

行政院所屬各機關因公出國人員出國報告書

(出國類別：出席國際會議)

參加「第二屆東南亞及西太平洋地區 TEPHINET 會議」出國報告書

(Second SEA and WP Bi-regional TEPHINET Conference)

服務機關：行政院衛生署疾病管制局

出國人 職稱：副局長、副研究員、副研究員

姓名：周志浩、江大雄、許麗卿

出國地區：菲律賓

出國期間：92年11月23日-11月29日

報告日期：93年2月13日

J4/CO9300526

系統識別號:C09300526

公務出國報告提要

頁數: 9 含附件: 是

報告名稱:

參加第二屆東南亞及西太平洋地區TEPHINET會議

主辦機關:

行政院衛生署疾病管制局

聯絡人/電話:

黃貴玲 / 23959825x3022

出國人員:

周志浩 行政院衛生署疾病管制局 副局長
江大雄 行政院衛生署疾病管制局 疾病監測調查組 副研究員
許麗卿 行政院衛生署疾病管制局 實驗室資源服務組 副研究員

出國類別: 其他

出國地區: 菲律賓

出國期間: 民國 92 年 11 月 23 日 - 民國 92 年 11 月 29 日

報告日期: 民國 93 年 02 月 13 日

分類號/目: J4 / 公共衛生、檢疫 J4 / 公共衛生、檢疫

關鍵詞: TEPHINET, SARS, FETP

內容摘要: 第二屆南亞及東太平洋TEPHINET研討會日前於2003年十一月二十三日至二十九日於菲律賓的Boracay舉行，目前我國正積極爭取成爲世界衛生組織觀察員，有鑑於我國爲TEPHINET會員國之一，爲積極參加SARS國際會議，分享我國之疾病防治經驗及了解他國之疫情概況，且此次會議領隊同仁受邀擔任呼吸道疾病議題之主持人，若能參與相關國際會議爲非常重要之事，一方面能促進國際學術交流，提高國際曝光率外，亦能提昇我國國際地位。與會除討論各國目前的公共衛生政策外，針對FETP(Field Epidemiology Training Program)在此次SARS風暴中所扮演的角色及功能，各國有著不同的見解，大陸爲曾光博士、我國由周副局長、菲律賓爲Dr. Juan Lopez代表說明。本次會議我國共有五名歷屆流病班學員獲選發表口頭或書面論文，同時主辦單位也邀請我國以「The Role of FETP in SARS Preparedness and Response --Taiwan Experience」爲題進行專題演講，同行學員亦以「The cost-effectiveness of influenza vaccination in elderly based on the National Health Insurance Database」爲題，報告我國流感疫苗接種效益之評估，此行計三人參與會議，由周副局長志浩帶隊，成員包括江副研究員大雄、許副研究員麗卿。此次參加研討會，除了分享我國防SARS經驗外，同時了解東南亞各國在SARS防治上的各種努力和成果外，還可吸取他國的經驗作爲我國將來對於相關問題的借鏡。

本文電子檔已上傳至出國報告資訊網

摘要

第二屆南亞及東太平洋 TEPHINET 研討會日前於 2003 年十一月二十三日至二十九日於菲律賓的 Boracay 舉行，目前我國正積極爭取成為世界衛生組織觀察員，有鑑於我國為 TEPHINET 會員國之一，為積極參加 SARS 國際會議，分享我國之疾病防治經驗及了解他國之疫情概況，且此次會議領隊同仁受邀擔任呼吸道疾病議題之主持人，若能參與相關國際會議為非常重要之事，一方面能促進國際學術交流，提高國際曝光率外，亦能提昇我國國際地位。與會除討論各國目前的公共衛生政策外，針對 FETP(Field Epidemiology Training Program)在此次 SARS 風暴中所扮演的角色及功能，各國有著不同的見解，大陸為曾光博士、我國由周副局長、菲律賓為 Dr. Juan Lopez 代表說明。本次會議我國共有五名歷屆流病班學員獲選發表口頭或書面論文，同時主辦單位也邀請我國以「The Role of FETP in SARS Preparedness and Response --Taiwan Experience」為題進行專題演講，同行學員亦以「The cost-effectiveness of influenza vaccination in elderly based on the National Health Insurance Database」為題，報告我國流感疫苗接種效益之評估，此行計三人參與會議，由周副局長志浩帶隊，成員包括江副研究員大雄、許副研究員麗卿。此次參加研討會，除了分享我國防 SARS 經驗外，同時了解東南亞各國在 SARS 防治上的各種努力和成果外，還可吸取他國的經驗作為我國將來對於相關問題的借鏡。

