.04490	0.000	0.0666	0.3356
	Template 5	0.5924**	0.05257	0.000	0.4347	0.7500
	Template 6	0.9239**	0.02087	0.000	0.8619	0.9859
Template 2	Template 3	0.2011**	0.04806	0.001	0.0585	0.3437
	Template 4	0.1087	0.05417	0.510	–0.0522	0.2696
	Template 5	0.5000**	0.06068	0.000	0.3196	0.6804
	Template 6	0.8315**	0.03679	0.000	0.7219	0.9412
Template 3	Template 4	–0.0924	0.05581	0.793	–0.2580	0.0733
	Template 5	0.2989**	0.06215	0.000	0.1142	0.4836
	Template 6	0.6304**	0.03917	0.000	0.5136	0.7472
Template 4	Template 5	0.3913**	0.06699	0.000	0.1925	0.5901
	Template 6	0.7228**	0.04646	0.000	0.5840	0.8617
Template 5	Template 6	0.3315**	0.05391	0.000	0.1702	0.4928

Reasoning levels of problems on other templates are generally similar. Problems of Template 3 and Template 4 are compared and evaluated by t-test on the mean of two normal populations (Table 6 and Table 7). Results indicate that the problem (4) of Template 3 has no significant difference with problems of Template 4 (p=0.584), but there's significant difference between problem (7) of Template 3 and problems of Template 4 (p=0.002).

Table 6 Mean-test results between problem (4) of Template 3 and Template 4

	F	*Sig.*	*t*	*df*	*p*
Hypothesis of equal variance	1.211	0.273	0.549	182.000	0.584
Hypothesis of unequal variance			0.549	181.330	0.584

Table 7 Mean-test results between problem (7) of Template 3 and Template 4

	F	*Sig.*	*t*	*df*	*p*
Hypothesis of equal variance	35.556	0.000	–3.216	182.000	0.002
Hypothesis of unequal variance			–3.216	176.176	0.002

Therefore, Template 1, Template 2 and problem (4) of Template 3 has no difference with Template 4 in terms of depth of representation, but there's significant difference between problem (7) of Template 3 and Template 4 as well as between Template 5 and Template 6.

To explore the role of knowledge base, reasoning levels of represented relations are generally similar between any two comparison templates. With respect to specific problems, the reasoning levels between Template 2 and problem (4) of Template 3 are similar (mean test of two normal populations) (p=0.146) (Table 8), but the reasoning levels between Template 4 and Template 5 differ significantly ($p < 0.001$) according to Table 5.

Table 8 Mean-test results between Template 2 and problem (4) of Template 3

	F	*Sig.*	*t*	*df*	*p*
Hypothesis of equal variance	8.824	0.003	1.459	182.000	0.146
Hypothesis of unequal variance			1.459	173.802	0.146

Discussions

4.1 Depth of representation

Both tests reveal that between problems with few hierarchies of represented relations and low requirements on relation reasoning, adding one hierarchy of relation won't cause difference of schematic knowledge. According to data, there's no difference of schematic knowledge between Template 1 and Template 2, between Template 3 and problem (8) of Template 4 in the

conditional judgment test as well as between problem (7) of Template 3 and Template 4. For problems with complicated representational relations, depth of representation is one explanation index of hierarchical order of schematic knowledge. Specifically, there's significant difference between Template 5 and Template 6, between Template 3 and problem (4) of Template 4 in the conditional judgment test as well as between problem (4) of Template 3 and Template 4 in the text editing test.

According to previous analysis on represented relations which are needed to solve problems, although Template 2 has one additional hierarchy of relation compared to Template 1, these two templates have similar level of represented relations. This is because problems have low requirements on reasoning capacity of subjects and most subjects can represent two-level relations easily. Similarly, there's no hierarchical ordering difference between problems with low reasoning level between Template 3 and Template 4. Therefore, it can conclude that adding level of represented relations is not always increase schematic knowledge of problems. This is related with existing schematic knowledge of subjects. Within the existing schematic knowledge of subjects, different depths of representation won't reflect schematic knowledge difference of problems.

It has to point out that depth of representation is not only measured by the highest hierarchies of represented relations, but also is related with reasoning level of represented relations. Problems in the same hierarchy of represented relations might need different schematic knowledge. In fact, hierarchical representation of relations in mathematical problems can be understood as layering reasoning, so depth of representation can be viewed determined by the number of reasoning steps and reasoning requirements of hierarchical relations together. Therefore, problems in the same hierarchy of represented relations might have different depths of representation due to different reasoning levels.

4.2 Knowledge base

According to results of two tests, similar conclusions that knowledge base can explain hierarchical ordering of problems have been reported. Problems which have more requirements on knowledge bases (involving more knowledge points) are more difficult and have higher hierarchical ordering. However, knowledge bases have conditions and are not knowledge that most subjects have mastered. In this paper, adding knowledge bases which subjects have mastered, such as formulas of perimeter and area, didn't cause changes of hierarchical ordering

of problems, but the template added with formula of perimeter in the problem of "area of rectangle" has higher level. This is because subjects in this study are pupils. The involvement of formula of perimeter in the problem reflects different requirements on knowledge base.

Conclusions

(1)Problems relating with Pythagorean Theorem are organized hierarchically, which can be explained by depth of representation and knowledge base. The explanation capabilities of these two factors are related with existing knowledge level of solvers.

(2) Depth of representation is not only depicted by the highest number of hierarchies in the represented relations, but also is related with representation difficulty of relations in each hierarchy. It highlights the reasoning levels for relational representation.

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康复治疗技术专业人才培养模式的创新与实践

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【摘要】目的 探索医学高职高专院校康复治疗技术专业人才培养模式新路子,为青海本地区乃至全社会培养专业的康复医学人才。方法 实施工学结合“1+2”人才培养模式，通过床边教学和顶岗实习，加强人才实践培养以提高人才培养质量，开展高等医学职业教育人才培养模式改革实践。结论 强化学生职业技能的培养，符和高等医学职业教育的人才培养目标，是一条行之有效的人才培养途径，从而开辟了青海康复医学人才培养的先河。

【关键词】医学高职高专院校；康复治疗技术；人才培养模式

青海卫生职业技术学院于2010年正式获国家教育部批准，在青海省首次设立康复治疗技术学专业(3年制专科)，以培养康复医学人才。康复治疗技术专业是一个技术性、实践性、操作性很强的专业，要求学生不但掌握牢固的医学基础理论和专业理论知识，更重要的是要有娴熟的康复治疗技能并能够在岗位实践中熟练应用，从而最大限度地达到服务对象康复的目的。康复治疗技术专业是一门新兴学科，不同于医科院校的其他专业。为此，对本专业进行教学模式改革，创新并实施工学结合“1+2”人才培养模式，加大实践教学课时，实施实践教学模式——“床边教学”，让学生熟练掌握各项技能，为其就业打下坚实的基础。

一、创新人才培养模式，改革人才培养方案

本专业人才的培养打破了传统的“2+1”人才培养模式，实施新型的工学结合“1+2”人才培养模式（以下简称“1+2”模式）。即本专业学制3年，第一学年在校内进行医学基础课程和公共课程的学习，期间“同步实训”，第二、第三学年在省康复医院及其他康复医疗机构进行专业学习和实习（其中,第二学年实施“床边教学”，第三学年进行“顶岗实习”）。这种新型培养模式将学习与临床工作经历有机结合，使学生既能获得知识和技能，又能经历职业资格培训。此模式充分体现了“工学结合、院校合作”的职业教育理念，符合职业教育“学历教育+职业教育+创业教育”的基本特征[1]，…有助于学生提高专业知识学习效果，强化职业技能。具体改革如下：

1．建立院校合作平台，实施床边教学模式

如何充分利用各种资源强化实践课教学？结合专业特点，真正使教、学、做合一，让学生从“教、学、做”的过程中掌握知识，提升技能，增强岗位对接能力，提高综合素质，这是职业院校人才培养模式改革的重中之重。为此，我院即时进行改革，和青海省康复医院签署了合作协议书，由我院投资在院内建成多媒体学习室，从而建立了实践教学基地，即床边教学基地。将理论教学与实践技能训练紧密结合，使“教、学、做”一体化，

做到“在实践中教、在实践中学，在实践中锻炼”，从实际意义上实现了校院一体，学生与职业岗位的‘无缝对接’。

2．创新课程体系，整合教学内容

以能力本位为核心构建课程体系，将课程体系模块化，由公共基础课程、医学基础课程、专业基础课程和专业课程、拓展模块等四大模块，并结合专业岗位的能力素质要求整合教学内容；打破传统模式的教学时段，取消第二学年寒暑假，完全按医院的工作流程，将专业基础理论和专业基本技能学习安排在第二学年完成。充分实现专业岗位能力的培养，突出实践性教学的特点。

3．建立顶岗实习基地，增强就业竞争能力

为了强化学生职业技能，在床边教学基础上，建立了包括青海省康复医院在内的6所顶岗实习基地（青海省中医院、青海省红十字医院、青海省儿童医院、青海省人民医院、青海大学附属医院）。选择各基地优势科室轮转顶岗实习，譬如在省儿童医院重点学习小儿脑瘫的康复技能，在省中医重点学习传统康复技能，在青海省红十字医院学习骨伤患者的康复技能等。

学生从事既合作医院实际临床工作，合作医院对学生按正式员工要求和管理。执行校内学习与医院专业岗位学习有机结合的教学计划，使学生与专业岗位零距离接触，实现在就业时就能胜任岗位工作的最终目的。一年的顶岗实习更为学生向就业用人单位全面展示个人能力提供平台，提高学生就业竞争能力。

4．优秀带教老师授课，保证人才培养质量

教师的能力和素质是学生学习效果的有力保障。为保证课程质量，专业理论课均由主治医师以上职称的临床医师/技师担任，技术技能由经验丰富的临床一线医师和技师指导并训练。选择师资方面，以师德高尚、责任心强，具有广博的理论知识和娴熟技术技能为要求，有效保证学生接受专业的专业理论和技能知识。

5.精心筹建专业课程建设委员会，逐步完善人才培养方案

聘请各医院康复科专家及相关领导，定期举办专业建设委员会会议，讨论商定各项事宜，促进人才培养模式的进一步完善，建设合理的课程体系并筛选教学内容，建立一支相对稳定的高素质师资队伍，制定科学的学生管理机制。

二、工学结合“1+2”人才培养模式的实施与体会

医学高等职业教育是“培养下得去、用得上、留得住的高端技能型卫生人才”[3]。对康复治疗技术专业人才，客观上提出了更高的要求，不但要求他们拥有牢固的医学基础知识和专业基础知识，还要求掌握娴熟的康复治疗技术，对实际工作具有较强的胜任力，成为医德高尚、技术精湛、基础知识扎实的全面发展的人才。

“1+2”模式加强了学生的操作能力的培养，完全遵循医院的工作规律，实现了与临床工作的零距离对接，使学生只要就业就能上岗 。

1．实现院校合作，达到双赢目的。“1+2”模式建立在院校合作的基础之上，双方通过资源共享、优势互补达到双赢目的。学校充分利用医院的技术、设备等各种资源建立实训基地，为工学结合提供实践操作平台。学生通过在实习单位的床边教学和顶岗实训，其职业能力得到提升，提高了学院整体办学水平；另一方面，医院在学生实训过程中降低了人力成本，在一定程度上缓解了技术力量的不足。在人才培养过程中，医院将工作岗位要求贯穿于学生实践训练中，培养了高职教育要求的高端技能型卫生人才。

2．提高了学生自主学习的能力和实践操作能力。高职卫生技术人才实践操作能力是人才培养目标的重要组成部分。“1+2”模式中，学生经过床边教学，了解了从业岗位对专业知识和技能的要求，有效的激发自身理论学习和实践操作训练的兴趣；再经过一年的顶岗实训，强化了职业技能，岗位操作水平明显提高，基本上达到了临床工作的要求。

3．深化教学改革，促进人才培养方案的完善。“1+2”模式通过床边教学和顶岗实训环节，有效鉴定了专业人才培养方案中各部分的合理性。通过学生和专业教师在实训过程中对康复工作过程的深入了解，掌握专业培养方案与人才要求的对接程度，根据实际工作要求制订教学计划、实施教学。同时，合作单位参与教学、实训和教学管理的全过程。实习结束后，技术考核由合作医院负责，理论考核由学院负责。经过专业课程建设委员会各委员间的沟通、商讨，不断完善专业人才培养方案，使其符合岗位要求，以实现人才培养与市场需求的无缝对接。

4．为学生就业提供良好的平台。床边教学和顶岗实习的教学模式把学生的学习和工作紧密结合在一起，学生通过职业岗位锻炼可直接了解岗位要求、个人发展方向及待遇等情况，为学生提供了更直接、全面、详实的就业资料和就业机会[3]。学生毕业后即可直接上岗，因此深受广大用人单位的欢迎，首届毕业生就业率达100%。

5．培养学生良好的职业素养。在“1+2”模式的床边教学和顶岗实习中，学生真实扮演职业人角色，在实际工作环境中体会责任心、职业道德，从而具备了较高的职业素质。通过真实工作感受和实训岗位指导老师的针对性分析，学生提高了对职业道德的认同感，有效的培养了自身的职业素养。

6、加大院校合作力度，完善保障机制。学生在实践中的工作是由医院和学校共同监管。一方面，床边教学、顶岗实习是对所学知识和技能的融合与检验过程，可使学生及早发现自己知识结构和能力水平与工作岗位要求的差距，增强就业危机感和学习自主性；另一方面，医院、学校共同参与人才培养的全过程，有利于院校真正融合，充分了解市场对人才的要求，明确人才培养方案，及时调整培养目标和培养模式。

“1+2”模式所采取的方式方法、院校合作的深度在实践操作中遇到许多困难和问题。因此，深化与床边教学基地的合作，并积极开拓与相关康复机构或企业的合作，探索新型途径在实践操作中的保障机制，有利于它的可持续发展。

综上所述，我校康复治疗技术专业通过实施“院校合作、床边教学、顶岗实习”为特征的工学结合“1+2”人才培养模式的实践，达到了人才培养方案与人才需求对接、技能

训练与工作要求对接、培养目标与用人标准对接，在卫生职业教育改革方面取得了较好的成效，为青海康复医学人才的培养开创了先河。

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A Comparison of Compulsory Education Policies between China and India

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Abstract: China and India are two of the Four Great Ancient civilizations and the most populous developing countries in the world. In terms of the popularization of compulsory education, the governments of China and India have made great efforts and issued a series of educational regulations and policies. China has issued "Compulsory Education Law of the People's Republic of China", "Education law of the PRC" and established compulsory education management system and issued such policies as guarantee mechanisms of the compulsory education funds, equal educational opportunities for all children and compensation for the vulnerable groups. India has introduced "National Education Policies", "The Right of Children to Free and Compulsory Education Act", "The Right of Children to Free and Compulsory Education(amendment) Bill", "Sarva Shiksha Abhiyan (SSA), "Mid-Day Meal Scheme(MDMS)", "Shiksha Karmi Project (SKP)", "National Programme for Education of Girls at Elementary Level (NPEGEL)", "District Primary Education Plan (DPEP). All these regulations and policies have made a series of achievements while bringing a series of problems to the educational development. The experience of India popularizing compulsory education has brought inspiration to the further development of the compulsory education of China.

