

I. Introduction

China's public health education has long been influenced by the former Soviet Union model and there has been no obvious change and improvement in education model and approach ever since. While public health practice and the health system undergoes fast changes and development in China, global health is developing vibrantly around the world, China's public health education apparently falls far behind the fast development of public health in China. Its training model and current status cannot adapt to the changes in public health society in China. The deans of schools of public health realized the necessity and urgency of public health education reform and hope they can work together as an alliance, taking advantage of each other's strength and complement each other to initiate and escalate the public health reform in China, training professionals with competitive edge and leaders for the public health cause in China.

China Medical Board (CMB) has shared the same view with the deans of schools of public health in China and working toward facilitating the advancement of public health education in China. CMB has grants for Planning the Public Health Education Reform in China, Prof Li Liming from Peking Union Medical College as the PI and grant for Training Project for Dr.PH in China, Prof Yan Hong from Xi'an Jiaotong University as the PI. The two grants share the same purpose: to enhance the collaboration with the top schools of public health in the world which already or is undertaking reform in public health education, so as to provide inspiration and information for the reform in China. Therefore, the two grants worked together, sponsoring deans of public health schools from Peking University Health Sciences Center, Fudan University, Zhejiang University, Shanghai Jiaotong University, Sichuan University, Southern South University, Xi'an Jiaotong University and Peking Union Medical College to form a delegation group to visit counterparts in US in summer 2012, exchanging information and experiences, leading to formulating the roadmap of public health education reform in China. Specific purposes of the study tour are:

- In-depth Understanding of the on-going reform in MPH education in the public health schools in US – the purpose, how, what, and why, and the challenges of the reform
- A general overview of the Doctoral education in public health in US, design, composition, characteristics, education reform practice, and trend of development
- Exploring and discussing the development and reform trend of public health education reform in US and globally, exchanging views and ideas, the findings of which will be the guidance in completing the research report on education reform in China's public health schools

Suggested and introduced by Dr. Lincoln Chen, President of CMB, Prof Ian Lapp, who used to be the key person in public health education reform at Columbia University and now working at the Harvard for the same endeavor, assisted the delegates in coordinating with the hosts in the US. Constrained by the time, the delegates decided to go to Harvard School of Public Health, Mailman School of Public Health Columbia University, and Gillings School of Global Public Health North Carolina for study tour this time.

II. Itinerary and Activities Briefing

First Stop

Harvard School of Public Health and CMB Cambridge Office

The first stop was Harvard School of Public Health (HSPH). On July 27, the delegates came to HSPH, Prof Ian Lapp hosted the meeting and his assistant Tamera Kingston, and Prof Liu Yuanli, director of China Initiatives at HSPH joined the meeting. Prof. Lapp just transferred to Harvard from Columbia University not very long ago and now the associate Dean for Strategic Educational Initiatives of the Harvard School of Public Health. In this presentation, Prof. Lapp talked about his vision and plan of public health education reform at HSPH. He mentioned the Triple burden of disease and other challenges to public health education and said now is the critical junction of public health education and important time to train the next generation of public health leaders, and the reform should probably borrow the concepts of entrepreneurship from business and other sectors.

He talked about the DrPh program at Harvard, and mentioned proudly about the DrPH program of HSPH - the 5 million dollar leadership incubator at Harvard, and the largest public health course in the world - PH207x.

Prof. Lapp thinks that the challenge of the magnitude of health problems is implementation, not vision, and failure to execute. Later, he talked about the innovative reform at public health education at Columbia University - case method to teach, integrate core courses, competence based education, which is targeting on health system needs and the evaluation of competency, and on top that to develop curriculum. He also talked about the 6 guiding principles for the roadmap initiative, and public health education as a school wide endeavor, competence-based learning, and the three levels of learning for professional education - emerging theme application of knowledge, problem solving, critical thinking skills. He also mentioned refine and retune faculty, find new way to teach, new way of thinking about education, faculty development, e-learning, executive and continuing education. Harvard will hold the Second Century Symposium in November 2013 and roll out new phases of public health education and Prof. Lapp invited the delegates to come again to see the new change at HSPH.