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臺、目的：

第二屆東南亞及西太平洋地區 TEPHNET 每二年一次的地區性年會，本預於 2003 年五月二十五日至三十一日份於菲律賓舉行，但因該年三月份爆發 SARS 的流行，以致會議無限後延後，直至 SARS 疫情平息，方於 2003 年十一月份舉行。本次會議我國共有五名歷屆流病班學員獲選發表口頭或書面論文，同時主辦單位也邀請我國以「The Role of FETP in SARS Preparedness and Response --Taiwan Experience」為題進行專題演講，同行學員亦以「The cost-effectiveness of influenza vaccination in elderly based on the National Health Insurance Database」為題，報告我國流感疫苗接種效益之評估，此行計三人參與會議，由周副局長志浩帶隊，成員包括江副研究員大雄、許副研究員麗卿。此次參加研討會，除了分享我國防 SARS 經驗外，同時了解東南亞各國在 SARS 防治上的各種努力和成果外，還可吸取他國的經驗作為我國將來對於相關問題的借鏡。

貳、過程：

此次出國行程自民國 92 年 11 月 23 日起至 11 月 29 日止，含路程所需時間共計七天。地點為菲律賓的 Boracay。會議開始時間為 11 月 24 日至 11 月 28 日下午，除了主要議題的討論外，每日另有一個專題討論在不同的會議廳召開。研討會之相關資料如附件。

行程如下：

<u>時</u> <u>間</u>	<u>地</u> <u>點</u>	<u>記</u> <u>要</u>
11-23-2003 (日)	臺北→Boracay	路程
11-24-2003 (一)	Boracay	專題討論
11-25-2003 (二)	Boracay	專題討論
11-26-2003 (三)	Boracay	專題討論
11-27-2003 (四)	Boracay	專題討論
11-28-2003 (五)	Boracay	專題討論
11-29-2003 (六)	Boracay→台北	回程

參、心得：

第二屆南亞及東太平洋 TEPHINET 研討會於菲律賓的 Boracay 舉行，目前衛生醫療界正積極爭取我國成為世界衛生組織觀察員，有鑑於我國為 TEPHINET 會員國之一，為積極參加 SARS 國際會議，分享我國之疾病防治經驗及了解他國之疫情概況，且此次會議領隊同仁受邀擔任呼吸道疾病議題之主持人，若能參與相關國際會議為非常重要之事，一方面能促進國際學術交流，提高國際曝光率外，亦能提昇我國際地位。與會各國的醫生、專家學者和公共衛生人員等，除了發表各國在防治 SARS 所做的努力和成果外，也共同討論在現有的資源下如何有效控制傳染病的蔓延。除了交換彼此的經驗外，針對 FETP(Field Epidemiology Training Program)在此次 SARS 風暴中所扮演的角色及功能，各國有著不同的見解，大陸為曾光博士、我國由周副局長、菲律賓為 Dr.Juan Lopez 代表說明，在大陸方面肯定該國 FETP 學員的表現，認為學員同時扮演防治專家及發言人的角色，著十分難得，同時在 SARS 的防治上，FETP 為國家諮詢的主要對象；我國除了介紹 FETP 的任務、制度及成果外，同分享 SARS 流行的概況、SARS 期間 FETP 的任務，同時也指出 SARS 流行期間所面臨的問題，包括忽視醫院感染控制、延誤通報、物資調控失敗、中央與地方溝通協調不足、媒體渲染造成社會恐慌、流行病學家的不足及高成本的防疫代價，認為應評估醫院對感染控制的能力、針對延誤通報的原因進行研究、評估物資管控系統、如何加強中央及地方的連繫、流行期間媒體的自律及足夠的流

