

Impact of NCI-China Cancer Research Collaboration from China's perspective



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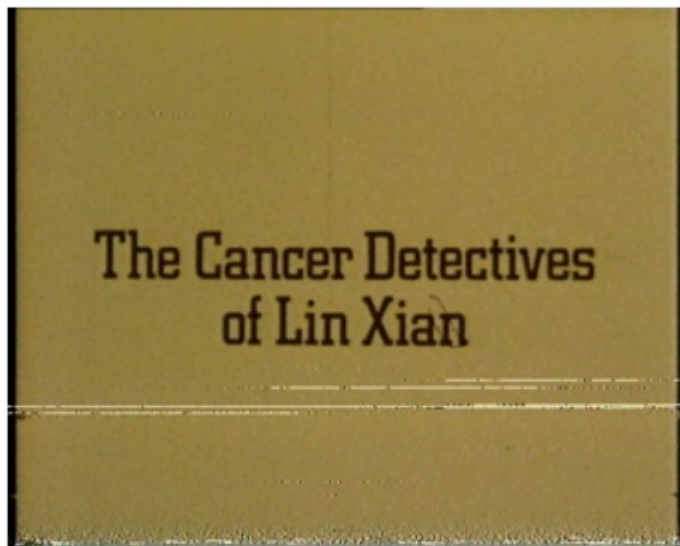
**NCI CGH session at the Joint Meeting of the NCAB/BSA
June 24, 2015**

Outline

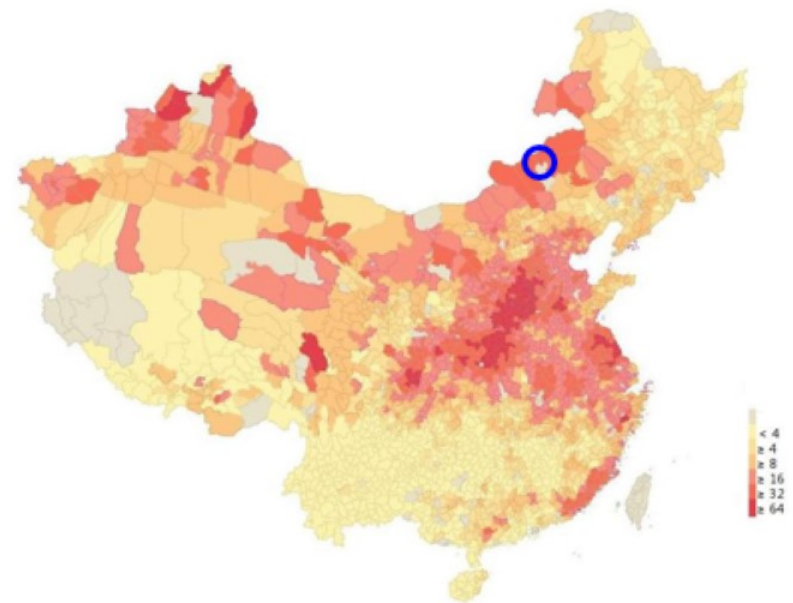
- 1. Brief review of the history of collaborations with NCI**
- 2. Impact of NCI past and current collaborations on cancer research and programs in China**
- 3. Areas for future collaboration with NCI**

1. Brief review of the history of collaborations

Few medical projects can ever have been successfully carried through that compare in scale with national survey of the cause of death undertaken in China in 1975. That immense task, which involved identification of about 20 million deaths... This provided epidemiologists with a unique opportunity for testing hypotheses about the etiology of diseases, and possibly for obtaining some entirely new clues. (R. Doll & P. Greenwald)



BBC documentary 1983



1973-75 China National Mortality Survey

1.1 Epidemiological studies and Nutrition Intervention Trial (NIT)

- 1982, CICAMS submitted NIT proposal to DCE/NCI, and the pilot study approved by Chinese MOH
- 1984, Case-control studies on cancers of esophagus, lung, stomach, and choriocarcinoma (DCE)
- 1985-1991, NIT study and follow-up (DCE/DCPC)
- 1984、1991、1996、1999-2000, Nutrition survey, serum collection (DCE/DCPC)
- 1991-2015, continue follow up until now (DCEG/DCPC)



More etiology Studies (DCEG/DCPC)