Later, the delegates visited the media room where the Harvard School of Public Health invites leaders from various disciplines to come to the studio and talk about the challenges and issues of different topics and broadcast live on website. This effort is a pride for the school to engage more people to pay attention to public health issues.

After the meeting at Harvard, the delegates visited China Medical Board Cambridge Office and had a meeting with Dr. Lincoln Chen and Dr. Lapp at faculty club of Harvard to further their discussions on the topics. Later, they had dinner together at the Harvard Faculty Club.

Second Stop

Rockefeller Foundation & Mailman School of Public Health Columbia University

July 30th morning: Rockefeller Foundation

Rockefeller Foundation is the earliest charity foundation in the world which engaged in public health. It involved in public health education and practice inside US and throughout the world and enjoyed a worldwide fame and influence. The foundation now engages less effort in health in the world, but its influence radiates widely. The foundation thinks highly of the role of leadership of public health and its role to influence other areas of lives, political, economic, and etc. The presentations at the foundation are mainly on the foundation's work in Asia, and the Transforming Health System Initiative of the Foundation. Heather Grady, Vice President of the Foundation and Jeanette Vega, Senior manager of health programs, Michael Myers, senior advisor for centennial programs and others joined the meeting. Dr. Heather talked about the foundation's vision and programs in the world and discussed leadership with the delegates. They also mentioned about the Beijing Meeting to be held in January 2013 as the start event of the foundation's centennial celebration.

Afternoon

Mailman School of Public Health Columbia University

Mailman School of Public Health has a history of over 90 years old, and is now one of the top 5 schools of public health in the US. The school has a faculty and staff of 477, enrolled 1,292 students in year 2011-2012, 84% of whom are master degree candidates and 15% doctoral candidates.

At the Mailman School of Public Health Columbia University, Jim Glover, Vice Dean of the school and Ana Abraido-Lanza gave the delegates a very impressive presentation. The two professors made thorough preparation for the visit. Based on the purposes of the visit, the presentations divided into two parts: MPH and DrPH. First, Dr. Glover introduced the MPH reform at Columbia. Facing the increasing change of society and public health practice, the School has taken a very bold and dramatic move to reform the public health education model, making the curriculum inter-disciplinary, more practical by combining practicum experience, integrating science and practice, introducing leadership and innovative courses, redesigning the portfolio of core courses and teaching approaches. The new model is no longer discipline-centered and oriented, but more inter-disciplinary by providing certificate programs, so that it has over 100 new combination of courses and has 24 Tracks based on the department. The school made Global Health as the window for redesigning the new curriculum.

Then, the meeting came to panel discussion of Doctoral degree training. Prof. Bin Cheng from Bio-statistics Department, Prof Leslie Davidson from Epidemiology Department, Prof Jennifer Hirsch from Socio medicine Department, and Prof Tang Daliang from Environmental Health Sciences Department shared the characteristics of

their department and programs respectively. The deans asked questions about specific issues such as module, studio, and etc. Through the meeting, the delegates had a deeper understanding of the difference between DrPH and PhD training - its training model, requirement for graduation, and source for students for the two programs.

The Third Stop

Duke Global Health Institute & Gillings School of Global Public Health UNC

July 31st Duke Global Health Institute

After the delegates arrived at Durham airport, they traveled directly to Duke Global Health Institute. Duke University and University of North Carolina located next to each other. Prof. Tang Shenglan, who used to work for WHO with rich experience of working internationally, came to work at Duke not very long and hosted the delegates. He is serving as the vice director of the China Initiative of the institute and an old friend to most of the delegates. Prof. Randall Kramm, vice director of the institute, Prof. Lisa Croucher of education, and Prof. Christ responsible for global health MPH program joined the meeting.

Prof Tang introduced that there is no school of public health at Duke and the Institute just established. The Institute emphasizes on making use of the advantages of the medical school and other colleges in the research and education of global health. Duke University is very active in the cooperation with Chinese counterparts. Then the professors of Duke introduced their China program and their global health program – the training and features. To the delegates interested in global health, the presentation is very informative as to how to roll out the global health program in China's universities.