行病學家；菲律賓則強調其在防疫上的努力，使得疫情得以迅速控制。

主要討論議題如下：

1、十一月二十四日在簡短的開幕式後，立即開始第一個議題就是“**Improving Regional Communicable Disease Surveillance and Response**”由 Moderator: Dr. John Kobayashi (Univ. of Washington) 主講，開宗明義就指出監控和回報對於傳染病控制的重要性。接著是“**EPI & Vaccine Preventable Diseases**”由 Dr. Tomimasa Sunagawa & Dr. Agnes Benegas 報告，下午為“**Zoonoses & Vectorborne Diseases**” Dr. Marta Valenciano & Dr. Lynette Arce。第一天的專題討論主要是以流行病學角度來看這次世界對於 SARS 風暴的所採取的應變措施。

2、十一月二十五日及二十六日，開始探討 SARS 方面的各項議題，包括各國對 SARS 病毒之研究及其活性、特性及病人所會產生的症狀和傳染途徑之報告。

3、十一月二十七日及二十八日，為各項單獨之議題，包括探討食物毒性、AIDS 及兒童健康等，我們提出之“**The Role of FETPs in SARS Preparedness and Response – Country Experiences**”更是引起熱烈回響，使許多人對於我國 FETP 在 SARS 風暴期間準備和反應留下深刻的印象。

肆、建議：

此次參加第二屆南亞暨東太平洋 TEPHINET 會議，有許多心得與感想，茲綜合與本身業務有關之處，提出下列數點建議，供參考：

- 一、 在此次會議中因經費不足，以致五名獲選發表口頭或書面論文歷屆流病班學員無法全數出席，僅少數人成行，反觀各國參加人數眾多，大多抱著觀摩學習的態度參加，一方面可以訓練自己臨場反應及膽識，另一方面培養個人國際觀。人材的培育須要有長遠的規劃及遠見，尤其要在國際場合有所表現，非一蹴可及必須長期且有計畫的經營，尤其現今國際社會交流往來頻繁，各種的傳染病也隨著交通的發達跨國而來，造成社會的恐慌，因此如何加強國際間相關訊息及經驗的交換分享顯得格外的重要。
- 二、 研討會中，雖然各國間研究的方向不盡相同，但就其所研究的議題可略知該國目前公共衛生發展的概況及所可能面臨的問題，其中不乏研究結構嚴謹，擲地有聲的作品，若非出國經費不足，將可以讓更多學員分享他人的研究成果，另一方面得以促進國際學術交流，提高國際曝光率外，亦能提昇我國國際地位。
- 三、 在 SARS 經驗的分享的議題中，受邀國包括台灣、中國大陸及菲律賓，大陸肯定該國 FETP 學員的表現，認為學員同時扮演防治專家及發言人的角色，十分難得；菲律賓則強調其在防疫上的努力，使得疫情得以迅

速控制；我國則認為應重新評估醫院對感染控制的能力、針對延誤通報的原因進行研究、評估物資管控系統、如何加強中央及地方的連繫、流行期間媒體的自律及足夠的流行病學家等，有助 SARS 疫情的控制。

伍、附件：

一、大會議程

二、本局專題討論資料（周副局長志浩）

三、本局專題討論資料（許副研究員麗卿）

**Draft Program of Activities for
Second SEA and WP Bi-regional TEPHINET Conference
November 23-28, 2003
Theme: Collaboration for Effective Public Health Surveillance & Response**

Sunday (Nov 23)

Arrival of Participants
PM: Registration

Officers for the Day: Dulce Elfa and Edna Lopez (Manila)
Jessie Glen Alonsabe & Peachy Gallardo (Kalibo)

[N.B. WHO-WPRO Informal consultative workshop from 3–7 pm for invited participants only] Venue: “Asian Village”

Monday (Nov 24)

8:00-8:30

Opening Ceremonies

8:30-10:00

Plenary Discussion: **“Improving Regional
Communicable Disease Surveillance and Response”**

Moderator: Dr. John Kobayashi (Univ. of Washington)