1. **Zinc Deficiency & Esophageal Cancer**
2. **Serum selenium, cysteine, Vitamin E, Serum 25(OH)-vitamin D & esophageal squamous dysplasia, esophageal and gastric cancers**
3. **Serum pepsinogens & esophageal squamous dysplasia**
4. **Helicobacter pylori & esophageal and gastric cancers**
5. **HPV infection & esophageal Cancer**
6. **Epidemiological study of HPV & cervical cancer in Shanxi, China**

- Abnet CC, Lai B, Qiao YL, Vogt S, Luo XM, Taylor PR, Dong ZW, Mark S, Dawsey SM. *JNCI*, Feb. 16, 2005, 97(4): 301-306.
- Qu CX, Kamangar F, Fan JH, Yu B, Sun XD, Taylor PR, Chen BE, Abnet CC, Qiao YL, Mark SD, Dawsey SM. *J Natl Cancer Inst.* 2007 ;99(16):1240-7
- Ren JS, Kamangar F, Qiao YL, Taylor PR, Liang H, Dawsey SM, Liu B, Fan JH, Abnet CC. *Serum. Gut.* 2009 May;58(5):636-42.
- Limburg P, Qiao Y, Mark S, Wang G, Perez-Perez G, Blaser M, Wu Y, Zou X, Dong Z, Taylor P, Dawsey S. *J Natl Cancer Inst.* 2001 Feb 7;93(3):226-33.
- Koshiol J, Wei WQ, et al. *Int J Cancer* 2010;127(1):93-100.
- Zhao FH, Forman MR, Belinson J, Shen YH, Graubard BI, Patel AC, Rong SD, Pretorius RG, Qiao YL. *Int J Cancer.* 2006 15;118(2):442-8.



1.2 Early detection of esophageal & cervical cancer & its precancerous lesion research in China (DCPC/DCEG)

- Cytological screening sampling study I & II
- Endoscopy screening method study (iodine staining & biopsy)
- Chemoprevention of esophageal squamous cell carcinoma
- NCC's Upper GI Endoscopy Cohort Studies
- Cervical cancer screening studies

WORLD NEWS

Diplomacy in the Operating Room
U.S., Chinese Scientists Cooperate to Unravel Esophageal Cancer

By Joyce Posner
Washington Post Foreign Service

CHONGQING, China—In a hospital and health center here, once a stark, war-torn city, a team of U.S. and Chinese physicians report that they have discovered a new way to detect and treat esophageal cancer, one of the most common causes of death in this area of several million people.

For scientists, what the Chinese call "barrett's esophagus" has been a mystery for decades. In that rugged region, there is a 10 percent incidence of the disease in this area of several million people, but in the rest of the world, it is rare.

U.S. doctors say the procedure being used here, called "barrett's esophagus," is a new way to detect and treat esophageal cancer. It is a procedure that is being used in the United States, but it is not used elsewhere, which means that U.S. doctors have a unique opportunity to study the disease in its natural habitat.

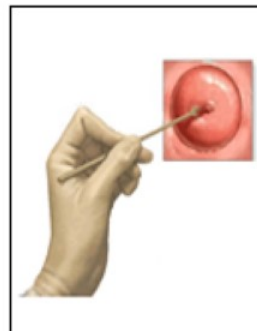
The cooperative research in this remote area, a combined U.S.-Chinese effort, is a result of cooperation between U.S. and Chinese scientists.

Since the 1970s, the National Institutes of Health has funded more than 20 projects dealing with these cancers in China, backing everything from genetic studies to clinical trials. Last year, the National Institutes of Health supported more than 20 projects in China, including a 10-year project, China, to one of the most common causes of death in this area of several million people.

"The American team is a long-term project," said Dong Sheng, director of the Cancer Institute and Hospital of the Chinese Academy of Sciences.