August 1st

Gillings School of Public Health University of North Carolina (UNC)

As the oldest school of public health in the US and ranks NO.2 among all the schools of public health, the Gillings School of Public Health of UNC provided large number of human resources for the public health practice and education in US, many of the alumni of which became the leaders in public health sector in the US. Unlike the other universities that the delegates visited, UNC is a public university with comparatively lower tuition and responsible for educating more professionals. The college made very thorough preparation for this visit. Everything is well planned, from developing and revising agenda to other detailed arrangement.

UNC is the few schools with Global in their name of the school in the US. Also, UNC is very decentralized to department, not concentrated on college. Each department has the autonomy in deciding the number and what students they want to admit. The meeting at UNC is scheduled very full. The Dean of the school gave an introduction of the school and followed by presentations given by each department head of the school about their characteristics, students and curriculum design. UNC is very

student oriented and both the heads of department and school and the faculty care very much for their students. Prof. Barbara Rimer and Prof. Peggy Bentley, vice director for global health, welcomed the delegates and introduced the colleagues and give a presentation of the school. Then, Ronald Strauss, Vice Chancellor for international cooperation came to the meeting room and met the delegates. He reviewed the cooperation with Chinese counterparts, those with Peking University, Fudan University, PUMC and etc. Prof. Charletta Evans and Sherry Rhodes, responsible for student affairs gave a brief introduction, too.

Later, Prof. Anna Schenck introduced the public health leadership program, and followed by the presentation given on PhD and MPH program of Department of Bio-statistics. During the lunch time, the school arranged Chinese students studying at UNC to have lunch and chat with the delegates. After lunch, the delegates visited the classroom, distance learning facilities, and the labs. After touring the campus, representatives from department of Maternal and Child Health, environmental sciences and engineering, epidemiology, and health behavior gave presentations on MPH and DrPH/PHD training of their own departments. They also offered brochures and booklets of their department to the delegates. The presentations provide a clearer picture of the 5 cores of public health education required by the accreditation in the US, namely Bio-statistics, policy and management, epidemiology, social and behavior sciences, and environmental health.

At the reception and dinner in the evening, the school invited a number of old friends of the Chinese partners. The delegates had a very productive and good time at UNC.

III. MPH Program in the US – features and inspiration

All the schools of public health that the delegates visited gave a very detailed introduction of the programs of MPH in their own schools. They also answered questions from the delegates. The trip was short, but the delegates learned a lot. The project also did an investigation of School of Public at Johns Hopkins when the Vice Dean of the school visited China. So, the following summary of the MPH programs also includes Johns Hopkins, in addition to Harvard, Columbia, and UNC.

MPH training objectives

The four schools differ slightly, for the three private universities: Harvard, Johns Hopkins, and Columbia, their public health training is on the basis of medical education background, While UNC is more departmental orientated and more like a Master of Science type.

1. Harvard

The objective is to train the leaders for public health professionals for the whole sector, so candidates with different background and expectations have access to the MPH training.

2. Johns Hopkins

Train high-level professionals in public health who can make use of multidisciplinary and science knowledge to solve global health issues.

3. Columbia

Emphasize on professional degree to solve practical issues, distinguish from science degree

MPH is departmental oriented, and differing as result of their different professional characteristics.

Departments that have MPH include bio-statistics, environment health, epidemiology, health policy and management, population and family health, social medicine, and etc.

Accelerated MPH is a one-year intensive training program, targeting on the public health professionals and providing short-term training to improve their professional competence and obtain a MPH degree.

Typical MPH at Columbia is a two-year program and very interdisciplinary and integrated.

4. UNC

Departments offer MPH program include: Bio-statistics, environment health and engineering, epidemiology, health behavior, health policy and management, maternal and child health, nutrition, public health leadership program.

For bio-statistic department, the aim is to train professionals with comprehensive public health knowledge and bio-statistic knowledge.