Key words: China, India, compulsory education policies, comparison

China and India are two of the Four Great Ancient Civilizations and both are "the BRICS" and the most populous developing countries in the world. The two countries have similarities in many aspects, such as the time of foundation, administrative division and education development. Education fairness and the balanced development of primary education are the common pursuit of the two countries in education development. To this end, the two governments have made great efforts in popularizing and improving the quality of compulsory education and made corresponding reform in the development policies and systems of compulsory education. This paper mainly makes comparison of the successful experience of the compulsory education policies and systems of the two countries in order to learn from each other and promote the basic education of the two countries and even the overall development of the education cause.

1. Policies of China and India in popularizing compulsory education

The popularization of compulsory education is the foundation of improving the basic national qualities and the starting point of boosting education fairness and social equity, the major responsibility and obligation of the state and the government, also the common responsibility and obligation of the whole society.

1.1 Policies of China in popularizing the compulsory education

1.1.1 Relevant laws and regulations in popularizing compulsory education

On December 3, 1980, the CCCPC(Central Committee of the Communist Party of China) and the State Council issued "Decision on Some Issues Concerning Popularizing Primary Education", and presented that "in the 1980s, the historical task of popularizing primary education in the whole country should be basically achieved. The areas with proper conditions can also popularize junior high school education."

In 1985, "Decision of the CCCPC on the Reform of the Educational System" clearly put forward "implementing nine-year compulsory education and that elementary education should be assumed by local authorities and administered at different levels", which is the first time of proposing the generalization of nine-year compulsory education.

In 1986, "Compulsory Education Law of the PRC" was promulgated, which, for the first time in the form of law, established the basic requirements of popularizing compulsory education in our country and made the popularization of compulsory education in China legalized.

In 1995, the NPC (National People's Congress) passed "the Education Law of the PRC", which defined the rights, obligations and sources of funds of compulsory education, marking the formation of the compulsory education law system in our country.

In 2006, the NPC amended the "Compulsory Education Law of the PRC", clarified the characteristics of compulsory education such as the authority, equality, compulsoriness, free, publicity, etc., included the balanced development of compulsory education in it and endowed it clear legal basis.

1.1.2 Main policies of popularizing compulsory education

(1) The management system of compulsory education

In May 1985, the CCCPC promulgated "Decision on the Reform of the Educational System", implementing the basic education management system of being"assumed by local authorities and administered at different levels".

In 2001, the State Council issued "Decision on Reform and Development of Basic Education" and made major adjustments of the administration system of compulsory education in rural areas, explicitly stipulated that "under the leadership of the State Council, local authorities shall assume responsibility for compulsory education, and it shall be administered at different levels, county-centered" (hereinafter referred to as "county-centered").

In April 2002, the General Office of the State Council printed and distributed "Notification of Perfecting the Management System of Rural Compulsory Education", put forward specific measures of perfecting the management mechanism, guarantee mechanism and supervision mechanism of rural compulsory education, prompting the transfer from "rural education by farmers" to "rural education by the government".

(2) The funds guarantee policy of compulsory education

In 1985, “Decision of the CCCPC on the Reform of the Educational System” stipulated the source of the funds for rural basic education, namely, “the fiscal revenue of the township should be mainly used for education”, and allowed local governments to levy extra charges of education funds.

In 1986, “Details of Implementing Compulsory Education Law” stipulated “legally levying extra charges of educations funds... for the building, rebuilding and expansion of the schools used for implementing compulsory education, raised by the townships and villages in the rural areas, and the people’s governments at the county level should provide allowances for needy townships and villages.

In 1993, the CCCPC and the State Council issued “An Outline of Education Reform and Development of China” put forward that the popularization of nine-year compulsory education should be generally realized by the end of the 20th century, requiring that the educational appropriation of governments of all levels should follow the principle of “three growths”, and that “the fiscal revenue of the townships (towns) should be mainly used to develop education.”

In order to ensure the achievement of the goals of “popularizing nine-year compulsory education”, the central government increased the investment in compulsory education, especially the poverty-stricken areas. From 1995 to 2000, the State Education Commission and the Ministry of Finance organized and implemented the first “Project of Compulsory Education in Underdeveloped Regions (CEUR)”. The central government invested special funds of 3.9 billion yuan, and the local governments invested matching funds of 8.7 billion yuan, a total of 12.6 billion yuan for the popularization of compulsory education in poor areas.

In 2001, while reforming rural taxes and fees, the central government decided to establish a “county-centered” compulsory education investment and management system.

In September 2003, the State Council issued “Decision on Further Strengthening Education in Rural Areas”, establishing the guarantee system of compulsory education funds in rural areas; and the central, provincial and local (municipal) governments should enhance the ability of guaranteeing the compulsory education funds of poor counties by increasing transfer payments; as for the key counties included in the national plan for poverty alleviation through development and financially-limited counties, provincial and prefectural(municipal) governments should complement the public funds gap; governments at the county level should increase the investment in compulsory education, and fully include the compulsory education funds of the rural areas into the budget, and appropriate public funds according to the standards formulated by the provincial government, and the basic standards of public funds should be gradually increased according to the needs of the development of rural compulsory education and the fiscal capacity.

On December 24, 2005, the State Council issued “Notification of Deepening the Reform of the Guarantee System for Rural Compulsory Education Funds”, in accordance with the basic principles of “defining the responsibilities of all levels, being shared by the central and local governments, increasing financial investment, improving the guarantee level and organizing and implementing it step by step”, gradually including rural compulsory education fully into the

scope of public financial guarantee, establishing the guarantee mechanism of rural compulsory education of the central and local governments making proportional contribution by items.The central government focuses on supporting the Midwest and appropriately consider some poor counties and districts of the eastern part.

(3) Policy of the teaching staff in rural schools and weak schools. The central government has implemented a series of national plans and projects promoting the balanced allocation of teachers, such as special post plan for school teachers of rural compulsory education stage, distance training plan for western rural teachers, free normal students plan, national training plan for primary and secondary school teachers, etc. These plans are implemented to solve the teacher shortage problem of the rural schools of the Midwest and outlying and poverty-stricken areas, improve the structure of rural teachers' team, improve the professional quality of the teachers in rural schools and weak schools and attract highly-educated talents to teach in rural compulsory education schools.

(4) Implement a series of compulsory education projects and plans to narrow the gap of educational conditions. The Chinese government has successively implemented dangerous house renovation project in rural elementary and middle schools, modern distance education project of rural elementary and middle schools, boarding school construction project in western rural areas, new health campus construction projects of new socialist countryside, the weak schools renovation plan of rural compulsory education and other key projects and plans to improve the running conditions of compulsory education schools, plan, vigorously improve the basic conditions for running schools in poor areas to narrow the gaps of running conditions between schools, regions, cities and countryside and promote the standardized construction of compulsory education schools.

(5) The policy of guaranteeing equality of educational opportunity for all children

It is mainly reflected in: first, the test-free enrollment to the nearest school will be gradually adopted for entering junior middle school from primary school. Second, since the fall semester of 2008, tuition and fees of the students in public schools of compulsory education stage have been all exempted across the country. Third, timely adjust the school layout and implement the construction of boarding schools, to a certain extent solving the problem of the students travelling afar from remote mountainous areas or areas with inconvenient traffic to go to schools. Fourth, the "balanced development of compulsory education" has become the policy guidance of the basic education development in our country. Fifth, policies of key schools and key classes have been suspended, and the optional demand of the public has been guided to shift from "choosing key schools to "choosing characteristic schools".

(6) Compensation policy for the disadvantaged groups

According to the different situations of the vulnerable children, the Chinese government has introduced a large number of policies to protect the vulnerable children's right to be educated. They mainly include special supportive policy for poor areas, the policy of "two exemptions and one supplement", "scholarship project" for the disabled children, school policy, the policy of learning in regular classes, "two first" (the government management of the inflow areas come

first and full-time public primary and secondary schools come first to legally guarantee the rights of the children of the floating population to accept compulsory education) policy, the scholarship policy for female children, and the leftover children care and service system participated by the governments and social power. A relatively comprehensive relief policy system has been formed

1.2 Policies of India in popularizing the compulsory education

India's school education universally adopts "10 + 2 + 3" mode. 10 years of education (including primary school, upper primary school and junior high school), 2 years of high school and three years of undergraduate education. Indian elementary education mainly includes five years of Primary Education and 3 years of Upper Primary Education, [1] Primary schools include 1-5 grades, primarily for school-age children aging 6 to 11; upper primary schools cover 6-8 grades, mainly for 11 to 14 year-olds. In terms of the age span of school-age children, it basically corresponds to Chinese compulsory education, so this paper takes India's elementary education as the focus of the compulsory education.

1. 2.1 Relevant laws and regulations of popularizing compulsory education

In Article 45 of the "Constitution of India" which began to be formally enforced on January 26, 1950, it is stipulated that "the country should strive to provide all children under the age of 14 with free compulsory education 10 years after the implementation of this law."

In 1968, India launched "National Policy on Education", which emphasized "providing free and compulsory education for all the children under the age of 14."

"The Right of Children to Free and Compulsory Education Act" which started to be enforced on August 27, 2009, on the one hand, strengthened the compulsoriness and freeness of primary education, and stipulated that "nine-year compulsory education is implemented for Children aged 6 to 14 in India and all children during the ages have the right to get free education." On the other hand, it further emphasized the responsibilities of federal government, local governments and the parents. It is stipulated in Article 7 that "the federal government has the responsibility to provide funding support for the execution of Free and Compulsory Education Act". In addition, the Act put forward that it should be ensured that the children of the vulnerable groups or any other disadvantaged groups are not discriminated, and have the same right to pursue and complete elementary education like the children of any other group.

On March 12, 2010, "The Right of Children to Free and Compulsory Education (amendment) Bill" was promulgated, which clearly defined "the children of the disadvantaged groups" as "the children of the backward stratums or groups like the scheduled castes and tribes due to social, cultural, economic, geographic language, gender and other factors."

India has guaranteed the freeness, compulsoriness and popularization of elementary education through related legislations and policies.

[1] An Shuanghong. Analysis of the hot issues in the Basic Education Development of India [J]. Research in Education Development, 2010(4): 72-75.

1.2.2 Policies of popularizing compulsory education

(1) Universal Primary Education Program (Sarva Shiksha Abhiyan, SSA)

In order to further popularize the enrollment of primary education and improve the quality of education, the government of India launched Sarva Shiksha Abhiyan (SSA) in 2001. SSA planned to provide elementary education for all children aged 6 to 14 before 2010, and also encouraged the community to actively participate in school management to narrow the gap between social stratums, genders and regions. This is a national education development program covering Indian states and the federal territories, which deducted 2% education tax from all taxes as the special funds of the plan. The overall objective of SSA include four aspects: first, the students have the right to be educated; second, strive to not let a pupil to drop out of school, and build new schools in remote areas to guarantee that the consolidation rate of elementary education reaches 100%; third, gradually eliminate the differences between genders and social identities existing in elementary education; fourth, realize the significant improvement of the students' learning level in big strides, emphasize "life education" and pay attention to public satisfaction with the quality of elementary education. The measures include: to give education priority to girls, to ensure that school-age children are admitted into schools and make sure the fairness, implement inclusive education for the disabled, increase the general consolidation rate and education quality and inspire the enthusiasm of the community.[2]

(2) Mid-Day Meal Scheme (MDMS)

Mid-Day Meal Scheme (MDMS), starting from National Programme of Nutritional Support to Primary Education (NP–NSPE for short), has been carried out formally since August 1995, aiming to improve the nutritional status of the Indian schoolchildren and promote the popularization of elementary education by strengthening the enrollment rate. The central government supports the Scheme by means of providing free grains and food transport allowance. In 2004, the revised Scheme added the policy of providing nutritional support for elementary students in arid regions during the summer vacation. MDMS is mainly in the charge of the federal government and the administrative organizations of the regions directly under the jurisdiction of the central government, including providing necessary infrastructure and taking necessary measures to strengthen logistics management in order to provide edible lunch meeting the requirements of the rules in the long run. In addition to the central assistance, to ensure the smooth implementation of the Scheme, the federal government and the administrative agencies of the central territory must provide necessary funds and other investment.

(3) Shiksha Karmi Project (SKP). It is an education policy by means of multinational cooperation with NGO, which set a good example for the mechanism innovation of supplementing teachers for the remote and poor areas of India. SKP takes remote, poor and relatively backward villages socially and economically of Rajasthan as the objects, aiming to improve the elementary education for all the children of 6-14 years old in these villages from quantity and quality, namely, to achieve the high-quality popularization of education. The

[2]Yang Shuhan. Research on the Policies of Rural Elementary Education in the Urbanization Process of India. [D**], Southwest University,** 2013: 45-46.

Project believes that teacher absenteeism is a major obstacle to the achievement of the goal. SKP mainly provides special training for the local teachers lack of actual strengths to help them become qualified formal teachers; for example, providing intensive training for new teachers through teaching leading plans, supplemented by regular advanced courses. The project was implemented by Rajasthan government, with the active participation of the community to and the assistance of voluntary organizations, which play vital roles in the project. In Rajasthan, girls' entrance, attendance and consolidation of attendance rate are the main challenges to the realization of popularization of basic education. SKP takes the community as the basic unit and adopts decentralized management, seeks the best solution to the problem through breakthrough at key points and has achieved positive results.

(4) National Programme for Education of Girls at Elementary Level (NPEGEL)

National Programme for Education of Girls at Elementary school Level (NPEGEL) subordinate to SSA began in September 2003, designed to protect the opportunities and rights of being educated of the girls of the vulnerable groups in elementary schools, with the purpose of helping the school girls return to school and improve their self-protection awareness. NPEGEL emphasizes that teachers should pay special attention to girls in the classroom, help them build learning confidence and sense of social responsibility, let girls love to study and believe that receiving education can obtain the power to change life. At the same time, the government further strengthens and implements the measures of providing girls with free stationery, textbooks and uniforms in order to enhance the enrollment rate, consolidation rate and academic performance of Indian girls in the elementary education stage. In addition, such items of cultivating girls' gender consciousness, guiding teachers to have positive attitude towards genders through public propaganda, strengthening gender-sensitive education, telling the girls the legitimate rights and interests they have and suggesting adding self-defense skills and life skills in the curriculum system of elementary education.