CHINA, AP, Oct. 7

Conventional cytology



HPV DNA tests



A. Balloon Cytology and HPV screening Studies (DCEG)



Fig a, Primary double tubes balloon

Fig b.c Modified single tube balloon

Fig d. Encapsulated sponge cytological samplers

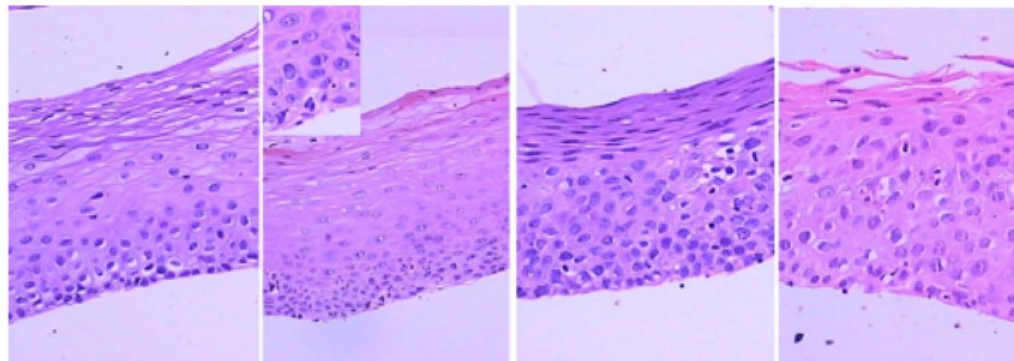
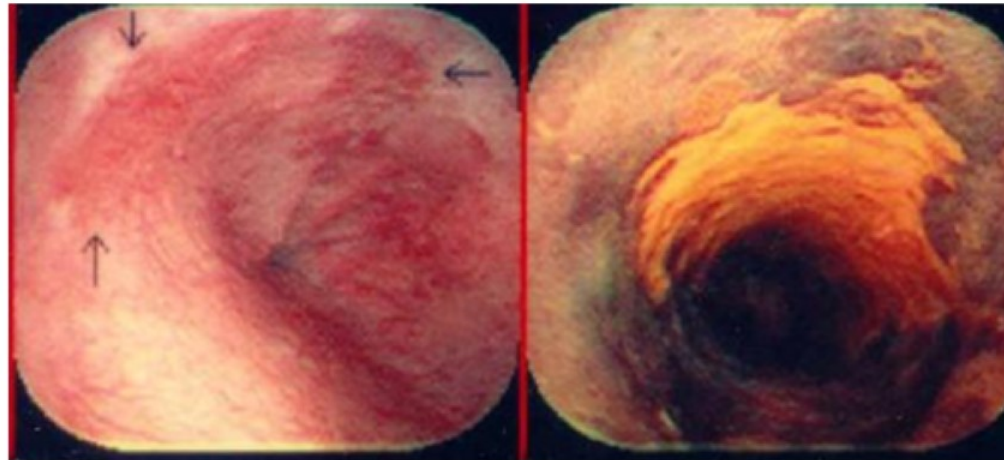
Fig e. Advanced double tubes balloon



(AutoCytte Liquid-Based Preparation)

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2. Dawsey SM, Yu Y, Taylor PR, Li JY, Shen Q, Shu YJ, Liu SF, Zhao HZ, et al. *Acta Cytol.* 1994 38(2):183-92.
3. Shen O, Liu SF, Dawsey SM, Cao J, Zhou B, Wang DY, Cao SG, Zhao HZ, Li GY, Taylor PR, et al. 993;8;54(2):185-8.
4. Zhao FH, Lin MJ, Chen F, Hu SY, Zhang R, Belinson JL, Sellors JW, Franceschi S, Qiao YL, Castle PE.. *Lancet Oncol.* 2010 Dec;11(12):1160-1171
5. Zhao FH, Lewkowitz A, Chen F, Lin MJ, Hu SY, Zhang X, Pan QJ, Li CQ, Ma JF, Li SM, Smith JS, Belinson JL, Qiao YL, Castle PE. *J Natl Cancer Inst.* 2012 Feb 8;104(3):178-88.