**WHO initiatives to strengthen communicable disease surveillance and response -
Dr. Hitoshi Oshitani (WHO-WPRO)**

**Mekong Basin Disease Surveillance – Dr. Wanna Hanshoworakul (Thailand
International FETP)**

**The Pacific Public Health Surveillance Network – What it is and How it works – Dr.
Tom Kiedrzyński (SPC Public Health Programme)**

**Working to secure the Asia Pacific against emergent infections: a table top
exercise - Dr. Ann Marie Kimball (APEC Emerging Infections Network)**

10:00-10:30

Coffee Break

10:30-12:00

Oral Presentations: **EPI & Vaccine Preventable Diseases**
Moderators: Dr. Tomimasa Sunagawa & Dr. Agnes Benegas

**Rapid Investigation of Polio Cases with Vaccine Derived Polio Virus or Vaccine
Recombinant Polio Virus, China, 2001 to 2002 - Jie Lei, MD (China FETP)**

**Immunization Coverage Estimates using Lot Quality Technique, Xuyen-Moc District, Ba-
Ria-Vung-Tau Province, Vietnam, 2002 - Tran CongThanh, MD (Pasteur Institute, Ho Chi Minh
City, Vietnam)**

**A Measles Outbreak Investigation among Middle School Students – Japan, 2002
– Nobuo Mori, MD (Japan FETP)**

**Measles Outbreak in a Post-Disaster Area – Manila, Philippines, 2002
- Laurence Sabido, MD (Philippine FETP)**

12:00-1:00

Lunch Break

1:00 – 1:30

Group Picture Taking

1:30-3:15

Oral Presentations: Zoonoses & Vectorborne Diseases
Moderators: Dr. Marta Valenciano & Dr. Lynette Arce???

An Investigation of Human Rabies Cases in Hunan Province and Sichuan Province, China, 2002 - *Huiming Luo, MD (China FETP)*

Outbreak Investigation of Dengue Fever, Chennai, 2001 - *S. Saravanan, MD (India FETP)*

Surveillance Report of Malaria in the State of Pahang, Malaysia - *Sha' ari b. Ngadiman, MD, MPH (State Department of Health, Pahang, Malaysia)*

Malaria Outbreak in a Suburban Community – San Jose del Monte City, Philippines, 2002 - *Charito P. Aumentado, MD, MPH (Philippine FETP)*

An Outbreak of Primary Pneumonic Plague – Hatkoti Village, Shimla District, Himachal Pradesh, India, February 2002 - *Avdesh Kumar, MD (National Institute of Communicable Diseases, Delhi, India)*

3:15-3:30

Coffee Break

3:30-5:30

Simultaneous Workshops* (4)

7:00-9:00

Welcome Reception

Officers for the Day: Ma. Consorcia Lim-Quizon and Rhoda Antenor

Tuesday (Nov 25)

9:00-10:00

Oral Presentations: Severe Acute Respiratory Syndrome

Moderators: Dato Dr. Tee Ah Sian ??? & Dr. Enrique A. Tayag

Interim evaluation of SARS surveillance – Australia 2003: lessons for future respiratory disease epidemics - *James E. Fielding (Australia MAE)*

An estimate of the incubation period for Severe Acute Respiratory Syndrome (SARS) in China - *Ni Daxin, MD (China FETP)*

Evaluation of effectiveness of personal protective measures in prevention of nosocomial transmission of Severe Acute Respiratory Syndrome (SARS) -- Guangdong, China, 2003 - *Wenwu Yin, MD (China FETP)*

10:00-10:15

Coffee Break

10:15-12:00

Oral Presentations: Respiratory and Systemic Diseases

Moderators: Dr. Zainudin Abdula-Wahab & Dr. Juan Lopez

Outbreak of Pneumonia among Army Recruits – Malaysia, 2000 - *Mohamed P. Yusof, MD (Bintulu Divisional Health Office, Sarawak, Malaysia)*

The Cost-effectiveness of Influenza Vaccination in the Elderly Based on the National Health Insurance Database - *Li Ching Hsu, MD (Taiwan FETP)*

Evaluation of the Tuberculosis Control Programme of Selangor State, Malaysia for the Year 2001 - *B. Venugopalan, MBBS, MPH (State Health Department, Selangor, Malaysia)*