Environmental science and engineering: emphasizes on the training of professionals in environmental health and engineering within public health area

MPH Admission requirement

1. Harvard:

A doctoral degree is a must, including MD, DDS, PhD, SD, JD or equivalent degree from overseas, or master degree related to health (e.g. Master degree in nursing, social sciences, MBA and etc) with three-year working experience. Harvard law school can apply for a JD/MPH dual degree and candidates with MD and DO can apply for a MD/MPH dual degree at their junior and senior year of study.

2. Johns Hopkins

A bachelor degree and at least two-year health related working experience is a must, or with a doctoral degree. Medical Students does not have to have working experience, neither does the candidates with the following dual degree: JD/MPH, MSW/MPH, MSN/MPH.

3. Columbia:

No uniformed requirements for all the programs:

Accelerated MPH program (newly established in fall 2012): requires a doctoral degree (e.g. MD、DDS、PhD、JD、DNS、EuD and etc.) Or doctoral candidate who can get degree in two years, or degree holder with five years relevant working

Regular Columbia MPH: There is no specific requirement. Some website states that bachelor degree is the minimum requirement.。

4. UNC:

There is no uniform requirement at school level, but each department has its own requirements:

For epidemiology department: a doctoral degree is must (MD、DVM、DDS、PhD, and etc) or a doctoral candidate who will commit to clinical or management after graduation.

For bio-statistic department: 1) bachelor degree in mathematics, have knowledge of calculus and linier algebra 2) one year and above public health working experience or with MD or substitute

Health Policy and Management: Doctoral degree holder (JD、MD、DDS、PhD), or candidates

Health behavior, maternal and child health, nutrition and leadership program does not have such explicit requirements.

Core Courses

1. Harvard

Altogether 42.5 credit, 30 credit of which must be above C, GPA minimum 2.7
Including biostatistics, epidemiology, environmental health, health service and administration, health management, health economics, health policy, social behavior sciences, ethics

The school has planned to carry out reform on curriculum and teaching approach

2. Johns Hopkins

Require to finish 80 credits, at least 60 of which require formal courses from school,

16 of which through lecture, minimum GPA 2.5 and for courses that have examinations, the grade should at least C

All students should complete personal analysis of goals by the first two semesters

Compulsory courses include: biostatistics, environmental health, epidemiology, management, policy, public health biology, social and behavior sciences. 80 credits for compulsory and elective together.

3. Columbia

core: After reform, it has 5 studios: introduction to public health(ethics, history, human rights); biological and environment factor affecting health (biology basic, environmental factor affecting health); health related social behavior(globalization, behavior and health, reproduction health, maternal and child care, gender factor, social factor); health system (introduction and compare health care delivery system of different countries, health economics, US public health and health care system); research methodology(policy formulation, quantitative and qualitative analysis, biostatistics, epidemiology and research design, and etc.)

The school has implemented education reform, both in teaching content and approach

4. UNC

Epidemiology core courses include: probability and logistic in epidemiology, epidemiology basic, statistic reasoning principle, experimental research principle, epidemiology principle and quantitative approach, binary categorical variable analysis in epidemiology, core courses in epidemiology, probability and inference in epidemiology, introduction of epidemiology, inference in statistics, principles in experimental study, principles and quantitative methods in epidemiology, methods in epidemiology, techniques in clinical research, methods in clinical trial, SAS and database administration, Introduction to statistical computation and database administration, application of SAS and STATA, on site training in epidemiology, and thesis.

Biostatistics core courses include all kinds of biostatistics courses, and the core for other departments include related courses

Programs offered

1. Harvard

Multi and inter disciplinary, emphasizing on problem solving and student oriented learning, and the fundamental skills in public health practice

Three options: full-time, part-time, and summer only

Full-time Option: The length of study is two semester. Those of dual degree: MD/DO/MPH or DMD/DDS/MPH must choose full-time

Part-time Option: last for 2-3 years, longest 3 years

Summer-only Option: only limited to QM (Quantitative Methods) and CLE (Clinical Effectiveness) focus, and only for those with a doctoral degree and with the focus on public health research, clinical application and biostatistics. No longer than 3 summers.