B. Endoscopy screening method study (DCEG)



BCH

mD

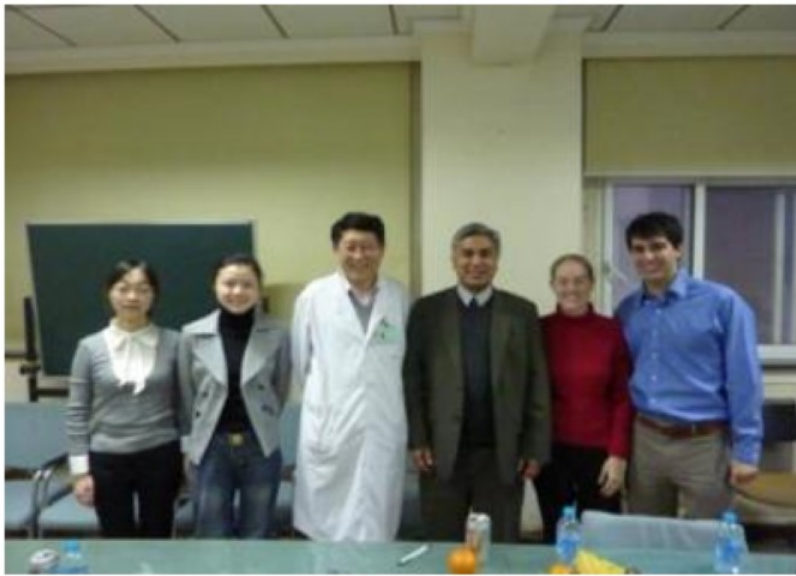
MD

SD/CIS

1. Dawsey SM, Lewin KJ, Liu FS, Wang GQ, Shen Q. Esophageal morphology from Linxian, China. Squamous histologic findings in 754 patients. *Cancer*. 1994 15;73(8):2027-37.
2. Dawsey SM, Wang GQ, Weinstein WM, Lewin KJ, Liu FS, Wiggett S, Nieberg RK, Li JY, Taylor PR. Squamous dysplasia and early esophageal cancer in the Linxian region of China: distinctive endoscopic lesions. *Gastroenterology*. 1993 ;105(5):1333-40.
3. Wang GQ1, Abnet CC, Shen Q, Lewin KJ, Sun XD, Roth MJ, Qiao YL, Mark SD, Dong ZW, Taylor PR, Dawsey SM. *Gut*.2005; 54(2):187.

1.3 Educational training programs

- 1. Cancer Prevention Academic Course by DCPC/NCI since 1986**
- 2. NIH Fogarty International Clinical Research Scholars & Fellow Program (FICRS)**
- 3. NIH-Fulbright Public Health Program in CICAMS/PUMC**
- 4. Fogarty Global Health Fellows 2013-2014
UNC-CH/Hopkins/Morehouse/Tulane
(Qiao/Smith/Zhao)**



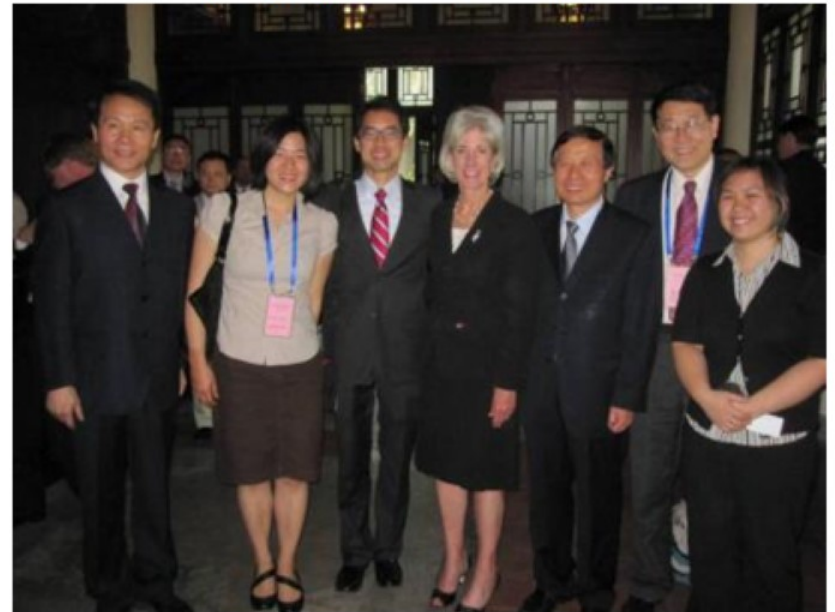
Myat Htoo Razak visited the Fogarty site, Beijing, 2010)



Alumni of National Institutes of Health (Beijing, Oct. 14, 2010)



Fogarty scholars with **Dr Roger Glass**, Beijing, 2012



Fogarty scholars with **Ms Kathleen Sebelius**, Secretary of HHS , U.S.