Pulmonary Tuberculosis Outbreak in a High School – Ansong, Korea, 2002 - *Soo Lim, MD (National Institute of Health, Korea)*

Developing Capacity for In-house Management of Respiratory Outbreaks in Aged-care Facilities – Australia, 2002 - *Hazel J. Clothier, FIBMS (MAE Australia)*

12:00-1:30

Lunch Break

1:30-3:00

Oral Presentations: **Fire and Water**

Moderators: Dr. Dionisio Herrera Guibert & Dr. Jose Ramoncito Navarro

Epidemiological Response after a Fire Disaster in an Urban Slum Area – Manila, Philippines, 2002 - *Jan Nicanor B. Tugadi, RN, MPH (Philippine FETP)*

Cholera Outbreak in a Farming Village – Nueva Ecija, Philippines, 2002 - *Laurence P. Sabido, MD (Philippine FETP)*

An outbreak of typhoid fever in a village in Tamil Nadu, South India - *Ramachandran Ramakrishnan, PhD (India FETP)*

Typhoid Fever in a Remote Village in Cagayan Valley, Philippines, 2002 - *Anna Marie Celina Garfin, MD (Philippine FETP)*

3:00-4:00

Poster Session with Coffee Break

4:00-6:00

Simultaneous Workshops (continuation)

Officers for the Day: Ilya Abellanosa Tac-an and Junjie Zuasula

Wednesday (Nov 26)

9:00-10:00

Oral Presentations: **Protecting communities and health care workers against SARS**

Moderators: Dr. Robert Fontaine and Dr. Marlow Ninal

Border screening for severe acute respiratory syndrome in Australia 2003: lessons learnt and implications for the International Health Regulations - *Gina Samaan (MAE Australia)*

Efficiency of quarantine during the epidemic of Severe Acute Respiratory Syndrome (SARS) in Beijing, 2003 - *Ou Jianming, MD (China FETP)*

A matched case-control study on personal protective factors of SARS infection among health care workers – Guangzhou, China, 2003 - *Lidong Gao, MD (China FETP)*

10:00-10:15

Coffee Break

10:15-12:00

Oral Presentations: **Foodborne Diseases**

Moderators: Dr. Chuleeporn Jirapongsa & Dr. Vito Roque, Jr.

World Health Organization Global Salm-Surv (WHO-GSS): Fostering Collaboration in Foodborne Disease Surveillance – *Stephanie M. De Long (CDC, Atlanta, Georgia)*

Food Poisoning Outbreak from Crabmeat in a Hotel, Bangkok, Thailand, 2001 - *Patpong Udompat, MD (Thailand FETP)*

Foodborne *Streptococcus* Pharyngitis Outbreak in Boarding Junior College, Gerik, Perak, August 2002 - *Rosemawati Ariffin (Ministry of Health, Malaysia)*

Local Farming Conditions and Eating Culture: Risk of Trichinosis in Northern Thailand, 2002 - *Weerayuth Chaipornsupsaisan, MD (Thailand FETP)*

Enterohemorrhagic Escherichia coli (EHEC) in Japan, 2002 - *Yoshimi Hemmi (Japan FETP)*

12:00-1:30

Lunch Break

1:30-3:15

Oral Presentations: **Poisoning**

Moderators: Dr. Guang Zeng & Dr. Aura Corpuz

Food Poisoning due to Clenbuterol-contamination of a Freshwater Fish, Guangde County, Anhui Province, China, 2002 - *Li Qun, MD, MPH (China FETP)*

An Outbreak of Tetrodotoxin Poisoning Associated with Eating Puffer Fish, Bangkok, Thailand, 2002 - *Tanit Sermgew, MD (Thailand FETP)*

Acute Tetramine Poisoning among Children in Guangdong Province, China, 2002 - *Huiming Luo, MD (China FETP)*

Methemoglobinemia Secondary to Brentamine Red Poisoning among Scavengers of a Suburban Dumpsite – Philippines, 2002 - *Elmer N. Ocampo, RN (Philippine FETP)*

Acute Nitrite Poisoning among Workers in Yangjiang City, China, 2002 - *Hongjie Yu, MD (China FETP)*