2. Johns Hopkins

Each student has a tutor, 3 years of learning and can extend when apply one semester ahead

Two options: full-time and part-time

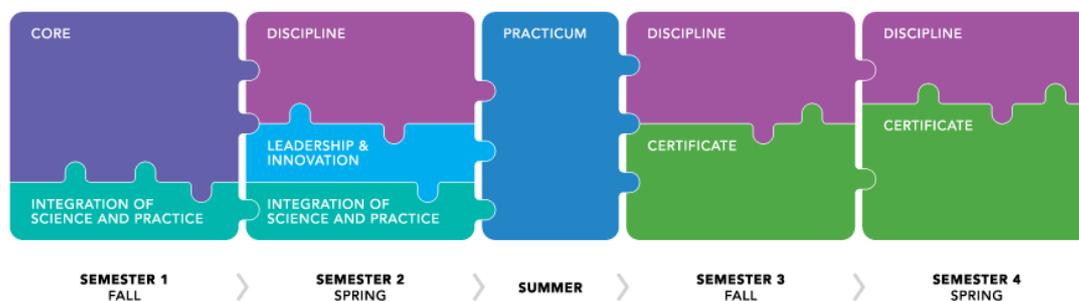
full-time: usually three years and can extend

part-time: 2-3 years, can take weekend and evening courses and on-line courses

3. Columbia

Two options: Columbia MPH (2 years) and Accelerated MPH (1 year)

Columbia MPH: (2 year) consists of the following 6 parts (shown in the chart)



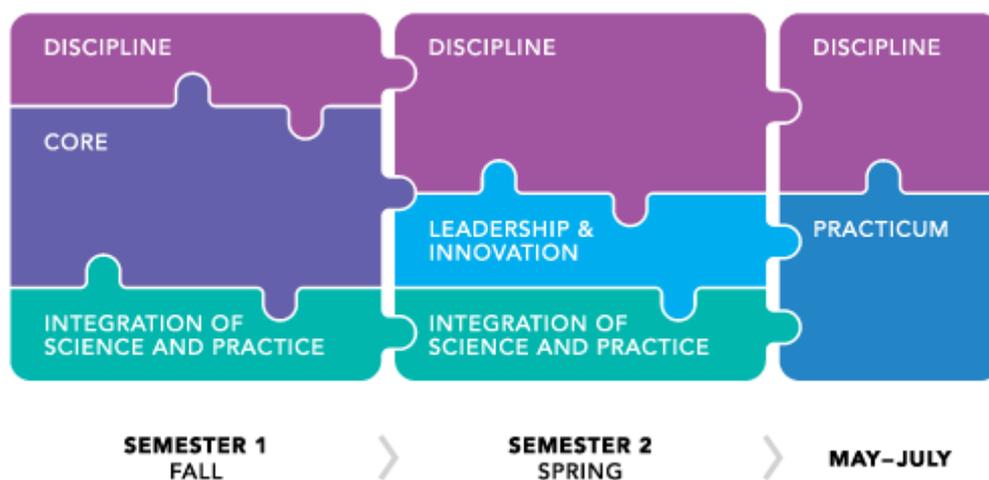
core: 5 parts

integration of science and practice: involve students and faculty regardless of their different major background. Students study together and use real cases for application of the theory, emphasizing on skills of negotiation, persuasion, teamwork, public speech capability, judgment, and etc.

leadership and innovation: the special feature of the school, training leadership under different circumstances, the efficiency of teamwork and innovative capability

practicum: instructed by the tutor, students choose a practicum site and topic. The students make use of what they learn to problem solving with the assistance and instruction of the tutors. After practicum, the students have to report to the whole department or school. The data they collected can be used in their final thesis.

discipline: choose one specific area of study. Instructed by the faculty of the specific area, involve in the project and extra curriculum study. Faculty can come from different disciplines, not only from epidemiology, health statistics and other public health areas, but also from anthropology, virology, economics, law, and etc. The faculty all involve in interdisciplinary projects.



certificate: 20 focus to choose. Advanced epidemiology, applied health statistics, child-adolescent-family health, climate and health, health policy, and etc.