(5) District Primary Education Plan (DPEP)

District Primary Education Plan (DPEP) was officially launched by the Indian government in 1994, and the Plan was aided financially by the Dutch government and 5 international organizations,[3] which aimed at enhancing the entrance opportunity and students' academic achievement; second, it attached great importance to the improvement of soft education power, the starting of new schools and committed to the improvement of the teaching content, teaching process, education quality and education fairness, especially the improvement of the school-running ability of the schools at the county level; plus, it got a lot of aid funds: 85% of the funds of DPEP were borne by the government of India, and the remaining 15% is borne by the federal government, while most of the funds of the Indian government comes from external assistance.

2. Effects and problems of China and India popularizing compulsory education policy

2.1 Effects and problems of China popularizing compulsory education policy

[3] Yang Hong. Indian Vulnerable Groups: Education and Policies [M]. Beijing: People's Education Press, 2011:139.

2.1.1 Achievements

(1) The goal of popularizing nine-year compulsory education has been achieved, and the running of compulsory education schools has generally reached the standard.

The comprehensive assessment and the rates of reaching the standard of both elementary school and junior high school are 100%, and the rates of reaching the standards of the indexes of primary school are all over 90%. The values of teaching instruments and equipment per student, the number of computers for one hundred students, the number of books per student and the number of teachers whose education backgrounds reach the standard per student, are all over 97%. In terms of the indexes of senior high schools, except the sports building area per student and the number of teachers with medium above professional technical positions per student are slightly lower than 90%, the target-achieving rates of all the other indexes are over 95%. Overall, the rates of reaching the standards of the compulsory education schools are good.[4]

(2) Compulsory education in the county areas has basically been boosted in a balanced and orderly way, and the resources allocation gap between schools has been narrowed. In May 2013, China formally launched district and county assessment and identification of basic balance of compulsory education. By November 27, 2014, a total of 673 districts and counties had declared acceptance supervision, and 617 districts and counties passed the assessment, the passing rate up to 91.7%.[5]

(3) China has implemented living subsidy scheme for rural teachers, and the appeal of rural teachers has been improved. In 2014, the central government issued comprehensive awards and subsidies of 2.114 billion yuan, and 20 provinces implemented living subsidies for the rural teachers, and the subsidies reached 352 yuan per month on average, while the average standard of 23% of the implementation regions was over 500 yuan, and the highest standard of subsidy amounted to 1400 yuan per month, which greatly arouse the enthusiasm of the excellent teachers staying and assuming the post. "National Training Plan" has completed the training in rotation of nearly 6.4 million rural teachers in the Midwest.[6]

(4) China has implemented "comprehensively improving the school conditions of poor areas" project, and the increase of public financial budget for rural areas is higher than the national level. In 2014, the central government issued 31 billion funds for "comprehensively improving the school conditions of poor areas", and issued in advance the funds of 21.56 billion yuan for the project of 2015. In 2013, as for the expense of education of public financial budget for each student of compulsory education stage, it was 6856.0 yuan in rural primary schools, increased by 13.9% over the previous year, 1.3% higher than the national average growth rate; it

[4]The Overall Condition of the Balance of Our Compulsory Education is Good [DB/OL]. People Network. http://edu.people.com.cn/n/2014/1018/c1053-25859785.html.

[5]" Rural Education Development Report of China 2013-2014" issue: The weak condition of rural education is still noticeable [DB/OL].China Social Science Network, http://www.cssn.cn/gd/gd_rwdb/gd_zxjl_1710/201412/t20141222_1452037.shtml.

[6] The same as above.

was 9195.8 yuan in the rural junior middle schools, increased by 16.3% over the previous year, 2.5% higher than the national average growth rate. When it comes to the public expense of public financial budget for each student of compulsory education stage, it was 1973.5 yuan in rural primary schools, with a year-on-year growth of 13.2%, 0.1% higher than the national average growth rate; the rural junior middle school is 2968.4 yuan, increased by 14.1% over the previous year, 3.2% higher than the national average growth rate.[7]

2. 1.2 Deficiencies

(1) Balanced development of compulsory education has a long way to go. The development of Chinese compulsory education between regions, areas and schools is distinctive. For example, from the difference coefficient of different areas, the comprehensive difference coefficients of the primary schools of the central area was 0.458, while that of the western region is 0.360; the comprehensive difference coefficient of the junior middle school of the eastern part is 0.374, while that of the western region is 0.299. The difference coefficients of the indicators of the primary schools of the central area were generally higher than the eastern areas and western areas; the difference coefficients of the indicators of the junior middle schools of the central area were higher than the western regions, and most of the indexes are higher than the east. From the comprehensive difference coefficients of primary schools of different provinces, Heilongjiang Province and Shanxi Province were higher than 0.56, while Xinjiang and Qinghai were below 0.25; from the comprehensive difference coefficients of junior middle schools of the provinces, Heilongjiang was 0.515, while Qinghai and Xinjiang were less than 0.16.[8]

(2) The compulsory education problem for the left-behind children in rural areas still exists. The all-China Women's Federation (ACWF) released "Research Report on the Conditions of the Left-behind Children in Rural Areas of China" in 2014, which reckoned that there were 61.0255 million left-behind children in rural areas according to the sample data of Chinese sixth census data in 2010, accounting for 37.7% of the rural children, and 21.88% of the children of the whole country. Among them, the number of (6-11) primary-school-age children was 19.53 million, accounting for 32.01% of the rural left-behind children; the number of (12-14) junior-middle-school-age children was 9.95 million, accounting for 16.30% of the rural left-behind children. From the perspective of regional distribution, rural left-behind children are widely distributed not only in economically-underdeveloped provinces of the Midwest, but also in developed provinces such as Jiangsu, Guangdong, Shandong and other eastern provinces in the east. The investigation showed that the overall compulsory education condition of the school-age children left behind in rural areas was good, and most of them are receiving compulsory education at school, but the education condition of some rural left-behind children in the Midwest was relatively poor.[9]

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[7]"Rural Education Development Report of China 2013-2014"issue: The weak condition of rural education is still noticeable [DB/OL].China Social Science Network, http://www.cssn.cn/gd/gd_rwdb/gd_zxjl_1710/201412/t20141222_1452037.shtml.

[8]The Overall Condition of the Balance of Our Compulsory Education is Good [DB/OL].People Network. http://edu.people.com.cn/n/2014/1018/c1053-25859785.html.

[9]Li Yifei.A White Book of the Psychological Conditions of the Left-behind Children of China[DB/OL].China Development Brief http://www.chinadevelopmentbrief.org.cn/news-17658.html.

(3) The fund investment in rural compulsory education and the construction of teaching staff should be improved. In particular, the fund investment in rural compulsory education and the construction of teaching staff in the remote and poverty-stricken areas of the rural areas are arduous tasks.

2.2 Effects and problems of India popularizing compulsory education policy

2.2.1 Achievements

(1) The popularization of elementary education has improved significantly

Aided financially by Education Guarantee System (EGS) affiliated with SSA, by September 2009, the 25961 education guarantee centers of whole India had had 2,324,000 students enrolled. And in alternative education centers there were 1,483,561 children enrolled; a total of 106136 Education Guarantee Centers were upgraded to primary schools and set up 2559 major courses (including language, mathematics, health and education).

(2)Remarkable achievements in the infrastructure construction

According to the policy of popularizing elementary education in India, school infrastructure construction is a very important indicator. Under the impetus of the relevant education policies, a total of 759797 all kinds of new elementary education schools were built in India during 2002 ~ 2011, with the average increase of 84422.

2.2.2 Existing problems

(1) It still has a long way to go after popularizing 8-year compulsory education

Under the condition that the country had just gained independence from colonial rule and everything remained to be done, Indian leaders listed the popularization of 8-year compulsory education on the important agenda. In the first five-year plan period, 56% of the national education funds were allocated to elementary education. However, "Constitution of India" promulgated in 1950 proposed to popularize 8-year compulsory elementary education within ten years, ever since then it has been delayed "decade after decade" and not been achieved so far.[10]

(2) The dropout rate increased

According to official survey of India, the dropout rate of elementary-school-age children of 6 ~ 14 years old in rural areas in 2012 was 3.5%, with an increase compared with the 3.3% in 2011, and the dropout rate of girls of 11-14 years old was highest, reaching 6%.

(3) The teaching staff are not enough and the quality is not high

Although the supplement of a large number of substitute teachers has made the student and teacher ratio of the rural elementary education of India gradually reasonable, the sources of this group are more complex, with limited degree of specialization and strong liquidity and

[10]An Shuanghong. Analysis of the hot issues in the Basic Education Development of India [J]. Research in Education Development, 2010(4): 72-75.

arbitrariness, and many a substitute teacher just regards the job as a temporary job of making a living, which essentially fails to help improve the teachers' quality.[11]

(4)Unbalanced development of compulsory education

The popularization of compulsory education in India is uneven between regions. First of all, India is a large country with a large population, and great regional differences exist in terms of economy, society, cultural development level, religious traditions, people's life style, language habits and population distribution, which have direct or indirect influence on the popularization of compulsory education. Second, the administration and finance of Indian elementary education are basically in the charge of each state, and more than 90% of the funds come from the state governments, while the economic development level, the emphasis on compulsory education, the internal allocation proportion of education funds and the ability of fiscal expenditure of the states and quite different, which affects the development level of compulsory education in each state and region. Besides, the economic development level, cultural tradition and people's understanding of education in rural areas are far behind cities, which also lead to the unbalanced development of compulsory education in urban and rural areas.

3. The Enlightenment to China of Indian policies of Popularizing Compulsory Education

Drawing lessons from the successful experiences and failure of popularizing compulsory education in India will give enlightenment to China in consolidating the achievements of popularizing compulsory education and promoting the balanced development of basic education.

3.1 The governments at all levels should further increase the investment in compulsory education, especially the rural poverty-stricken areas, to ensure the sustainability and balanced development of compulsory education.

A long-term financial guarantee system of compulsory education should be established and improved, governments at all levels, especially the governments at the county level, should conscientiously give priority to the development of education, and implement "three growths" and the education investment policies of the country; establish a diversified policy system of financially aiding the children from poor families, orphans and disabled children with the government investment as the main body, supplemented by student loans and social donation; improve the standards of the operating expense and public funds per student in the compulsory education stage; the newly-increased education funds should tilt to the balanced development of compulsory education; draw a certain proportion from the national tax revenue as special funds for the balanced development of compulsory education; make the proportion of financial budgetary expenditures of compulsory education funds increase year by year and provide fund guarantee for further optimizing resources, promoting regional compulsory education to high levels of balanced development.

[11]Sun Laiqin and Qin Yuyou. Substitute Teachers of India: Profile, Dispute and Tendency [J]. Comparative Education Review, 2011(6): 71-75.

3.2 Further promote the standardized construction of compulsory education schools and guarantee the running conditions of weak schools

The government should put the standardized construction of schools in the first place of promoting balanced development of compulsory education and take the standardized construction of compulsory education schools as a basic project and give priority to the supporting of primary and secondary schools in urban planning and construction, speed up the pace of expanding schools of densely populated areas; mainly solve the hardware and software configuration of weak schools, small schools, village schools and teaching centers, make every school are measured by certain indicators and meet basic education standards and promote the balanced development of compulsory education.

3.3 Further optimize the teachers' allocation and improve the quality of compulsory education

Reasonable and high-quality teachers' allocation is the important guarantee to improve the quality of education. Local authorities should promote the innovation in system and mechanism, further improve the mechanism of teacher supplement, rationally check and ratify the authorized-size of teachers in compulsory education schools, dynamically manage the authorization of teachers, further optimize the age structure, knowledge structure and discipline structure of teachers; perfect the teacher exchange mechanism to further improve the teacher exchanges between urban and rural areas and schools, promote the normalization and institutionalization of the exchanges between principals and teachers of urban and rural areas at the county level, rationalize the allocation of the number of high-quality teachers and backbone teachers in urban and rural schools; practically maintain the rights and interests of teachers, improve and implement the teachers' salary safeguard measures, professional and technical titles evaluation mechanism and social security policy, set up a national system of providing special allowances for teachers in rural and remote areas, solve the problem of the instability of the teaching staff caused by low salary, improve the teachers' status and salary and make the teachers teach and educate students at ease, comfortably and confidently; continue to perfect the teacher training system of multiple forms, levels and channels, especially for the teachers of rural areas, weak schools and weak disciplines, strengthen the pertinence and effectiveness of the training, strive to improve the professional quality and education and teaching levels of teachers, and overall improve teachers' professional level.

3.4 Further innovate education and management ideas, improve the responsibility of the whole society to the balanced development of compulsory education

Innovate "county-centered" management system, strengthen the linkage between governments at all levels and different functional departments, manages concertedly to promote the balanced development of compulsory education. The functional departments of the government should perform corresponding responsibilities according to law and play a good role in promoting the balanced development of compulsory education. For example, the financial sectors raise and guarantee the funds required for the balanced development, the development and reform commissions and planning, land and construction departments provide priority

support for school projects, while the Commission Office of Public Sectors Reform and human resource and social security department provide policy support for the regular communication of teachers and principals in the county territory and allocate qualified teachers to the schools.

At the same time, it is also necessary to actively explore and implement school district management and collectivization school-running, union school-running, binding of urban and rural schools, entrusted management, to active participation of community in school management, and other forms of school system and reform of management pattern. In accordance with the overall train of thought "collocation of the big and small, alliance of the strong or weak, synchronized management, binding assessment, resource sharing and common development", expand the coverage of high-quality resources, drive the integral elevation of the school-running capacity of weak schools, realize resource sharing, narrow the gaps in school-running and education quality between schools and the urban and rural areas.

3.5 Enhance the education support for the disadvantaged groups and special groups and promote the fairness of compulsory education

The education support for the disadvantaged and special groups of the compulsory education stage is the embodiment of quality improvement and education fairness of the popularization of compulsory education. Therefore, in the process of promoting balanced development of compulsory education, it is important and necessary to provide all-round support from life, study and growth in law and policy for the children of disadvantaged groups and special groups as a result of geographical, economic, cultural and physical conditions, such as those from poor families and immigrant workers, rural left-behind children, disabled children and the minorities' children, so as to realize comprehensive education fairness and social equality.

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Current Guidelines for Blood Pressure and Cholesterol Treatment in the U.S.—Lower is Better?
BLOOD PRESSURE GUIDELINE

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In every year since 1919, Cardiovascular disease (CVD) accounted for more deaths than any other major cause of death in the United States. More than 807,775 people in the U.S. died from heart disease, stroke and other cardiovascular disease in 2014. That's about one of every three deaths in America. More than 2,200 Americans die of CVD each day, an average of one death every 40 seconds. CVD claims more lives each year than all forms of cancer combined. There are estimated 85.7 million Americans have hypertension—one in every three adults. Hypertension mortality in 2014 was 73,345.[1] Approximately 69% of people who have a first heart attack, 77% of those who have a first stroke, and 74% of those who have CHF have BP > 140/90 mmHg [National Heart, Lung and Blood Institute (NHLBI) unpublished estimates from ARIC, CHS, and FHS Cohort and Offspring studies].