3:15-4:00

Poster Session with Coffee Break

4:00-6:00

Simultaneous Workshops (continuation)

Officers for the Day: Ricardo J. Mateo and Agnes Pacho

Thursday (Nov 27)

9:00-10:00

Plenary Discussion: **“The Role of FETPs in SARS Preparedness and Response – Country Experiences”**

Moderator: Mary Beers-Deeble (Australia MAE)

Dr. Guang Zeng (Director, China FETP) – China experience

Dr. Jih-Haw Chou (Deputy Director General, Taiwan CDC) – Taiwan experience

Dr. Juan Lopez (OIC, National Epidemiology Center) – Philippine experience

10:00-10:30

Coffee Break

10:30-12:00

Oral Presentations: **HIV-AIDS and STIs**

Moderators: Dr. Tippavan Nagachinta & Dr. Ricardo Mateo

Process Evaluation of HIV-AIDS Awareness Campaign – India, 2001 - *Ms. Vaishali Deshmukh (IndiaCLEN)*

Analysis of the First 20 Months of the Perinatal HIV Surveillance Pilot Project in Thailand – *Supalert Nedsuwan, MD (Thailand FETP)*

Barriers in the Success of a Public Health Campaign: Concurrent Evaluation of the Family Health Awareness Campaign – India, 2002 - *Moumita Biswas (IndiaCLEN)*

The Risk of HIV among Returning Filipino Male Seafarers – Philippines, 2002 - *Ma. Lorela Sunas, MD (Philippine FETP)*

12:00-1:30
1:30-3:00

Lunch Break
Oral Presentations: **Maternal & Child Health**
Moderators: Dr. M.D. Gupte & Dr. Ma. Nemia Sucaldito

Client Perspectives about Utilization of Iron Folic Acid (IFA) Supplementation Services, National Program Evaluation – India, 2001 - *M. Lakshman (IndiaCLEN)*

Maternal Mortality in Tamilnadu – a Descriptive Study - *S. Parvathy, MBBS, DPH (India FETP)*

An Investigation of a Measles Outbreak Associated with Low Vaccine Coverage, Suratthani Province, Thailand, 2001 – *Saipin Chotivichien, MD (Thailand FETP)*

What Ails “Routine Public Health Programs”: Evaluation of Vitamin A Supplementation Program – India, 2001 - *NK Arora (IndiaCLEN)*

3:00-4:00
4:00-6:00

Poster Session with Coffee Break
Simultaneous Workshops (continuation)

Officers for the Day: Annette Trabajo and Celia Brillantes

7:00 – 9:00 FETP graduation at Pink Patio

Friday (Nov 28)

9:00-10:00

Plenary Discussion: **“Epidemiology and Health Policy: From Evidence to Action”**

Moderator: Dr. Ma. Consorcia Lim-Quizon

Speaker: Manuel M. Dayrit, MD, MSc – Philippine Sec. of Health
Reactors: Ms. Edith Yotoko Villanueva, Dr. Mahomed Patel, Dr. Rubina Imtiaz ???

10:00-10:30
10:30-12:00

Coffee Break
Oral Presentations: **Potpourri**

Moderators: Dr. Piyanit Tharmaphornpilas & Mr. Onofre Edwin Merilles, Jr.

Outbreak of Wound Infections after a Mud Football Competition – Western Australia, 2002 - *Hassan Vally, BSc, PhD (MAE Australia)*

Arthritis of Unknown Etiology, Guizhou Province, China, 2002 - *Tie Song, MD (China FETP)*

Cross Sectional Investigation on Safety of Injections in Wulong County, Chongqing City, China, 2002 - *Qin Li, MD (China FETP)*

What makes surveillance work? Lessons from Acute Events – *Dr. Megge Miller (MAE Australia)*

12:00-1:30
1:30-5:00
7:00-9:00

Lunch Break
Luncheon Meeting of Program Directors with Sec. Manuel M. Dayrit
Island Tour (by boat)
Closing Ceremony and Dinner

Officers for the Day: Agnes Benegas & Aura Corpuz

Saturday (Nov 29)

Departure of participants

Officers for the Day: Vito Roque, Jr. and Jose Ramoncito Navarro

Workshops: There will be four workshops to run from Monday to Thursday (2 hours per day). Participants can register on a first-come, first-served basis for the three "open" workshops during on-site registration on Sunday, November 23. Workshop 4 is for invited participants only.