Accelerated MPH: 1 year, the same as 2 year MPH without certificate

4. UNC

Usually two years of training

Requirement for graduation

All the four schools require practicum. Johns Hopkins and Columbia require comparatively more detailed practice activities. For Johns Hopkins, students can choose their practice places themselves or the school will help to assign a place, while at Columbia, the place and activities for practice will be decided by the tutor and student together, and the practicum will be connected to the final thesis of the students.

1. Harvard

curriculum + practicum (a paper is required)

complete the basic course for public health, ethics and other 42.5 credit

MPH practicum before graduation

2. Johns Hopkins

Curriculum + practicum + thesis + defense

After completing the compulsory courses, students must complete a Capstone Project that includes a thesis and defense. The thesis must have an executive summary and no less than 20 pages (exclude reference and chart)

The experience of practicum is a must before graduation, students choose themselves or assigned by the school.

3. Columbia

curriculum + Practicum

4. UNC

Curriculum + Practicum + Thesis + defense

Include compulsory and practicum last for no less than 8 weeks, MPH thesis and defense

Suggestions to the current MPH programs in China

1. In a long time from now on, full-time MPH program will be the mainstream in China. In order to upgrade the current MPH program in China and improve the quality of training, it needs broad international collaboration to introduce successful experiences and practice of international professional training model, so as to promote social recognition of MPH in China and level of internationalization of MPH program.

2. MPH training has just started in China, so all the effort is still at the starting level. The problems with MPH program are low social recognition, vague training purposes, inappropriate curriculum design, shortage of faculty, insufficiency of practicum, and etc.

3. The public universities in China should uniform the 2 to 3 year of training for MPH and it urgently needs the assessment and accreditation for MPH programs across the country.

4. China has its own special characteristics in medical and health education. MPH cannot just copy the model of foreign countries. We should take consideration of China's characteristics and tailor make the Chinese MPH program roadmap and initiative.

IV. DrPH Program in the US - features and inspiration

China's DrPH training project is a grant sponsored by CMB with Xi'an Jiaotong University, Peking Union Medical College, PKU Health Science Center, and Fudan University as the implementing partners. The project is aiming at designing a DrPH training blueprint and program that suits China's characteristics and at the same time in line with the practice in the world, which will train high-level students with practical capability, able to carry out research work in public health, and with the competence of leadership in areas of decision making, administration and policy formulation, as well as high-level public health professionals who have global mindset and cutting edge in China.

One of the purposes of the study tour this time is to know in-depth about DrPH programs in the US, the design, content, characteristics, and reform trend in education, as mentioned in the introduction part of the report.

The following is the brief comparison of the DrPH training model of the three schools of public health that the delegates visited in summer 2012.

DrPH at Harvard

Harvard School of Public Health enjoyed the leading fame in public health in the world, with over a century long history in public health education and research.

The school is moving from the traditional curriculum-centered model to competency-based model and trying to developing model that targeting on different levels of training purposes, as shown in Chart 1

Chart 1 different level of training

| Level | Objectives | Outcomes |
|----------------|-----------------------|---------------|
| Informative | Information, skill | Experts |
| Formative | Socialization, values | Professionals |
| Transformative | Leadership attributes | Change agents |

The current degree training information is shown in chart 2, with MPH as the professional degree training and practice oriented. Apart from the core curriculum, practicum is also needed; while the doctoral degree training for public health is still the academic type of training and the school is reforming this to offer more professional doctoral programs.

Chart 2 Public Health Degree education model at Harvard

| Level | (Professional) | (Academic) |
|----------|----------------|-------------|
| Master | MPH/SM | SM |
| doctoral | (DrPH) | SD/PhD/DrPH |

Currently, DrPH training is still academic training, the requirement as followed

- minimum requirement for enrollment: MPH or higher degree in public health
- graduate requirement: complete one or two major areas and two minor areas of core curriculum: complete epidemiology and biostatistics. By the end of the second year, complete thesis defense (or exam), complete an independent originated research project, a research defense. Publishing is not required
- pay tuition

Right now, DrPH enrolled students from environmental health (occupational health), epidemiology, global health and population, nutrition and social science, human development and health background.

DrPH at Columbia University

Facing the increase in globalization, urbanization, aging and inequality distribution of public health resources, the School at Columbia University did a thorough and dramatic reform to the MPH program to meet the needs for public health professionals of the new challenges. The reform started to implement at the end of August 2012.