On June 12, 1972, Elliot L. Richardson, Secretary of the Department of Health, Education, and Welfare, approved a nationwide program for high blood pressure information and education. The National High Blood Pressure Education Program (NHBPEP) was officially launched the following month. Impetus for the program was a confluence of sound scientific evidence that high blood pressure could be detected easily and lowered with drug therapy, and that such measures diminished rates of stroke and other complications and saved lives. In September 1972, the National Heart, Blood Vessel, and Lung Act of 1972 (Public Law 92-433) provided broad legislative authority for the NHLBI to "conduct a program that provides the public and health professionals with health information."

The NHBPEP Coordinating Committee is a coalition of 39 major professional, public, and voluntary organizations and 7 federal agencies. One important function is to issue guidelines and advisories designed to increase awareness, prevention, treatment, and control of hypertension.

"The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure" published in JAMA on May 21, 2003[2], provides a new guideline for hypertension prevention and management. The following are the key messages: (1) In persons older than 50 years, systolic blood pressure (BP) of more than 140 mm Hg is a much more important cardiovascular disease (CVD) risk factor than diastolic BP; (2) The risk of CVD, beginning at 115/75 mm Hg, doubles with each increment of 20/10 mm Hg; individuals who are normotensive at 55 years of age have a 90% lifetime risk for developing hypertension; (3) Individuals with a systolic BP of 120 to 139 mm Hg or a diastolic BP of 80 to 89 mm Hg should be considered as pre-hypertensive and require health-promoting lifestyle modifications to prevent CVD; (4) Thiazide-type diuretics should be used in drug treatment for most patients with uncomplicated hypertension, either alone or combined with drugs from other

classes. Certain high-risk conditions are compelling indications for the initial use of other antihypertensive drug classes (angiotensin-converting enzyme inhibitors, angiotensin-receptor blockers, beta-blockers, calcium channel blockers); (5) Most patients with hypertension will require 2 or more antihypertensive medications to achieve goal BP (<140/90 mm Hg, or <130/80 mm Hg for patients with diabetes or chronic kidney disease; (6) If BP is more than 20/10 mm Hg above goal BP, consideration should be given to initiating therapy with 2 agents, 1 of which usually should be a thiazide-type diuretic; and (7) The most effective therapy prescribed by the most careful clinician will control hypertension only if patients are motivated.

The next group that produced the new guidelines was empaneled in 2008 by the NHLBI as the Eighth Joint National Committee (JNC 8) and its mission was to create evidence-based recommendations. But in the summer of 2013, the NHLBI announced that it was getting out of the business of clinical guidelines and shifting responsibility to the American Heart Association (AHA) and the American College of Cardiology (ACC). Other guidelines committees accepted the change, but the Eighth Joint National Committee, or JNC8, refused.

The AHA, the ACC, and the Centers for Disease Control (CDC) have collaborated to write a 'science advisory' on effective approaches for managing high blood pressure and published on line on November 15, 2013[3]. The new AHA/ACC/CDC report emphasizes "broad-based efforts to improve hypertension awareness, treatment, and the proportion of patients treated and controlled." With an evidence-based algorithm and the standardization of treatment, the AHA hopes the team-based focus on blood pressure will help it achieve its ambitious goal of reducing the US death rate from cardiovascular disease and stroke by 20% in 2020. The Million Hearts campaign, led by the CDC and Centers for Medicare & Medicaid Services (CMS), aims to prevent a million heart attacks and strokes by 2017.

In the advisory, the organizations recommend a blood-pressure goal of ≤139/89 mm Hg. To achieve the goal, they highlight a treatment algorithm that is based on the clinical guidelines and is associated with improved blood-pressure control on a large scale.

They recommend lifestyle modification and the consideration of a thiazide diuretic in individuals with stage 1 hypertension (systolic 140–159 mm Hg or diastolic 90–99 mm Hg). For those with stage 2 hypertension (systolic >160 mm Hg or diastolic >100 mm Hg), they recommend combination therapy with a thiazide diuretic and ACE inhibitor, angiotensin receptor blocker (ARB), or calcium-channel blocker (CCB).

For patients with hypertension in combination with certain clinical conditions, specific medications should be considered first-line treatments. These include for:

- Coronary artery disease/post-myocardial infarction: beta-blocker (BB), angiotensin-converting enzyme inhibitor (ACEI);
- Systolic heart failure: ACEI or angiotensin-receptor blocker (ARB), BB, aldosterone antagonist, thiazide;
- Diastolic heart failure: ACEI or ARB, BB, thiazide;
- Diabetes: ACEI or ARB, thiazide, BB, calcium channel blocker;
- Kidney disease: ACEI or ARB; and

• Stroke or transient ischemic attack (TIA): thiazide, ACEI.

The Eighth Joint National Committee (JNC 8) was finally released in December 2013[4]. The panel members used rigorous evidence-based methods, developing Evidence Statements and recommendations for blood pressure (BP) treatment based on a systematic review of the literature to meet user needs, especially the needs of the primary care clinician. There are total of 9 recommendations in the report and is designed to provide clear recommendations for all clinicians.

Recommendation 1

In the general population aged ≥ 60 years, initiate pharmacologic treatment to lower blood pressure (BP) at systolic blood pressure (SBP) ≥ 150 mmHg or diastolic blood pressure (DBP) ≥ 90mmHg and treat to a goal SBP < 150 mm Hg and goal DBP < 90 mm Hg. (Strong Recommendation – Grade A)

Corollary Recommendation

In the general population aged ≥ 60years, if pharmacologic treatment for high BP results in lower achieved SBP (eg, <140 mmHg) and treatment is well tolerated and without adverse effects on health or quality of life, treatment does not need to be adjusted. (Expert Opinion – Grade E)

Recommendation 2

In the general population < 60 years, initiate pharmacologic treatment to lower BP at DBP ≥ 90 mmHg and treat to a goal DBP < 90mmHg. (For ages 30-59 years, Strong Recommendation – Grade A; For ages 18-29 years, Expert Opinion – Grade E)

Recommendation 3

In the general population < 60 years, initiate pharmacologic treatment to Lower BP at SBP ≥ 140 mmHg and treat to a goal SBP < 140mmHg. (Expert Opinion – Grade E)

Recommendation 4

In the population aged ≥ 18 years with chronic kidney disease (CKD), initiate pharmacologic treatment to lower BP at SBP ≥ 140mmHg or DBP ≥ 90 mmHg and treat to goal SBP < 140 mmHg and goal DBP < 90 mmHg. (Expert Opinion – Grade E)

Recommendation 5

In the populationaged ≥ 18years with diabetes, initiate pharmacologic treatment to lower BP at SBP ≥ 140 mmHg or DBP ≥ 90mmHgandtreat to a goal SBP < 140 mmHg and goal DBP < 90mmHg. (Expert Opinion –Grade E)

Recommendation 6

In the general nonblack population, including those with diabetes, initial antihypertensive treatment should include a thiazide-type diuretic, calcium channel blocker (CCB), angiotensin-

converting enzyme inhibitor (ACEI), or angiotensin receptor blocker (ARB). (Moderate Recommendation – Grade B)

Recommendation 7

In the general black population, including those with diabetes, initial antihypertensive treatment should include a thiazide-type diuretic or CCB. (For general black population: Moderate Recommendation –Grade B; for black patients with diabetes: Weak Recommendation – Grade C)

Recommendation 8

In the population aged ≥ 18 years with CKD, initial (or add-on) antihypertensive treatment should include an ACEI or ARB to improve kidney outcomes. This applies to all CKD patients with hypertension regardless of race or diabetes status. (Moderate Recommendation – Grade B)

Recommendation 9

The main objective of hypertension treatment is to attain and maintain goal BP. If goal BP is not reached within a month of treatment, increase the dose of the initial drug or add a second drug from one of the classes in recommendation6 (thiazide-type diuretic, CCB, ACEI, or ARB). The clinician should continue to assess BP and adjust the treatment regimen until goal BP is reached. If goal BP cannot be reached with 2 drugs, add and titrate a third drug from the list provided. Do not use an ACEI and an ARB together in the same patient. If goal BP cannot be reached using only the drugs in recommendation 6 because of a contraindication or the need to use more than 3 drugs to reach goal BP, antihypertensive drugs from other classes can be used. Referral to a hypertension specialist may be indicated for patients in whom goal BP cannot be attained using the above strategy or for the management of complicated patients for whom additional clinical consultation is needed. (Expert Opinion – Grade E).

High blood pressure is defined as 140 mmHg over 90 mmHg, and for years, doctors have used that measure as the threshold for prescribing anti-hypertensive drugs. But based on the new recommendations, adults who are 60 or older can wait until their readings reach 150 over 90 or above to begin medication. After reviewing available evidence on the effects of blood pressure treatments, including adverse events, the Institute of Medicine's Eighth Joint National Committee (JNC 8) concluded that aggressive treatment can lead to lightheadedness, falls and fainting in elderly populations — so they advised loosening the guidelines for starting medication.

Members of the JNC 8 who voted against the recommendation felt the need to voice this view, and published an editorial in the *Annals of Internal Medicine* outlining their reasons for opposing the change.[5]

The concerns of the dissenting members of the panel centered around the following points:

- The evidence was insufficient to support raising the threshold and, thus, it should not have been changed.
- A higher blood pressure target likely would lessen the intensity of anti-hypertensive treatment in certain high-risk groups, including blacks, those with multiple cardiovascular risk factors (other than diabetes or CKD), and those with clinical cardiovascular disease.
- Using a higher threshold could potentially undo the gains that have been made over recent decades in cardiovascular disease, and, in particular, death from stroke.
- The loosening of the threshold would be applied to older individuals, who already have a greater risk of cardiovascular events compared with their younger counterparts.
- The safety of bringing systolic blood pressure below 140 mm Hg has been established in randomized trials.

The editorial does agree, however, with recommendations that SBP < 150 mmHg for frail individuals ≥ age 80 is a reasonable alternative approach to addressing concerns that elderly patients are at higher risk for treatment-related serious events. The authors also add that "a target SBP < 140 mmHg for patients <80 years would also be in line with guidelines from Europe, Canada, the ACCF/AHA, the United Kingdom, and the ASH/ISH."

We now have some quantification of that risk. Borden et al. [6] have utilized the National Cardiovascular Data Registry's Practice Innovation and Clinical Excellence Registry as a data source to assess the potential impact of the JNC-8 panel recommendations to increase the BP targets for patients age 60 years and older, as well as those with diabetes.

They concluded that raised the blood pressure (BP) target in older patients to <150/90 mm Hg, could lead to 8,000 additional cardiovascular events over 10 years compared with the older target of <140/90 mm Hg.

One meta-analysis published in 2015 analyzed the results of trials that examined the effects of various antihypertensive regimens in roughly 15,000 patients with grade 1 hypertension (140–159/90–99 mm Hg) and no preexisting cardiovascular disease. [7] Patients in the treatment groups had significantly lower risks for stroke (odds ratio, 0.72), cardiovascular death (OR, 0.75), and all-cause mortality (OR, 0.78). Other outcomes had non-significant risk reductions. The authors say their results "suggest that blood pressure reduction is likely to provide benefit among patients with grade 1 hypertension and that these benefits could be substantial."

In the Systolic Blood Pressure Intervention Trial (SPRINT), investigators report that treating high-risk hypertensive adults 50 years of age and older to a target of 120 mm Hg significantly reduced primary outcome (composite of CVD events) by 25% and reduced all-cause mortality by 27% when compared with patients treated to a target of 140 mm Hg. [8]

Another research published in the Lancet suggests that individuals "known to be at high risk for a heart attack or stroke should be given blood pressure-lowering medications no matter their blood pressure level." Researchers found that "for every 10 mm Hg drop in systolic blood pressure achieved through medication, heart disease risk dropped by as much as one-fifth." That

remained "true regardless of the patients' blood pressure when treatment began, even if it was below 130/85." [9]

A new large network meta-analysis of 42 randomized trials with a combined 144,220 hypertensive individuals with diverse comorbidities who were followed for a mean of 3.6 years (range 6 months to >8 years). Thirty trials included patients with type 2 diabetes. A systolic blood pressure of 120 to 124 mmHg was associated with the lowest risk for major CVD, CHD, CVD mortality, and all-cause mortality, whereas a systolic blood pressure of <120 mmHg was associated with the lowest risk for stroke. [10]

The prevalence of uncontrolled hypertension is elevated worldwide, particularly in patients with hypertension who are at high risk of cardiovascular complications. Previous findings of the J-curve relationship may be due to undiagnosed ischemia in patients with significant coronary artery disease and inadequate diastolic coronary blood flow from low diastolic blood pressure. The lower the better concepts may be applicable to high risk patients after significant coronary ischemia is excluded.

CHOLESTEROL GUIDELINE

Coronary heart disease (CHD) was an underlying cause of death in ~ 1 of every 7 deaths in the United States in 2014. CHD mortality was 364 593, and CHD any-mention mortality was 530 989. Myocardial Infarction (MI) mortality was 114 019, MI any-mention mortality was 150 590. CHD is the single largest killer of American males and females. Approximately every 40 seconds, an American will have an MI. Approximately 36 % of the people who experience a coronary event in a given year will die of it[1].

In November 1985, the NHLBI inaugurated the National Cholesterol Education Program (NCEP), Impetus for the program came from years of scientific evidence linking blood cholesterol levels to coronary heart disease (CHD), the finding from the Lipid Research Clinics Coronary Primary Prevention Trial that lowering high blood cholesterol reduces the risk of CHD, and – most proximately – a recommendation from the December 1984 Consensus Development Conference on Lowering Blood Cholesterol to Prevent Heart Disease that a national education program on cholesterol be developed. Coincidentally, the Health Research Extension Act of 1985 (Public Law 99-158) specifically directed the NHLBI Director to "collect, identify, analyze, and disseminate…to patients, families of patients, physicians and other health professionals, and the general public, information on research, prevention, diagnosis, and treatment of heart, blood vessel, lung, and blood diseases, [and] the maintenance of health to reduce the incidence of such diseases…"

The Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III, or ATP III) was released more than a decade ago in 2001[11]. The NCEP periodically produces ATP clinical updates as warranted by advances in the science of cholesterol management. Each of the guideline reports – ATP I, II, and III – has a major thrust. ATP I outline a strategy for primary prevention of coronary heart disease (CHD) in persons with high levels of low-density lipoprotein (LDL) cholesterol ($\geq$160 mg/dL) or those with borderline high LDL cholesterol (130-159 mg/dL) and multiple (2+) risk

factors. ATP II affirmed the importance of this approach and added a new feature: the intensive management of LDL cholesterol in persons with established CHD. For patients with CHD, ATP II set a new, lower LDL cholesterol goal of ≤ 100 mg/dL. ATP III adds a call for more intensive LDL-lowering therapy in certain groups of people, its major new feature is a focus on primary prevention in persons with multiple risk factors. The new features of ATP III include [A] Focus on multiple risk factors: (1) Raises persons with diabetes without CHD, most of whom have multiple risk factors, to the risk level of CHD risk equivalent. (2) Uses Framingham projections of 10-year absolute CHD risk (ie, the percent probability of having a CHD event in 10 years) to identify certain patients with multiple (2+) risk factors for more intensive treatment. (3) Identifies persons with multiple metabolic risk factors (metabolic syndrome) as candidates for intensified therapeutic lifestyle changes. [B] Modifications of lipid and lipoprotein classification: (1) Identifies LDL cholesterol < 100 mg/dL as optimal. (2) Raises categorical low HDL cholesterol from < 35 mg/dL to < 40 mg/dL because the latter is a better measure of a depressed HDL. (3) Lowers the triglyceride classification cutpoints to give more attention to moderate elevations. [C] Support for implementation.