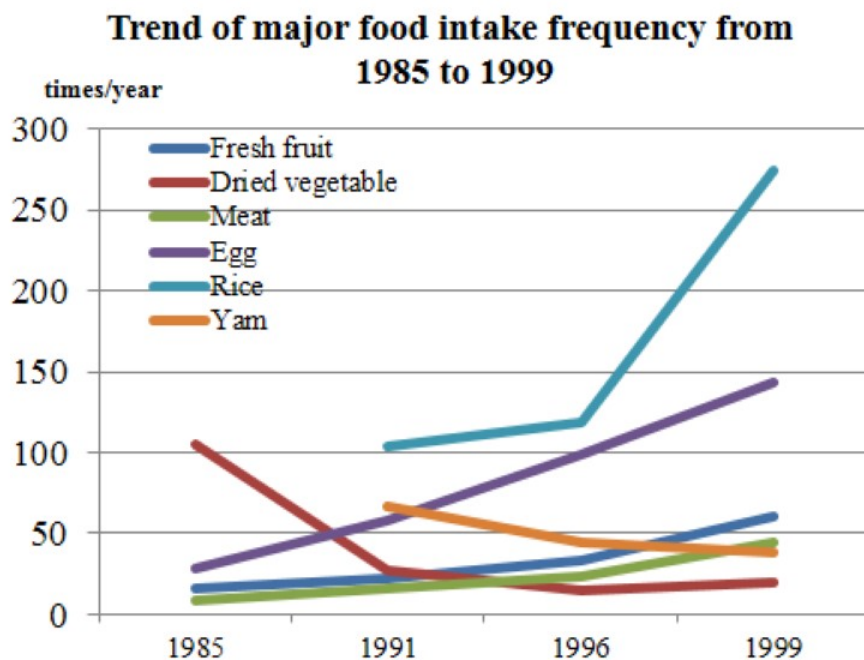
**Fogarty-Fulbright Scholars/mentor with Dr. Harold Varmus, Nobel Laurel and Director of NCI/NIH, USA in Cancer Inst. Chinese Academy of Medical Sciences
Beijing, China, March 17, 2013**

2. Impact of NCI-CICAMS collaborations - NIT

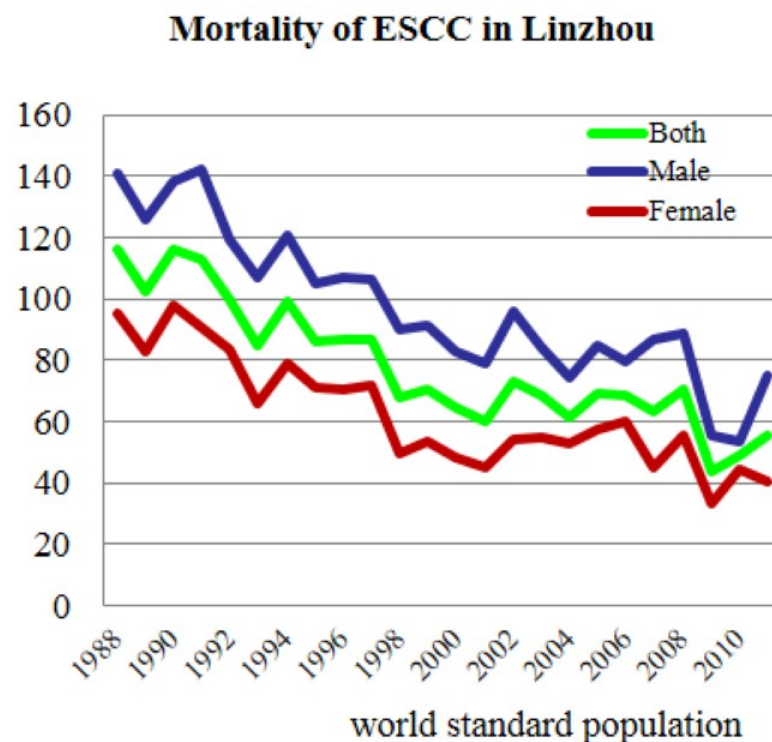
For the people of Linxian

- Provide evidence for considering a public health action plan
- Reduce mortality of common cancers and elderly diseases

Nutrition changes



Rates changes



2.2 Impact of NCI-CICAMS collaborations - Screening

Taihang Mountain Anti-cancer Campaign: Demonstration center

Population based cancer prevention program

Multi-center endoscopic screening evaluation study in high risk population

2005: 2 high risk areas (Demonstration)