There are four disciplines conferring DrPH and PhD degrees. They are biostatistics, environmental health, epidemiology and social medical sciences. Population and family health confer DrPH. PhD is exclusively conferred by Graduate School of Arts and Sciences, while DrPH is conferred and administered by Mailman School of Public Health. The difference in enrollment and graduate is shown in Chart 3.

From Chart 3, we can see that there is no big difference between DrPH and PhD, no distinguish between academic and professional. DrPH seems to require less vigorously and is more prone to applicable type of research.

Chart 3 Comparison of DrPH and PhD at Columbia

| | PhD | DrPH |
|-------------------------------|---|--|
| Admission requirement | -Master degree or above -GRE700 -basis requirement from specific discipline | -MPH and above -2 to 3 years of working experience -leadership potential -research ability and communication skill -multi disciplinary |
| aims | -academic | -applicable |
| Graduation requirement | -2 to 3 year of core(60 credit) -pass exam -defense | -2 year core (credits) -pass exam -defense |

DrPH at UNC

As the Number 2 in US, the school enrolled 1,734 students in 2011 and the school differs from other schools in that it didn't confine public health education to graduate training. The school offers Bachelor of Science in public health (BSPH), MPH, MS, DrPH and PhD. MS and PhD are academic, while BSPH, MPH and DrPH are professional degrees. Departments of biostatistics, health policy and management, maternal and child health, and nutrition offer DrPH degree.

UNC innovatively developed on-line DrPH course, so that students do not have to sit in class as full time students, but can learn from distance learning, with a requirement of 3- 4 days intensive course at campus for 1 or 2 times a year.

Each department is responsible for PhD and DrPH training, so that different disciplines set different requirements for enrollment and graduation. Shown in Chart 4

Chart 4 DrPH and PhD at UNC

| | PhD | DrPH |
|-------------------------------|---|--|
| Admission requirement | -master or above -requirement from disciplines | -master or above -at least five years of working experience or a doctoral degree -leadership potential |
| aim | -academic researchers | -professional leaders |
| Graduation requirement | -2 year core, -pass exam -defense | - 2 year core -pass exam -defense |

Chart 5 PhD and DrPH in Health Policy and Management

| HPM PhD | HPM DrPH in Health Leadership |
|---|--------------------------------------|
| - Health services research/Research methods (3 courses, 9 credit) | - Leadership (7course, 16 credit) |
| - Analytical methods (3 course, 9 credit) | - Public health (3 course, 5 credit) |
| - Professional development (4 courses, 10 credit) (seminar/developing proposals) | - Research (8 courses, 24 credit) |
| - Minor area/health policy elective(18 course, Health policy at least choose one) | |
| Total: 46 credit | Total: 55 credit |

Chart 4 shows that the school made a clear distinguish between DrPH and PhD in the training aims. While DrPH is more professional, PhD is more academic. The core courses differ with the disciplines, but basically, leadership training courses are added. Take health policy and management for example, chart 5 shows the curriculum of health policy and management for both DrPH and PhD. The two differs greatly, that DrPH is practical oriented with more emphasis on leadership training, while PhD is more academic oriented.

Current status of DrPH program in the US

DrPH training is growing, featuring the emphasis on practice oriented doctoral degree training. In the ten years from 1995 to 2006, public schools that have DrPH programs increased from 18 to 25. From 2002 to 2006, DrPH students increased by 40%. However, PhD program still dominates the public health education. In the past 5 years, public health education in the US met another round of new challenges and reform, e.g. in leadership training, whom to train, DrPH curriculum design, and etc. Hopkins Bloomberg School of Public Health, Harvard School of Public Health, and other schools already initiated the reform on DrPH program.

Through the above comparison, we find that DrPH programs in US shows the magnitude of diversity, complexity and emphasis on courses.