Since the publication of ATP III, 5 major clinical trials with statin therapy and clinical end points have been published. These include the Heart Protection Study (HPS), the Prospective Study of Pravastatin in the Elderly at Risk (PROSPER), Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial—Lipid-Lowering Trial (ALLHAT-LLT), Anglo-Scandinavian Cardiac Outcomes Trial—Lipid-Lowering Arm (ASCOT-LLA), and the Pravastatin or Atorvastatin Evaluation and Infection—Thrombolysis in Myocardial Infarction 22 (PROVE IT-TIMI 22) trial. These trials addressed issues that had not been adequately addressed in previous statin trials. The 2004 updated US guidelines[12] issued by the National Cholesterol Education Program Adult Treatment Panel III recommended that LDL < 70 mg/dL in patients at very high risk for cardiac events.

Two more high-dose statin secondary-prevention trials, Treating to New Targets (TNT) and Incremental Decrease in Endpoints through Aggressive Lipid lowering (IDEAL) were published subsequently. They all arrive at basically the same conclusion: intensive therapy succeeds in achieving serum LDL-C levels that are substantially lower than the currently recommended level of < 100 mg/dL, and these lower levels result in greater protection against future cardiovascular events.

In 2008, the NHLBI initiated these guidelines by sponsoring rigorous systematic evidence reviews for each topic by expert panels convened to develop critical questions (CQs), interpret the evidence and craft recommendations. In response to the 2011 report of the Institute of Medicine on the development of trustworthy clinical guidelines, the NHLBI Advisory Council (NHLBAC) recommended that the NHLBI focus specifically on reviewing the highest quality evidence and partner with other organizations to develop recommendations. Accordingly, in June 2013 the NHLBI initiated collaboration with the ACC and AHA to work with other organizations to complete and publish the 4 guidelines noted above and make them available to the widest possible constituency. Recognizing that the expert panels did not consider evidence

beyond 2011 (except as specified in the methodology), the ACC, AHA and collaborating societies plan to begin updating these guidelines starting in 2014.

The following are 10 points to remember about this ACC/AHA Guideline on the Treatment of Blood Cholesterol[13]:

1. The 2013 ACC/AHA Expert Panel included all 16 members of the National Heart, Lung, and Blood Institute Adult Treatment Panel (ATP) IV, and the document review included 23 expert reviewers and representatives of federal agencies. The expert panel recommendations arose from careful consideration of an extensive body of higher quality evidence derived from randomized controlled trials (RCTs), and systematic reviews and meta-analyses of RCTs.

2. Through a rigorous process, four groups of individuals were identified, for whom an extensive body of RCT evidence demonstrated a reduction in atherosclerotic cardiovascular disease (ASCVD) events (including coronary heart disease, cardiovascular deaths, and fatal and nonfatal strokes) with a good margin of safety from statin therapy:

Four Statin Benefit Groups:

- Individuals with clinical ASCVD (acute coronary syndromes, or a history of myocardial infarction, stable or unstable angina, coronary or other arterial revascularization, stroke, TIA, or peripheral arterial disease presumed to be of atherosclerotic origin) without New York Heart Association (NYHA) class II-IV heart failure or receiving hemodialysis.
- Individuals with primary elevations of low-density lipoprotein cholesterol (LDL-C) ≥190 mg/dl.
- Individuals 40-75 years of age with diabetes, and LDL-C 70-189 mg/dl without clinical ASCVD.
- Individuals without clinical ASCVD or diabetes, who are 40-75 years of age with LDL-C 70-189 mg/dl, and have an estimated 10-year ASCVD risk of 7.5% or higher.

3. Individuals in the fourth group can be identified by using the new Pooled Cohort Equations for ASCVD risk prediction, developed by the Risk Assessment Work Group.

4. Lifestyle modification (i.e., adhering to a heart healthy diet, regular exercise habits, avoidance of tobacco products, and maintenance of a healthy weight) remains a critical component of health promotion and ASCVD risk reduction, both prior to and in concert with the use of cholesterol-lowering drug therapies.

5. There is no evidence to support continued use of specific LDL-C and/or non–high-density lipoprotein cholesterol (non–HDL-C) treatment targets. The appropriate intensity of statin therapy should be used to reduce risk in those most likely to benefit. Nonstatin therapies, whether alone or in addition to statins, do not provide acceptable ASCVD risk reduction benefits compared to their potential for adverse effects in the routine prevention of ASCVD.

6. This guideline recommends use of the new Pooled Cohort Equations to estimate 10-year ASCVD risk in both white and black men and women. By more accurately identifying higher risk individuals for statin therapy, the guideline focuses statin therapy on those most likely to benefit. It also indicates, based on RCT data, those high-risk groups that may not benefit.

7. No recommendations are made to inform treatment decisions in selected individuals who are not included in the four statin benefit groups. In these individuals whose 10-year risk is <7.5% or when the decision is unclear, other factors including family history of premature ASCVD, LDL-C >160 mg/dl, high-sensitivity C-reactive protein ≥2 mg/dl, coronary calcium score ≥300 Agatston units or ≥75th percentile for age, sex, ethnicity, and ankle-brachial index <0.9, or elevated lifetime risk of ASCVD may be used to enhance the treatment decision making.

8. High-intensity statin therapy is defined as a daily dose that lowers LDL-C by ≥50% and moderate-intensity by 30% to <50%. All patients with ASCVD who are age ≤75 years, as well as patients >75 years, should receive high-intensity statin therapy; or if not a candidate for high-intensity, should receive moderate-intensity statin therapy.

9. Those with an LDL-C ≥190 mg/dl should receive high-intensity or moderate-intensity statin therapy, if not a candidate for high-intensity statin therapy. Addition of other cholesterol-lowering agents can be considered to further lower LDL-C. Diabetics with a 10-year ASCVD ≥7.5% should receive high-intensity statins and <7.5% moderate-intensity statin therapy. Persons 40-75 years with a ≥7.5% 10-year ASCVD risk should receive moderate- to high-intensity statin therapy.

10. The following are no longer considered appropriate strategies: treat to target, lower is best. The new guideline recommends: treat to level of ASCVD risk, based upon estimated 10-year or lifetime risk of ASCVD. The guidelines provided no recommendations for initiating or discontinuing statins in NYHA class II-IV ischemic systolic heart failure patients or those on maintenance hemodialysis.

The new guideline places much less emphasis on LDL and a much greater emphasis on the future risk of individuals for heart disease and stroke. The most important change is in primary prevention. Now, patients who have LDL cholesterol levels as low as 70 mg dl and no established cardiovascular disease are eligible for statin therapy if they have diabetes or a 10-year estimated risk of CV disease of 7.5%.

There have been many attempts to quantify just how many more people are now eligible for statin therapy under the new guideline. Now in their paper in *NEJM*, Michael Pencina and colleagues estimate that the new guideline results in a net increase of 12.8 million people who are now eligible for statins.[14] Most of the newly eligible people are older adults without cardiovascular disease.

The researchers extrapolated from data from a representative sample of the US population (the National Health and Nutrition Examination Surveys, or NHANES) and calculated the

number of adults 40-75 years of age who would be eligible for statin therapy under the old guideline and the new guideline:

- Under the old guideline 43.2 million adults, or 37.5% of the population, were eligible for statins.
- Under the new guideline this increases to 56 million (48.6%). Three out of 5 of the newly eligible patients would be men and their median age would be 63.4 years.
- The net increase in 12.8 million comes mostly from primary prevention– 10.4 million.
- Most of the increase occurs in older adults, between 60 and 75 years. Just under half (47.8%) of this population was eligible for statins in the earlier guideline. Now more than three-quarters (77.3%) of this age group are eligible.
- Lowering the treatment threshold to a 10-year risk starting at 5%, which the guidelines deem "reasonable," would increase eligibility to 38.4% of adults between 40 and 60 and 87.4% of adults 60-75.
- By increasing the number of people eligible for treatment, the new guideline has increased *sensitivity*– that is, it will result in more people being treated who would otherwise have gone on to have a cardiovascular event– but also decreased *specificity*– more people will receive treatment who would not have had an event.
- The authors estimated that the increased number of people taking statins would result in 475,000 fewer events– nearly all (90%) coming from the group of older adults.

Results from IMPROVE-IT (Improved Reduction of Outcomes: Vytorin Efficacy International Trial) showed that the addition of ezetimibe to simvastatin as the statin medication resulted in further lowering of LDL-C, as compared with simvastatin alone, with an associated improvement in cardiovascular outcomes.[15] Further support for ezetimibe and LDL-C lowering was the results from the PRECISE-IVUS (Plaque Regression with Cholesterol Absorption Inhibitor or Synthesis Inhibitor Evaluated by Intravascular Ultrasound) trial, which found that atorvastatin plus ezetimibe showed greater regression of coronary plaques as compared with therapy with atorvastatin alone.[16]

Proprotein convertase subtilisin/kexin type 9 (PCSK9) has been established as a regulator of low-density lipoprotein cholesterol (LDL-C) receptor homeostasis.[17] Inhibition of PCSK9 has assumed a major new focus in the management of cardiovascular risk, with numerous clinical trials of monoclonal antibodies versus PCSK9. [18,19] In 2015, the Food and Drug Administration approved the use of alirocumab (July) and evolocumab (August) for the treatment of certain patients with high cholesterol.

The American College of Cardiology (ACC) has released an "Expert Consensus Decision Pathway" document on the role of non-statin therapies for low-density lipoprotein (LDL) cholesterol lowering in the management of cardiovascular disease risk. [20]

The FOURIER trial is a landmark trial providing formal evidence that treatment targeted at PCSK9 inhibition confers additional cardiovascular benefit beyond that achieved by lipid-lowering treatment along. [21] The study included more than 27,000 participants with atherosclerotic CVD and already receiving statins, showed that patients wo received injections of evolocumab at doses of 140 mg every other week or 420 mg monthly had a 15% reduced risk for the composite of MI, stroke, CV death,

coronary revascularization, and unstable angina hospitalization at 22 months compared with those receiving matching placebo (P<0.001).

A novel approach to lowering LDL cholesterol and rates of atherosclerotic cardiovascular disease that is based on RNA interference could potentially lower the injection burden considered to be one of the drawbacks of currently available PCSK9 inhibitors.[22] Inclisiran is a synthetic injectable small interfering RNA (siRNA) that has previously proven effective at interrupting PCSK9 synthesis in the liver among healthy individuals and reducing LDL cholesterol by 50-60% over 84-day follow-up.

For proponents of the premise that "lower is better" FOURIER reinforced a concept that began in earnest with the PROVE-IT trial, a 2004 study showing that treating acute coronary syndromes (ACS) patients to lower LDL cholesteric levels improved clinical outcome. In FOURIER, the median LDL cholesterol achieved with treatment was 30 mg/dl, which raised the question: how low is too low?

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Becoming a "Master Questioner" Like Drucker

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In 2013, I was one of the first MBA graduates from the California Institute of Advanced Management (CIAM) and I also became one of its first directors. In learning to consult using Drucker's methods, I completed 11 consulting engagements. What I learned and applied most was that Drucker became such a successful consultant by the very simple secret of asking right questions.

When I first heard about Drucker's methodology of questioning, I didn't think that I had much to learn. I was a TV journalist in China for eight years. My daily work was all about asking questions. In my job I interviewed people every day with the goal of giving my television audience a better understanding of what people were doing in our city. These were what you call "human interest" pieces here in the U.S.

One day I met Rui Wang, a little 6-year old Chinese boy with cerebral palsy. I had never interviewed anyone that young. He watched his twin brother leave home for school every morning. Rui had to stay at home as the cerebral palsy made him immobile. Rui exercised very hard every day under his grandpa's guidance. Rui's grandfather was raising him, as both of Rui's parents deserted him after being told that he would never recover from his disease.

Rui, was covered with sweat from his exertions in trying to walk, I asked him my first question right away: "Rui, you must be tired from practicing walking every day, right?"

"No," he answered bravely, "I'm not tired at all".

But I could see that this little boy was totally exhausted. I persisted: "Rui, you are very brave, but I don't believe you. I can see with my own eyes that you are sweating. Are you telling me the whole truth?"

"Yes, Um….no….sort of. I hurt a little".

"Why don't you stop for a few moments and rest?"

"Because if I don't work hard, I'll not recover, then I'll be a burden to my grandpa, my brother and to the country!"

I knew what to do and kept "digging" deeper. I also thought that while we were talking, Rui was resting, even if he did not realize it. So, I expanded my interview as long as I could.

Finally, I could not stretch the interview longer. My last question was, "Rui, do you have a dream?"

I could see he was excited when he answered me. "Yes, I do have a dream! I have a dream that one day I will go to school with my brother and sit next to him and learn in a real classroom." I swallowed with difficulty and bid Rui goodbye.

In my documentary I showed my audience a brave little boy, who was not only very intelligent, but very thoughtful. His pure and innocent heart was full of hope while his mind constantly focused on his dream. My documentary was so well received that many donors called our hotline in tears to make a donation for Rui. They wanted badly to help him achieve his dream. As a result, Rui received so many contributions that he was able to begin medical treatment and therapy. I was privileged to one day see him accepted as a student by a school and attend classes with his brother.

So, when I met with my very first consulting client in the MBA program at CIAM, I thought I that I already had a special ability of asking questions, maybe even better than Drucker! All I needed to do was to ask his famous five questions and that was it!

The client was an owner of a bus charter company in Los Angeles and he wanted to expand his business into a full-fledged tourism company. He thought that since he already had the buses he just needed to bring in tourists worldwide. I remembered that we had learned the five famous questions that Drucker asked clients, including asking about the missions, customers and plans. I then started my questions one by one. Below are the answers that I got:

Q: What is your mission? A: To be more profitable

Q: Who is your customer? A: Everyone!