2007-2012: 7-121 Rural high risk areas in 27 provinces

Colorectal cancer: 15 sites in 11 provinces

Liver cancer: 11 sites in 4 provinces

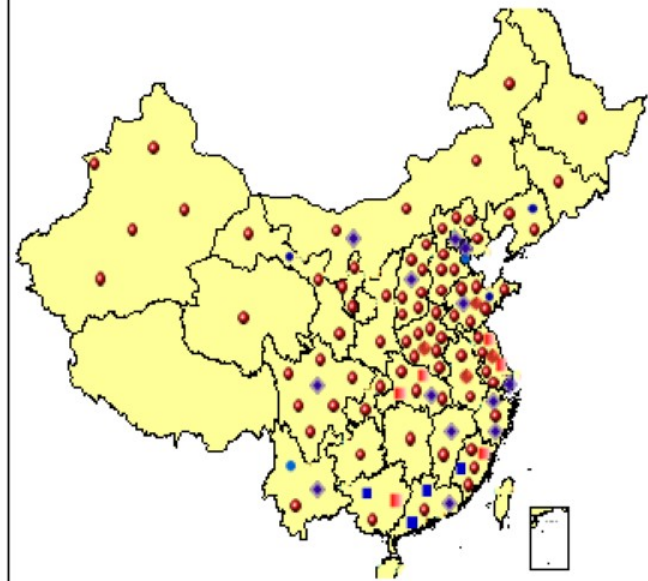
Nasopharyngeal cancer: 6 sites in 3 provinces

Lung cancer: 3 sites in 2 provinces

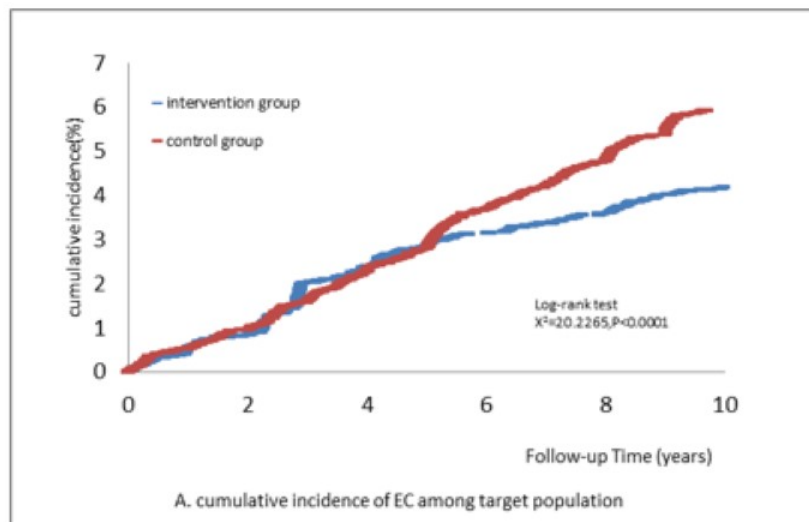
Huai River Region: 26 sites in 4 provinces

Cervical cancer: 10M/year in 1000+ sites

Breast cancer; 1.2M/year in 220+ sites

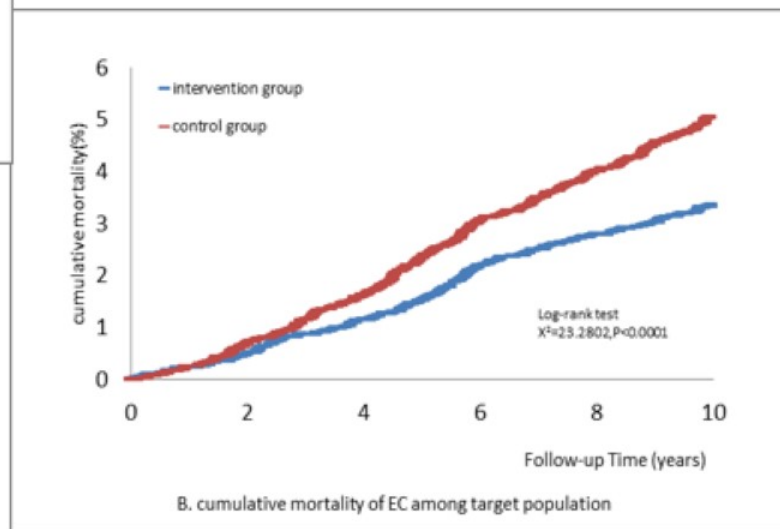


Long-Term Follow-Up of a Community Assignment, One-Time Endoscopic Screening Study of Esophageal Cancer in China



Cumulative **Incidence of EC**
among the target population
4.17% vs 5.92%. reduced **29.47%**

Cumulative **Mortality of EC**
among the target population
3.35% vs 5.05% reduced **33.56%**



Wei WQ, Chen ZF, He YT, Feng H, Hou J, Lin DM, Li XQ, Guo CL, Li SS, Wang GQ, Dong ZW, Abnet CC, Qiao YL. Long-Term Follow-Up of a Community Assignment, One-Time Endoscopic Screening Study of Esophageal Cancer in China. J Clin Oncol. 2015 May 4. pii: JCO.2014.58.0423.