The diversity means that DrPH program differ from school to school. Both Harvard and UNC emphasize on the professionalism of DrPH, while Columbia does not make clear distinguish between the two. Complexity shows that in practice, it is hard to distinguish between DrPH and PhD training. Different disciplines may differ in the criteria so that it is difficult to uniform. UNC demonstrates obvious difference from others with its decentralization to department level. Emphasis on professionalism and practice is the shared feature of DrPH training in the schools visited. It is exactly the basis to ensure the quality of education. The diversity of curriculum, the combination of practice with theory, and integration of inter-disciplines form the unique feature of DrPH program in US. Johns Hopkins' practice in DrPH training again demonstrated the difference between DrPH and PhD. As shown in Chart 6, it reflects the fundamental view and requirement of DrPH programs of the US, which is training the leaders in public health and practice oriented.

Chart 6 Differences between PhD and DrPH

| PhD | DrPH |
|--|---|
| solve scientific questions or research area | solve questions of public health area, including policy |
| emphasis on science findings and hypothesis driven | emphasis on science knowledge to solve public health current issues, may use hypothesis driven approach |
| contribute to specific science area | contribute to public health practice, multi-disciplinary |
| use analysis on basic science research | use analytical skill to evaluate public health problem |
| to become the leader in specific area of methodology | to become the leader in public health practice |

| | |
|--|---|
| future career in academic or research institutes | future career in public health sector, may in academic institutes |
| findings or results circulate in science sectors | findings or results circulate among public or decision makers |

Suggestions to DrPH Education in China

Given the information from the above analysis, DrPH education in China cannot be like their US counterparts, the education of which is a combination of diversify while maintaining its uniqueness of the school. US model cannot be copied directly to China. The education should be adapting to the specific characteristics of the Chinese and develop one of her own. The model should follow the fundamental guideline of DrPH which is a professional doctoral education model, aiming at training the high level of professionals who are leaders in public health sector. So, I suggest that in formulating the DrPH education program in China, the following should be considered:

- Formulating DrPH program model adapting to the Chinese circumstances, specifying that DrPH is practice oriented and aiming at training the future leaders and high-level professionals for public health in China
- Building a structure of core courses, strengthening curriculum and developing a DrPH training system with Chinese characteristics
- The professional training of DrPH should have the focus, choosing the appropriate area as the trail run
- During the trail run, the schools work together, complementing each other and strengthen the faculty of DrPH training
- Make full-time program as the mainstream, carefully select the students, those with solid theory basis and have the potential of leadership in public health sector. During the trail run, it has to be closely working with the PhD program
- Adopting different kinds of approaches to training, including collaborating with schools of public health in the US that are more developed and mature in their public health education, inviting expertise to lecture or teach, or sending top students to do short-term training abroad.

V. Summary

The deans had a two-hour meeting summarizing what they have learned and inspired from the trip, after the presentation at UNC. Every delegate spoke. The deans agreed that this trip is a success and they learned a lot and much inspired. Even though most of the delegates have received training in the US before and engage in regular academic exchange with US partners, this trip made them have an overall picture of public health schools other than their own area of study. Also, from this trip, the delegates are impressed by the fact that regardless of whether it is private or public schools, every school has its own features in education programs. Even though they are already quite good in public health education and enjoy a reputation in the world, all the schools still actively engaged in public health reform and innovation, aiming at facing the challenges of globalization, social changes, and the needs of public health practice.

As to the public health education in China, all deans agree that it is the critical time to reform, either in areas of length and degree of the training or curriculum design and teaching approaches. To facilitate the reform, it is necessary to establish an alliance of public health, working together, developing joint courses and pushing the education forward. Specifically, the alliance should formulate an example of curriculum, focusing on MPH training, initiating DrPH program that distinct from PhD training as the way that the US counterparts are doing, and introducing the certificate training programs as well as accreditation to evaluate the public health education in China.

In addition, top down policy design is very important, developing the umbrella at the top leading to a culture of innovation, formulating the reform roadmap with the long-term and short-term goals, discussing reform roadmap. The deans all expressed the importance of strengthening faculty across the country, which is indispensable to support the reform. At the meeting of schools of public health in August 2012, the delegates will share their experiences of this trip. At last, Roman Xu, director of CMB Beijing Office expressed that China Medical Board will greatly support the reform in public health in China.