Q: What does your customer value? A: Oh, we have the lowest price

Q: What results do you seek? A: Tell me how I can attract customers worldwide especially from China and India, as both countries are my target now (this answer makes more sense, compared with other 4 answers)

Q: What is your plan? A: My plan? I need you to provide me a business plan and tell me what exactly I should do! I'll follow your recommendations!

Obviously, the first meeting with my client was quite short, and I felt anxious afterwards, as I realized that my idea that I was a master consultant-questioner like Drucker was just plain wrong. I had no idea how to get the client to reveal the information that I needed in order to help

him! I realized that asking questions of my interviewees for TV stories and to my consulting clients regarding their businesses was entirely different.

Peter Drucker once said that the consultant will not be able to understand the business as well as the business owner/client does. The consultant will not be the one who provides answers to the client's issues or problems, instead, the correct consulting process is based on asking the right questions to make the client think about their problems from different angles and be able to figure out what to do on his/her own.

I got hold of a copy of a consulting report that Drucker had done for Coca-Cola in 1990's. It is called "Challenges Facing the Coca-Cola Company in the Nineteen-Nineties". Drucker made it clear in its introduction that "This report raises questions. It does not attempt to give answers." Instead of telling the client what was wrong or what they should do, Drucker asked many questions in the report, a lot more than his famous five. However, I observed that the questions that he asked the client were actually leading questions, such as "What is it that should be promoted?" "What alternatives are there?" and many more.

Since Drucker said that the clients knew their organizations much better than the consultants do, the clients may have been thinking about what actions might be wrong, and what actions would probably be right to correct the problems. But the consultant wasn't the one with the real knowledge --- the client was. Therefore, the consultant's job was to help the client eliminate wrong ideas or actions, and to get him to become aware of the right actions to take.

With Drucker's principles and methodology in mind, we were able to ask better questions based on our marketing research. For example, when we did the research of the first question - who is your customer? We came up with more questions regarding the analysis of demographics (age, education, ethnicity, occupation, etc.) and lifestyle (income, housing ownership, consumer behavior, etc.) We guided the client to think with us about who should not be his customer or what group of people that he would not be able to consider as a target market. Within seven weeks, we provided our client an in-depth consulting report regarding how to attract Asian tourists, and received very positive feedback from him. He told us that he was much clearer about the mission and in this instance why he should concentrate on providing high quality service instead of continuing to lower the prices which was the way he had looked at his problems earlier. As Drucker said, it was not the right answers that we needed to focus on, but the right questions.

After the completion of 11 consulting projects with my classmates at CIAM for various companies, I learned that we, the consultants are not the ones to provide answers. Our function is to ask the right questions, wisely, learning about the organization with the clients, in order to help the clients challenge some assumptions, and reframe the original issues and problems. By being asked the right questions, the clients were not only able to figure out a better solution on their own, but also learn how to see the same problems from multiple angles to arrive at the optimal answers.

I think now that while my questioning of Rui performed a real service to be proud of, the techniques I used were wrong for eliciting the right questions for my consulting. Rui knew the right answers, because he was so focused on what he wanted; Drucker knew the right questions, because he was so focused on getting the right answers.

The above article has been included in the book of ***PETER DRUCKER ON CONSULTING*** by William A. Cohen, PhD, Major General, USAFR, Ret., who is the Founding President of the California Institute of Advanced Management.

水中分娩术对比传统分娩术对产妇影响的meta分析

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[摘要] **目的:**本研究旨在评价水中分娩对产妇的影响。**方法：**计算机检索Cochrane Library、Pubmed、万方、维普、中国知网等，检索时间截至2017年4月。检索词:中文检索词“水中分娩”、“自然分娩”、“产妇影响”；英文检索词water birth、delivery in water、natural childbirth、normal labor等。应用Revman 5.3软件进meta分析，根据异质性检验结果选择相应效应模型进行数据合并，计算各影响因素OR值、WMD值及其95%CI。由2名研究者对文献质量进行严格评价和资料提取，对符合质量标准的研究进行meta分析。**结果:**最终纳入6篇RCTs，共1586例，meta分析水中分娩组的会阴侧切率、产程和失血量明显低于对照组，差异具有统计学意义（P<0.05）**结论:**与传统分娩术相比，应用水中分娩能降低产妇会阴侧切率、产程和失血量。

[关键词]水中分娩;传统分娩；产妇影响；Meta 分析

The water delivery technique compared to the impact of traditional delivery on maternal meta evaluation

WANG Quan-yue

[abstract] Objects: This study was designed to assess the effects of childbirth on maternal health**. Methods:** Computer search Cochrane Library, Pubmed, Wanfang, Weipu, China Knowledge Network, retrieval time as of April 2017 in April. In Chinese, the search term "water delivery", "natural childbirth", "maternal influence"; English search words water birth, delivery in water, labor in water,normal labor and so on. According to the heterogeneity test results, the corresponding effect model was used to merge the data, and the OR value, WMD value and 95% CI were calculated. The quality of the literature was critically evaluated and extracted by two researchers, and meta-analysis was performed on the study of quality standards**. Results:** There were 6 RCTs in 1586 cases, and the metaphoricity, labor rate and blood loss were significantly lower in meta-analysis group than in control group (P <0.05) **.Conclusion:** Compared to the use of water delivery can reduce maternal perineal fissure rate, labor and blood loss .
[Key words]: The water delivery; Traditional delivery; Maternal influence; Meta analysis

分娩是人类繁衍过程中的一个必经过程。水中分娩是顺产的一种方式，给产妇多了一种选择，同时也降低了剖宫产率。据现有资料记载，早在 1803 年法国就出生了第一个水中婴儿。当时是因为筋疲力尽的产妇为了放松而走进热水盆浴中，结果宝宝很快降生在水里。据不完全统计，美国在 80 年代后期成立首家水中分娩中心以来，在水中出生的婴儿有 6000 名。有条件进行水中分娩的医院也从 1995 年的 10 家发展到 150 家。2003 年，中

国第一例水中分娩在上海开展。2006 年，国内第一家采用专业水中分娩设备的医院在广州成功开展水中分娩。

与传统分娩相比，水中分娩过程中水的浮力可使产妇身体放松，在水中产妇可以采取不同的分娩姿势，温暖的水有助于消除紧张、镇静放松，使产程的应激激素减少，加速产程中内啡肽、儿茶酚胺分泌减少[1]。Lim k M X 等[2] 的研究也显示，水中分娩时子宫血流灌注增加，有利于宫颈扩张，可使产妇把更多的能量用于子宫收缩加速产程。此外，Kavosi Z[3] 的研究显示，水中分娩可增强产道弹性，从而减少会阴损伤及降低会阴部侧切的几率。但也有研究对水中分娩的安全性提出质疑，Nutter E 等[4] 报告水中分娩可能增加母婴感染的风险 。迄今为止，尚无明确证据表明水中分娩与传统分娩相比孰优孰劣，因此，本研究旨在采用 meta 分析的方法收集现有文献，对比水中分娩技术的安全性和有效性进行评价。

1 资料与方法

1.1纳入与排除标准

1.1.1研究设计 1980-2017年国内外发表的关于水中分娩对比自然分娩的随机对照实验（RCT）。

1.1.2纳入对象 根据PICO纳入低风险产妇为研究对象，进行水中分娩组与传统分娩组的比较。

1.1.3排除标准 排除原始资料中带有异常妊娠、有生殖系统肿瘤、损伤、感染疾病及全身系统性疾病者的文献。排除质量较低的文献，数据不完整不能利用的文献。

1.2 检索策略 采用主题词与关键词相结合的方法，以“water birth”、“deliver in water ”、“labor in water ”、“natural childbirth”、“normal labor”在 Cochrane 图书馆（1999-2017）、Pubmed 进行检索。以”水中分娩、传统分娩、产妇影响“为中文关键词计算机检索万方科技期刊全文数据库（2004-2017）、维普中文科技期刊数据库（2004-2017）、中国知网数据库（1993-2017）。文献检索年代自建库开始至 2017 年 4 月。

1.3 结局指标 水中分娩对会阴裂伤的影响；水中分娩对产程的影响；水中分娩对失血量的影响。

1.4 资料提取 纳入文献基本信息：研究者、发表时间、样本量、干预组、对照组、影响因素、结局指标。

1.5 文献质量评价 采用英国牛津大学循证医学中心对随机对照研究的评价标准，对纳入研究进行质量评价，由两人独立完成。若两人意见难以统一，则邀请第三人代为评判。

1.6 统计学方法 （1）根据 Meta 分析的要求对纳入的研究进行数据整理 ，建立数据库。（2）应用 Review Manager 5.3 软件对资料进行异质性检验及合并分析。检验资料异质性的统计量 I^2 及 P 值，若 P＞0.1，I^2 ≥50% 判断无临床异质性，采用随机效应模型进行 Meta 分析；若 P＞0.1，I^2 ＜50% 认为研究间具有同质性，采用固定效应模型进行 Meta 分析。（3）计算合并的 OR 值及其 95%CI，绘制森林图 。（4）因纳入研究较少（少于 10 篇 ），暂不做漏斗图对偏倚进行分析。

2 结果

2.1 文献检索结果 初检出相关文献 376 篇（其中英文 49 篇，中文 327 篇），经阅读文题和摘要后排除与研究目的不相关的文献 333 篇；去除重复文献 15 篇；进一步阅读全文排除非随机对照试验及无对照组的临床试验，最终纳入 6 篇[5-15]RCT 文献，共 1586 例患者。文献筛选流程图见图 1。

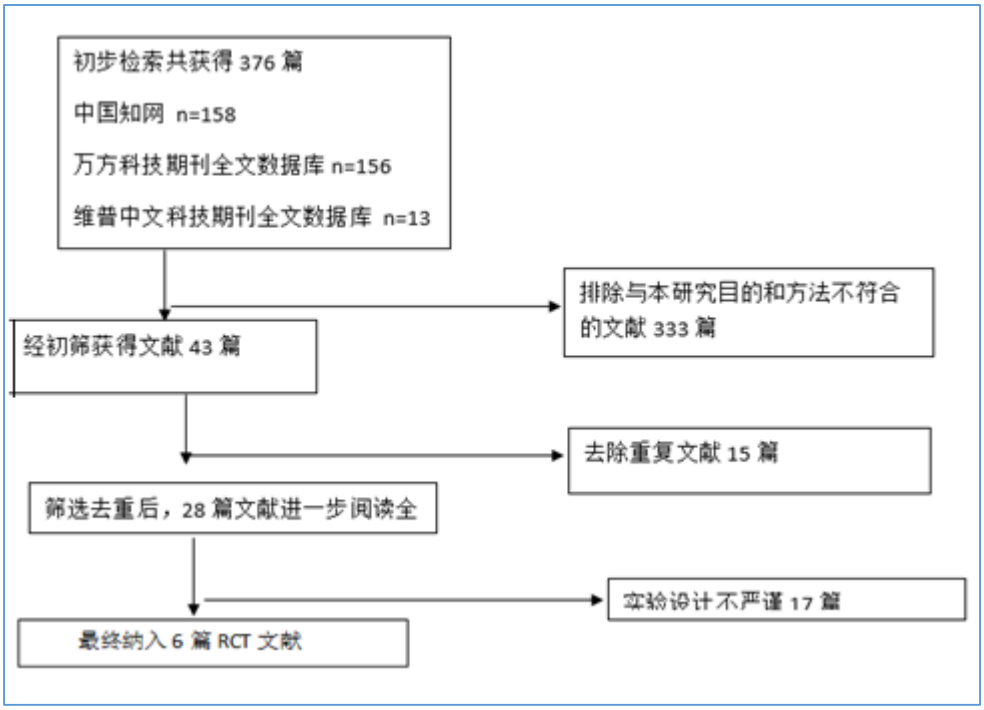

图 1 文献筛选流程图

2.2 纳入研究的基本特征 纳入的 6 篇 RCT 文献[5-15]均对两组患者的性别、年龄、病情等基线资料进行了统计学检验，差异均无统计学意义。从分组例数及结果统计例数分析失访情况，均无失访。纳入的 6 篇文献最终质量等级评价均为 B,质量均较差。纳入文献的基本特征见表 1.

表 1 6 篇纳入研究的基本特征

纳入研究	样本	实验组	对照组	结局指标
ChinezeM2000	266	133	133	会阴裂伤
马剑芬 2012	200	100	100	产程时间、出血量、会阴损伤情况
马爱玲 2012	110	55	55	产程时间、侧切率、出血量
李晓燕 2013	120	60	60	会阴损伤、产程时间
罗抗封 2015	600	300	300	产程、出血量、侧切率
李小敏 2016	290	145	145	产程、会阴裂伤、出血量

2.3 文献质量评价　英国牛津大学循证医学中心对随机对照研究的评价标准对纳入的 7 篇文献，从是否采取了随机分组的方法、各组基线是否具有可比性、两组实验除干预措施外其他治疗和护理措施是否具有可比性、是否采取双盲法及、是否将所有入选研究均纳入结果分析和文章等级这六个方面进行质量评价 ，最终 2 人讨论达成一致共识后形成正式的文献信息提取表,经评价较中等质量文献 5 篇。具体评价结果，见表 2。

表 2 纳入文献的质量评价

评价项目	评价结果					
	Chineze M2000	马剑芬 2012	马爱玲 2012	李晓燕 2013	罗抗封 2015	李小敏 2016
是否采取随机分组方法	是	是	是	是	是	是
各组在基线时是否具有可比性	是	是	是	是	是	是
除了要干预的措施外，各组接受的其他治疗和护理措施是否相同	是	是	是	是	是	是
是否对研究对象及结果测评者采取了盲法	是	不清楚	是	否	是	不清楚
是否将所有入选的研究对象均纳入结果分析中	是	是	是	是	是	是
文章等级	B	B	B	B	B	B

2.3 meta 分析结果

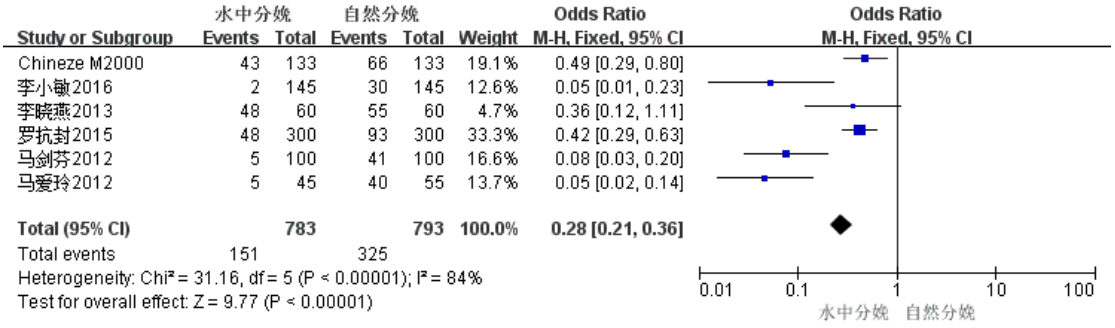

图 1 水中分娩对比传统分娩会阴裂伤的影响

2.3.1 对会阴撕裂伤的影响 纳入研究中有 6 个研究[5-10]报道了会阴裂伤的影响，各研究间存在统计学异质性（I^2=84%，P<0.00001），故采用随机效应模型。分析结果显示：与自然分娩组相比，水中分娩组在会阴裂伤方面差异统计学意义［OR＝0.28，95%CI（0.21，0.36），P<0.00001］，见图 1。