2.3 Impact of NCI-CICAMS collaborations - Ethics

- **IRBs modeled on NCI projects in 1984**
 - Members
 - Initial review
 - Continuing annual review
 - Fixed date vs. by request
- **Single project assurance (SPA)**
- **Multiple project assurance (MPA)**
- **Routine for all human related studies**

2.4. Health Policy and Regulatory (CGH)

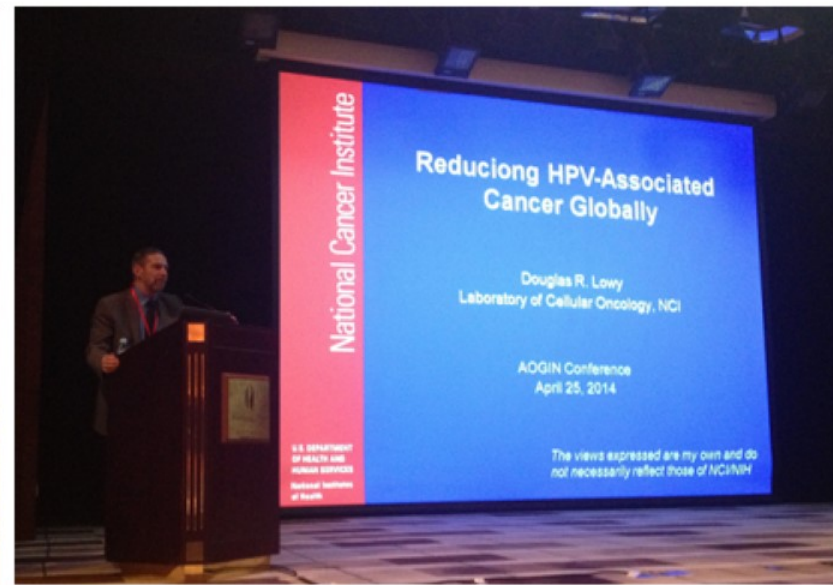
Roundtable Discussions for

- ➡ HPV vaccine implementation in China
- ➡ Comprehensive prevention of cervical cancer in China



The Asia Oceania Research Organization on Genital Infections and Neoplasia (AOGIN) Biennial Conference April 25-27, 2015 Beijing

- ➡ Dr Lowy's Keynote Speech "Reducing HPV-Associated Cancer Globally"
- ➡ CGH Session- "Evaluation and Follow up in Cervical Cancer Screening Programs, No Woman Left Behind" by Dr. Ted Trimble
- ➡ DCP Session- "Cancer Immunoprevention: Current Status and Future Directions for Cervical Cancer Prevention" by Asad Umar



Promote governmental collaboration to prevent cervical cancer in Asia (CGH)

- ➡ The 1st Senior Officials' Meeting (SOM1) & Related Meetings
- ➡ APEC delegations from US and China in Ningbo Feb, 2014



*Regional Workshop on Enabling Sustainable Economic Advancement
for Women through Cervical Cancer Prevention and Control*



Asia-Pacific
Economic Cooperation

APEC CHINA 2014

August 16, BEIJING



NATIONAL
CANCER
INSTITUTE



APEC
CHINA 2014

78 delegates from the governments, academic institutions and international organizations of 11 economics exchanged opinions in terms of research, clinical treatment and health policy, also discussed and identified the gaps to building and strengthening the capacity for cervical cancer prevention and control.