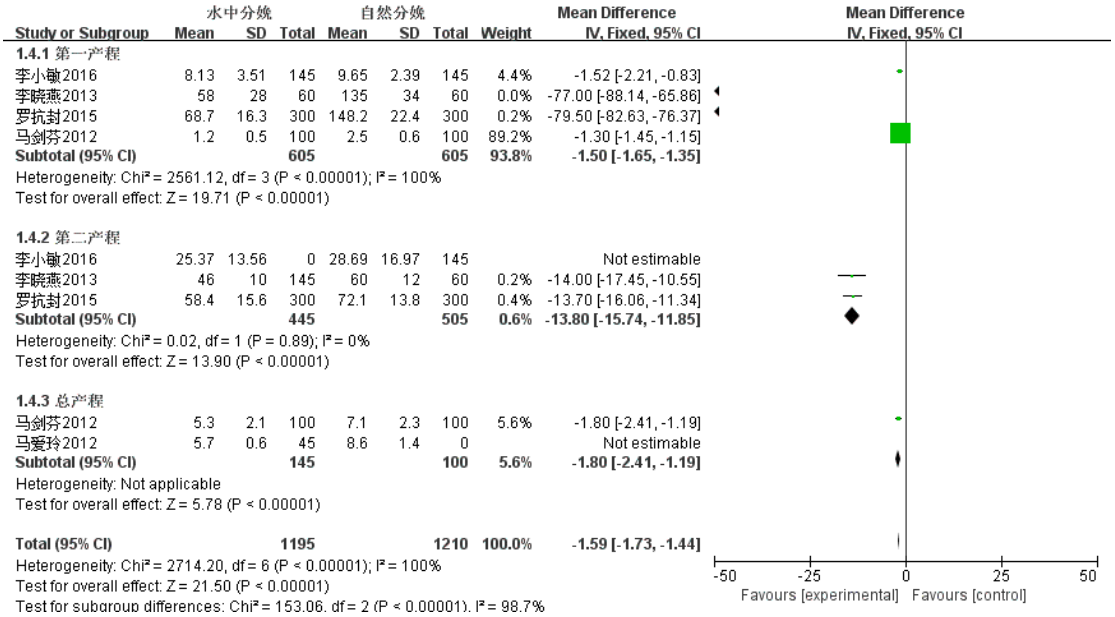

图 2 水中分娩对比传统分娩产程的影响

2.3.2对产程的影响　纳入研究中有5个研究[6-10]报道了水中分娩与传统分娩的产程时长。各研究间存在统计学异质性，故采用随机效应模型。分析结果显示：第一产程、第二产程和总产程均有统计学意义［第一产程：WMD=-7.68 ，95%CI（-1.65，-1.35），P<0.00001；第二产程：WMD=-13.80，95%CI（-15.74，-11.85），P<0.00001；总产程：WMD=-1.80，95%CI（-2.41，-1.19），P<0.00001］，见图2。

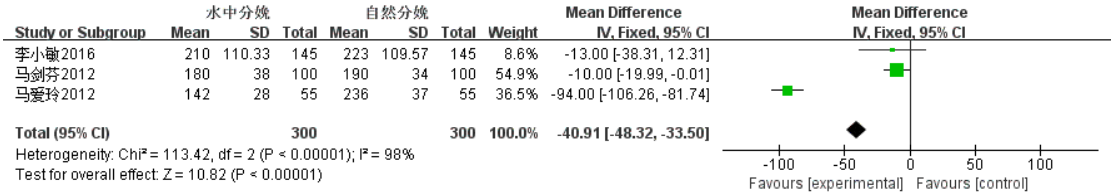

图 3 水中分娩对比传统分娩失血量的影响

2.3.3 对失血量的影响　纳入研究中有3个研究[8-10]报道了失血量的情况，各研究间存在统计学异质性（I^2=99%，P<0.00001），故采用随机效应模型。分析结果显示：与自然分娩

组相比，水中分娩组在术中出血量方面差异统计学意义［WMD＝11.29，95％CI（8.52，14.07），P<0.00001］，见图3。

3 讨论

3.1.本次Meta分析结果显示，水中分娩增加产妇会阴弹性，有利于会阴及产道的伸展。因而降低了产妇的会阴侧切的发生机率。在温水中浸泡的产妇身心会比较镇静放松，引起血压升高、产程延长的应激素减少，同时水的浮力让肌肉松弛，这样会产妇把更多的能量用在子宫收缩加速产程。所接受水中分娩的产妇主诉分娩疼痛减轻，温水刺激皮肤产生的信号经快速纤维传导阻断或减少疼痛信号向大脑传递，这样使痛疼下降。

3.2 本研究仍有几个局限 ：1）本研究纳入文献的指标存在一些差异，仅纳入了已发表的随机对照实验，且纳入文献较少，有存在发表偏倚的可能，没有漏斗图来评价本文献的偏倚程度，降低了本文的可信度。2）有些研究样本量较少，仅分析水中分娩对产妇的会阴裂伤、产程、失血量、疼痛指标进行分析，不能综合评价水中分娩的临床效果，导致了本Meta分析缺乏严谨性。3）在文献语言种类的选择上，只对中文和英文两种语言进行检索，纳入公开发表的随机对照试验，可能导致文献纳入不全。

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A Leadership Paradox (What Is STRONG Leadership?)

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Abstract

People in organizations tend to want "strong leaders" in positions of power. But what does that mean? Are they talking about people with strong personalities, or people who are physically strong, or people with a lot of stamina? Or what? Usually they mean big, persuasive, authoritative, decisive, etc. Unfortunately, no one has taken the time to properly define the term, strong leader. Maybe if we had a definition of strong leader that we could teach to business students and executives, we would do a much better job of picking the best people to help our organizations thrive. This essay proposes that a paradox exists when it comes to separating the weak leaders from the strong leaders. What most people think of as strong, is actually weak and what most people think of as weak, is actually strong. The paradoxical term, servant leader, which sounds weak, may, in fact describe the strongest type of leader.

A Leadership Paradox (What is *STRONG* leadership?)

For some time now I have been concerned about the types of people we often choose to put in charge of our organizations. My experience is that we seem to think that people who are authoritative and have strong egos would make good leaders because we want something called "strong leaders". Consequently, people who are trying to impress others as to their leadership ability tend to become authoritative and overly assertive. *I think we need to examine this concept of strong leadership.*

In this paper I will make the case that what we commonly think of as strong leadership may not be the most effective way to motivate people. Paradoxically, what many people consider weak leadership styles are, in reality, the most effective for motivating people.

While doing a literature review of police corruption and its causes for a doctoral dissertation, I found that problematic *leadership* is the most often cited cause of police corruption. The phrase I found most often was *weak leadership* and that *strong* leadership is how to fix an organization.

Currently, there doesn't seem to be any specific definitions of weak and strong leadership. It seems that most people use the word leadership simply as a synonym for manager,

meaning the person assigned to be in charge (Kotter 2013). And when people use the terms weak or strong leadership the first thing that comes to mind is either a leader who does nothing (weak) or a leader like World War II General George Patton or the stereotypical John Wayne movie character (big, heroic and strong). These so called "strong" leaders are tough, decisive, and even macho. Given the plethora of current leadership research, I think it's time to define what is a weak leader and what is a strong leader.

Paradoxically, people tend to assign the term strong leader to an overbearing, loud, or very decisive person. The paradox is that perhaps these types of people are actually weak or ineffective leaders. Actually, my experience has been that often a weak or insecure person seeks out a "title" or position, thinking that it will make them feel better about themselves. They then play the part that they think will make them look "strong"—loud and very decisive.

The dictionary definition of the word strong that should be used to describe strong leadership is, "capable of the *effective* exercise of authority or *power"*.

Regarding *power*, there are two types—positional and personal (Hunter, 2004). Positional power occurs when a person is appointed to a position of power. This person is usually given a title, like manager or CEO. Personal power, on the other hand, is the power that is granted to the leader by the followers. The followers grant this power to the leader because they trust the leader to not be self-serving and to act in the followers' best interests. Using positional power, according to leadership experts, will usually get people to "comply". "Complying" means that they will do only the minimum necessary in order to keep their job or to keep from getting reprimanded. The leader who has personal power, will usually get "commitment" from people. That is, they are committed to the task at hand and will do more than just the minimum (Hunter 2004). Clearly, the use of personal power is more *effective* because people are motivated to do more and better work. The evidence is rapidly growing that organizations whose leaders use personal power are more successful (Drucker 1999) (Cooper 2002) (Sisodia, Wolfe, & Sheth 2007).

The chart below shows the paradox that, what most people think of as strong leadership is less effective and thus, I would argue, weaker. And servant leadership, which just plain sounds weak, is really the most effective and thus should be thought of as strong. The chart does not include all of the more than 100 leadership styles or models found in the leadership literature

(Rubenstein, 2007), however it tries to be representative of all leadership styles. It ranks the leadership styles in order from weaker to stronger using the logic that the more effective a leader is, the stronger a leader he or she is. In other words, the stronger styles get better results than the weaker styles. Moreover, in my experience, the weaker styles of leadership are often adopted by more insecure people.

LEADERSHIP STYLES
Laissez faire
Autocratic
Transactional
Authoritarian
Charismatic
Situational
Democratic
Transformational
Level 5
Servant Leader

Table 1. The weaker leader (at the top of this table) relies more on positional power, while the stronger leader (at the bottom of this table) relies more on personal power.

Below is a brief synopsis of each of the leadership styles noted in the above table:

Laissez faire This style of leadership is basically no leadership. The leader elects to let subordinates do as they like with little or no direction.
Autocratic Also known as heroic leadership. It assumes that the person in charge knows more or is better than subordinates. This type of leader tends to make and enforce all the rules with no regard for attenuating circumstances. This leader likes to make decisions without input from peers or subordinates and tends to be the center of attention.

Transactional implies some type of transaction—"if you do this then I will give you this" or "if you don't do this then I will punish you with this". Receiving a paycheck in return for services is also transactional. Any changes in people as a result of transactional leadership are usually short term (Burns 1978).

Charismatic This is in the middle of the chart because charismatic leaders can be good or evil. In either case they are able to influence people because of their personality or charm.

Authoritarian places emphasis on task and job and less emphasis on people. Communications with subordinates is for the purpose of giving instructions on accomplishing the task. People are seen more as a means for getting the job done (Northouse, 2004).

Situational This leader knows that different situations require different responses. He or she tries to evaluate people and occurrences as unique (Blanchard, Fowler, & Hawkins 2005).

Democratic Tries to involve as many people as possible in decision-making.

Transformational. The real movers and shakers of the world are transformational leaders (Bass and Riggio, 2006). This leadership transforms people into wanting to accomplish the task for the intrinsic rewards, i.e. it feels emotionally good to do a good job or it feels good to help other people. Transformational leadership changes people for the long term.

Level 5 leader This is the leader described by Jim Collins in Good to Great (2001). In Collins' study all the enduring great organizations had level 5 leaders, that is, a transformational leader who blends personal humility with a strong professional will. The level 5 leader is *not* a larger-than-life hero with a big personality. Collins (2001) sees this style as being close to servant leadership.

Servant leadership The servant leader is first a servant—one who tries to make everyone in the organization a leader and responsible for the good of the organization and everyone in it. This is a particularly ethical philosophy of leadership because of the emphasis on respecting and caring for other people. As a form of transformational leadership, servant leadership also changes people for the long term.(Greenleaf 1991)

A strong leader is secure enough is his or her own competence that they invite and encourage dissent (Bennis 1989). Many people in positions of authority feel that being authoritative, decisive and autocratic (using their position to force people to comply) and thus stifling dissent is strong leadership. This is actually weak leadership because relying on positional authority is just simply "the easy way" and it's less effective. According to Ann McGee Cooper (2002), we tend to view people who ask for other's opinion and advice as weak and indecisive. However the reality, according to outcomes, is that democratic, "shared", and servant leadership are strong leadership styles. This type of leadership, recently referred to as "soft leadership" (Goens 2005) requires more initial time and effort, however it is more effective and potentially more satisfying for everyone involved. It is also more ethical because it stresses the well being of people.

The leader who tends to go for the autocratic and authoritarian styles might get quick results and appear strong, but quick changes tend not to last. The leader who tries to make slow long term changes with transformational and servant leadership actually accomplishes more, because she makes changes that tend to last.

It is important to note that one style of leadership does not work in all instances. Sometimes it is necessary for a leader who uses the stronger styles of leadership, such as servant leadership, to occasionally use the weaker styles such as autocratic and sometimes even laissez faire. The key is that for maximum effectiveness for the long term the stronger styles should be used as much and as often as possible.

So, why do we tend to choose the tough, autocratic types to put into positions of power? At least one answer is *fear*. Currently, people around the world are trying to get rid of their oppressive dictators. This is commonly referred to in the press as the "Arab Spring" because it is happening in several Arab countries. One of the main reasons that people allowed such "strong leaders" to get into power and stay in power so long is because human beings are inherently afraid of chaos and it is thought that these types of people (oppressive and dictatorial) can better control chaos. (Buckingham 2005) Of course, the problem is that these types of people are self-centered and while they kept *control*, it is just a matter of time before they get carried away with their own self importance and things get so bad that they need to be overthrown.

I think people living under these repressive regimes know that these leaders are evil. But the logic is that all an individual has to do to be relatively safe is not run afoul of the people in power.

There are many famous historical leaders who were very strong leaders, mainly because of an unwavering commitment to a higher or noble cause, for instance Martin Luther King Jr. or Mahatma Gandhi.

We tend to think of these types of people as strong leaders because they accomplished so much and are so well known. But one doesn't need to make huge and historical accomplishments to be a strong leader. I would argue that people like Gandhi and King had this amazing commitment, mainly because they really cared about people. And just because a person doesn't have a crisis like pervasive racial injustice on a mass scale (MLK & the civil rights movement) or freeing an entire country (India) from oppression doesn't mean they can't be a

strong leader. We can all be strong (effective) leaders by demonstrating caring and commitment no matter what our situation or cause is.

The bottom line is that we need to fundamentally change our definition of strong leadership! Doing this will give us a better understanding of how to most effectively lead and minimize corruption.