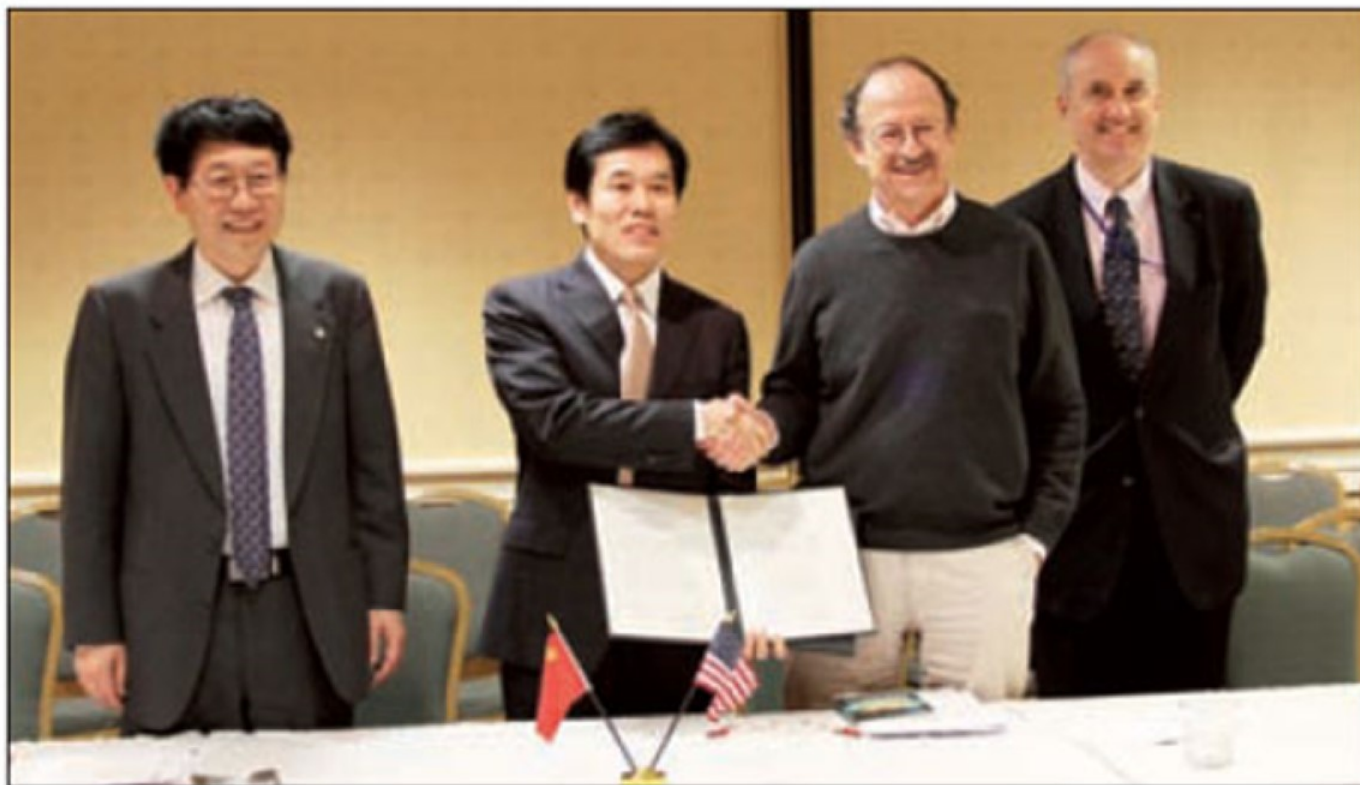


**First Workshop on Using Cancer Registry Data to Inform Cancer
Research and Cancer Prevention and Control Policy**
**Chinese National Cancer Center, Chinese CDC, Shanghai CDC,
CGH/NCI, WHO/IARC**



3. Future collaboration

US, China combine efforts to study cancer
By Wang Chao in Washington (China Daily)



SUN CHENBEI / CHINA DAILY

He Jie (second left), president of CICAMS, shakes hands with Harold Varmus, director of NCI at the signing ceremony, while Qiao Youlin (first left) from CICAMS and Ted Trimble from NCI look on.

3. Future collaborations - 2

- Follow-up Study of Nutrition Intervention Trials in Linxian (30-year data analysis)
- Serum Nutritional Biomarkers & Common Cancers
- Esophageal Cancer Family Study, Linxian, China
- Prospective Evaluation Study of Upper GI Cancer Screening based on the demonstration centers
- Biological markers of early detection for ESCC

3. Future collaborations - 3

- **National Cervical Cancer Prevention Plan and Strategies in China**
 - **Dr. Fang-Hui Zhao under the guidance of Dr. Lowy**
- **The Need for National Commitments to Cancer Research to Guide Public Health Investment and Practice (collaborating with CGH)**
- **Build and strengthen the networks of cervical cancer prevention in Asian Pacific Areas through APEC and AOGIN (collaborating with CGH)**
- **The NCI Summer Curriculum in Cancer Prevention in China (collaborating with CGH and DCP)**
- **Collaborations with National Cancer Registry Center**