In conclusion, I would like to suggest that, in the interest of picking the best people to put into positions of power, research needs to be done in the area of caring—a servant leader really *cares* about his or her people (Behar 2007) Only recently has caring been overtly identified as an important leadership trait. Regarding caring, my experience is, and (Day 2014) confirms, that organizations tend to put people in positions of power who are extroverts. Extroverts are preferred as "leaders", I suspect, because we think that people who talk a lot (extroverts) must really care, since they seems to have opinions about many things. While we think that people who don't talk a lot (introverts) don't talk because they just don't care (Cain 2013). Could it be that quiet (possibly humble) people actually *care* more than talkative (possibly self-centered) people?

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应用体外冲击波联合 ERCP 介入治疗胆总管及胰管结石初探

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【摘要】 目的 评价内镜逆行胰胆管造影（ERCP）联合体外冲击波碎石（ESWL）治疗高龄难取性胆总管及胰管结石的疗效。方法 对ERCP术中诊断为难取性胆总管巨大结石的 46 例患者，其中胰管结石 3 例，先于内镜下置入一体式鼻胆管及胰管支架，再行ESWL，待结石破碎后，行二次ERCP取净胆总管结石。 结果 胆总管结石平均数目 1.8 枚（1 ~ 4），直径 2.6 cm（2.0 ~ 3.2）（最大结石）；首次ERCP操作成功率 100%，未出现内镜下乳头括约肌切开相关性并发症；平均冲击波波能量 11kv（10 ~ 12kv)，冲击波次数 2500 次（2000 ~ 3000），疗程 3 次（1 ~ 5），碎石成功率 100%（最大碎石直径< 1.0 cm）。二次ERCP结石取净率 100%，术后未发生呼衰、心衰、死亡等重大并发症。结论 ESWL联合ERCP是一种治疗胆总管及胰管结石的安全而有效的方法。

【关键词】 非血管介入；冲击波； 胆、胰管结石治疗

【Abstract】 Objective To value the effect of endoscopic retrograde cholangiopancreatonraphy (ERCP) combined with extracorporeal shock wave lithotripsy (ESWL) for intractable large choledocholithiasis in patients. Method 46 cases were diagnosed with large choledocholithiasis by ERCP，included three pancrestic duct stones . Integrated nasobiliary and pancreatic stents were placed firstly. A second ERCP was performed to remove the crushed stones after ESWL. Result The average numbers and diameter were 1.8 (1 ~4) and 2.6 cm（2.0 ~ 3.2） respectively. All patients were performed with successful ERCP without ERCP related complication. The average shockwave energy, frequency and duration of treatment were 11kv（10 ~ 12kv), 2500 times（2000 ~ 3000），3times（1 ~ 5）. All large common bile duct stones were crushed with the diameter less then 1 cm. There were 2 cases of acute cholecystitis, 4 cases of acute cholangitis and 2 cases of hemobilias after ESWL. One case received percutaneous transhepatic gallbladder drainage for acute obstructive suppurative cholecystitis and the rest patients were cured by medical treatment and biliary irrigation through the nasobiliary tube. The crushed stones in common bile duct were all removed by a second ERCP without respiratory failure, heart failure, death and other major complications. Conclusion ERCP combined with ESWL is a safe and effective method fo large choledocholithiasis and pancrestic duct stones in patients.

【Key words】non-vascular interventional therapy；Extracorpreal shock wave lithripsy; Choledocholithiasis;Pancreatic duct stones;

SWL是世界八十年代由德国人首先应用于泌尿系结石治疗的，是具有里程碑意义的临床医学技术革命，它将病人从传统的手术治疗中解脱出来。应用冲击波原理，体外无创或微创介入治疗泌尿系统结石成功率已高达 95%以上。因此，ESWL、CT、MR三项临床医学技术共称为二十世纪近代医学类史的三大技术革命。我们从 2008 年始应用该项技术联合ERCP治疗 46 例胆总管结石，其中包括 3 例胰管结石，现报道如下。

资料与方法

一、一般资料

2008 年 10 月至 2014 年 10 月大连大学附属中山医院胆道微创外科收治胆总管巨大结石患者 146 例（最大枚结石直径>2cm），其中 46 例为高龄难取性胆总管结石，其中包括 3 例胰管结石，男性 19 例，女性 27 例，平均年龄 71.5 岁（65 ~ 91）。其中 41 例有上腹部手术病史，包括：胆囊切除术 16 例、胆道探查取石术 8 例、胆囊切除及胆道探查取石术 13 例、毕罗Ⅰ式胃大部切除术 3 例、毕罗Ⅱ式胃大部切除术 1 例；27 例曾因胆总管结石行ERCP取石术；所有患者均存在两种及以上基础疾病，包括：高血压病、冠心病、心衰、糖尿病、慢性阻塞性肺疾病、肾功能不全、冠状动脉支架置入术后等。术前所有患者均行血液常规生化及上腹部CT、超声、MRCP检查，除外肝内胆管结石。

二、器械

日本Olympus JF-260v/TJF-240 电子十二指肠镜及其配件，Pentax 3440T/ FCP-9P胆道子母镜，多尼尔公司Compact Delte Ⅱ型碎石机，德国ERBE ICC-200 高频发生器，美国Boston球囊扩张导管：气囊长度 5.5 cm，有效直径 0.8~ 3.0 cm，压力 3~ 9 ATM、造影导管、弓形乳头括约肌切开刀胆道扩张探条、针状乳头括约肌预切开刀、导丝(黄斑马导丝和超滑导丝)、碎石网篮（直径 3/5 cm）、取石气囊导管（直径 1.0 ~2.0 cm）、取石网篮、鼻胆引流管(7.0/8.5 Fr)、胰管内引流管（5.0/7.0Fr，5~ 12 cm）、胆道内引流管（7.0/8.5 Fr，5~ 12 cm）。

三、技术方法

1. ERCP治疗方法：患者术前空腹 6 h以上，肌注丁溴东莨菪碱 20 mg和地佐辛 5 mg 后，采用达克罗宁胶浆 10 ml口服麻醉，口咽部麻醉不能耐受者则采用丙泊酚 3~5 $mg•kg^{-1}•h^{-1}$泵入麻醉，其治疗步骤如下：① 先行十二指肠镜检查，了解十二指肠乳头类型及长度，是否存在乳头炎或纤维化、乳头旁憩室及憩室数目和部位；② 经ERC明确结石数目、大小及部位，是否存在胆胰合流异常等；③ 在导丝引导下置入ERPD管；④ 采用切凝混合电流行乳头括约肌小切开；⑤ 内镜下柱形气囊扩张，根据胆总管直径、结石数目及最大结石直径选择相应型号的球囊扩张导管，逐级扩张至最大直径，每次扩张时间 3~ 5 min；⑦ 导丝引导下置入 8.5Fr ENBD管。

2. ESWL方法：患者取俯卧位，经鼻胆管注入 5 ~20 ml 浓度为 50%碘海醇，X线定位胆总管结石，碎石的冲击波能量采取跳跃式增减，碎石开始使用中等能量，每隔 500 次变换震波，交替使用高、中、低能量，冲击波能量 20.0 ~ 45.0 J，冲击波次数 3000 ~ 5000 次。

3. 二次ERCP取石：ESWL结束后 2 周行二次ERCP取石，先使用最大号球囊行乳头括约肌球囊扩张，随后根据胆总管直径选择相应的取石球囊导管和/或取石网篮取出，取净结

石后放置自制型一体式鼻胆管及胰管支架（由鼻胆管及胰管内引流管组成，申报发明专利号：201510235964.9、201510242193.6、201510236031.1、201510238034.9）。

4. ERCP术后处理：患者术后予以禁食、水，次日清晨采集外周血，检查血淀粉酶、血常规及肝功能，观察胆汁性状，每日行经ENBD管冲洗以保证内引流管通畅，发现胆道出血者使用含肾上腺素及白眉蛇毒血凝酶稀释液经ENBD管注入，常规应用广谱抗生素 3~ 5 d，结石取净术后 5~ 7 d经鼻胆管造影再次确定无结石残留后，拔除ENBD及ERPD管。

结 果

46 例患者首次ERCP均操作成功，十二指肠镜检查及胆道造影确定 41 例存在胆胰汇合部疾病，包括憩室旁/内乳头 39 例、乳头萎缩 4 例、胆胰合流异常 9 例、乳头炎 14 例；胆道造影显示平均胆总管结石 1.8 枚，其中最多 4 枚；平均直径 2.6cm，最大结石直径 3.2cm，最小 2.0cm；46 例患者于乳头括约肌切开并球囊扩张后均放置一体式鼻胆管及胰管支架，术后未出现急性胰腺炎、胆管炎、出血、肠漏等EST相关性并发症。

ESWL术中平均冲击波能量 24.2 J（20.0 ~ 45.0 J），冲击波次数 4348 次（3000 ~ 5000 次），疗程 3.2 次（1 ~ 7 次），结石破碎率 100%（最大碎石直径< 1.0 cm）。ESWL术后发生急性胆囊炎 2 例，急性胆管炎 4 例，胆道出血 2 例，其中 1 例为急性梗阻性化脓性胆囊炎，考虑碎石堵塞胆囊管所致，行超声引导下经皮经肝胆囊穿刺置管引流术，其他 6 例患者采取经鼻胆管冲洗及抗生素等药物对症治疗后逐步缓解。

46 例患者二次ERCP均操作成功，术中结石取净率 100%，未发生呼衰、心衰、大出血、肠漏、死亡等重大并发症，取石术后 1 周后经一体式鼻胆管造影见胆管内无结石残留，透视下顺利拔除一体式鼻胆管及胰管支架。

讨 论

体外冲击波碎石（extracorporeal shock wave lithotripsy, ESWL）最早被用于泌尿系统结石的治疗中，其疗效显著，目前已成为泌尿系结石的重要治疗手段[2]。1984 年，Sanerbruch首先应用Dornier碎石机对胆囊及胆总管结石进行了成功的碎石治疗，我国在 80 年代开始使用ESWL治疗胆结石[3]，其碎石成功率达 90%，但是自然排石率仅为 10%[4]。而且碎石过程中造成的组织损伤大，破碎的结石在排泄过程中可引起胆囊管及胆总管堵塞，诱发急性胆囊炎、急性胆管炎、急性胰腺炎等并发症[1]。随着内镜技术的发展，腹腔镜、胆道镜、十二指肠镜已成为肝胆外科治疗胆总管结石的主流方法[5-6]，其中内镜下乳头括约肌小切开联合大柱状球囊扩张（EPBD）能增加较大胆总管结石的取出率[7]，pyGlass系统则实现了对难取性胆总管结石的直视下激光碎石治疗[8]。因此ESWL技术在胆石症中的应用也越来越少。

高龄患者往往合并较多的基础疾病，他们对长时间ERCP操作的耐受性差，手术及麻醉的刺激容易诱发心肺等脏器功能障碍，而内镜下机械碎石耗时长，SpyGlass系统成像较模糊，乳头旁憩室、乳头萎缩等因素又进一步限制了内镜下乳头括约肌大切开及大号

柱状球囊扩张技术的应用。因此对于高龄难取性巨大胆总管结石患者，目前一般采用ERCP置入塑料支架长期引流胆汁，以预防急性胆管炎的发生，而非取石治疗[9]。张志坚等[10]研究发现，预先置入多枚塑料支架，配合口服用熊去氧胆酸和(或)茴三硫，6 个月后胆总管结石直径平均缩小 6mm，使得再次ERCP取石变得简单。但是塑料支架平均通畅时间为 6 个月，支架堵塞后不但失去了其“溶石”作用，并能加速结石的生长，而且直径 2cm以上的巨大结石即使缩小 6mm，仍难以顺利取出。

近年来，在“损伤控制”及“杂交手术”的基础上，产生了多学科互联的分阶段治疗模式，这使一些单科单次手术不能救治的危重患者重获新生[11]。传统的ESWL技术在胆胰管结石的治疗中也有了进一步的发展，杨晶[12]等将联合ESWL的ERCP技术成功应用于肝内胆管结石的治疗中，其碎石率及结石取净率均达到 100%，而且在目标胆管内预先放置ENBD管后，ESWL并未引起急性胆管炎等并发症；胡良蜂等[13]对慢性胰腺炎胰管结石患者先行ESWL，再行ERCP取石，其碎石成功率达 100%，结石取净率为 78%，但是术后胰腺炎发生率达却高达 3%，而预先在胰管内放置ERPD管，则可大大降低ESWL术后胰腺炎的发生率[14]。

为此对于高龄难取性胆总管巨大结石患者，我们于ERCP术中置入胆胰引流管，术后通过ESWL击碎胆总管结石，待碎石直径小于 1cm后再次行ERCP取出残留结石。本研究发现该方案的碎石成功率及结石取净率均达到 100%，其疗效显著，而且总的治疗周期也远远低于塑料支架[10]。虽然部分患者在碎石过程中出现急性胆囊炎、急性胆管炎及胆道出血，但是发病率低，容易治愈。该治疗方案充分显示“损伤控制”的价值，为了进一步提高ERCP联合EWSL治疗高龄难取性胆总管巨大结石成功率并降低其并发症，笔者认为术中需注意一下几点。

1. EST联合EPBD：该方法不但降低了EST或EPBD相关性出血、急性胰腺炎、肠漏等并发症，更重要的是降低的胆道压力，易于EWSL术后碎石的排出[7]。

2. ERPD及ENBD的应用：① ERCP术中放置ERPD及ENBD管，不但可降低ERCP术后并发症，而且降低了碎石在排泄过程中刺激十二指肠乳头而诱发急性胰腺炎、急性胆管炎、急性胆囊炎、梗阻性黄疸等并发症的发生率[12,14]；② 经ENBD管冲洗，可促进胆总管内感染性胆汁及碎石的排出，而应用肾上腺素及白眉蛇毒血宁煤稀释液冲洗，可以预防并治疗对于ERCP及ESWL术后胆道出血[15]；③ ESWL术前可经ENBD管注入稀释的造影剂，胆总管结石定位更为准确；④ ESWL术中可经ENBD管滴注冲洗液，可保持胆总管的充盈状态，同时易于碎石随水流排出；⑤ ESWL术中ENBD管壁与结石的碰撞，易于结石的破碎。

3.一体式胰管内引流管及鼻胆引流管的应用：为了易于碎石的排出并降低取石球囊反复刺激十二指肠乳头而诱发的急性胰腺炎的发生率，取净结石术后，建议继续留置ERPD及ENBD管，术后反复冲洗，待引流液无碎石后，经ENBD管造影证实无结石残留且术中造影剂排泄顺畅后，可拔除所有引流管。使用一体式胰管内引流管及鼻胆引流管，可以防止ERPD管的内移位，在取出ENBD管时可同时取出ERPD管，避免了二次ERCP取ERPD管手术，进而简化了操作流程。

综上所述，ERCP联合EWSL技术具有操作简单、安全性高、并发症少等优点，是对高龄难取性巨大胆总管结石“损伤性控制”手术方案的重要补充。

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