Workshop 1: Evaluation of Surveillance Systems

Facilitator: Dr. Marta Valenciano – Epidemiologist, WHO-CSR, Lyon, France

Support staff: Agnes Benegas/ Lala Sabido/ Troy Gepte
[Maximum no. of participants = 25] Venue: Asian Village

National surveillance systems need to be assessed periodically in order to adapt them to current national disease control priorities. Specific disease surveillance systems also need to be evaluated to ensure that the system operates to meet its purpose and objectives.

During the workshop we will use real examples to examine two aspects of the evaluation of surveillance systems:

- assessment of a National surveillance system
- evaluation of a specific disease surveillance system.

At the end of the workshop, participants would be able to participate in National surveillance assessments and to develop a protocol for evaluating surveillance systems.

The learning objectives are:

- Defining criteria for determining priorities for surveillance
- Establishing a list of priority diseases
- Select system attributes to be evaluated
- Identify indicators for evaluation
- Select appropriate methods for the evaluation (consider qualitative, quantitative methods)

Reference materials:

- Protocol for the assessment of National Communicable Disease Surveillance and Response Systems, Guidelines for Assessment teams. WHO/CDS/CSR/ISR/2001.2
- CDC. Updated guidelines for evaluating Public Health Surveillance Systems. MMWR 2001; 50(No RR-13)

Workshop 2: Excellence in Reporting Science

Facilitator: Ms. R. Elliott Churchill, MS, MA, Senior Communications Officer
Division of International Health, Centers for Disease Control and Prevention
Atlanta, Georgia

Support Staff: Enrique Tayag/Aura Corpuz/Cecille Lopez/ Noel Orosco
[Maximum no. of participants = 30] Venue. Plenary Hall

In this 8-hour workshop, participants will discuss such matters as general principles and practices of communicating with varied targeted audiences, the appropriate design and construction of scientific reports for different purposes in different venues, the process associated with creating effective documents associated with scientific reports (e.g., abstracts, key words, and executive summaries), effective use of visual aids in scientific reports, and navigating the pre-publication process in seeking to have reports published in the peer-reviewed

literature. Special emphasis is placed on the importance of learning how to be an effective critic of reports as well as on how to create them.

Workshop 3: Evidence-based Program Decisions in Health: Managing by Fact

Facilitators: Grace Abad Viola, Onofre Edwin Merilles, Ma. Nemia Sucaldito (MIPH Graduates)
Support Staff: Rio Magpantay/Celin Garfin/Jenima/Manny
[Maximum no. of participants = 30] Venue: Old Plenary Hall

Customary program planning seldom takes into account transitions in demography and epidemiology. With the changing disease patterns and rapid social changes ushered in by a globalized environment, a shift in the way conventional health program plans are made is needed. In the context of such changes, and its impact on health, evidence-based program decisions become vital.

This 8-hour workshop will guide participants through a series of logical steps towards effectively planning public health programs. Akin to the epidemiologic approach, participants will learn how to define the problems clearly and get to the possible root causes of each problem. They will also learn to decide on the best approach towards solving a health problem by weighing the importance of problem determinants (risk factors) and contributing factors. Participants will be engaged in various highly interactive team activities capped by short presentations.

Workshop 4: Sustaining Quality Applied Epidemiology and Training Programs

(for FETP Directors and Training Staff only)

Moderator: Conchy Roces
Support staff: John Orr/Jose Ramoncito Navarro
Venue: Hotel suite

Day 1: Collaborating with WHO on capacity building for surveillance and response – Dr. Hitoshi Oshitani (WHO-CSR, WPRO) and Dr. Dato Tee Ah Sian

News from TEPHINET – Dionisio Herrera Guibert (TEPHINET Chair) and John Orr (TEPHINET Executive Director)

Day 2: TEPHINET's Continuous Quality Improvement (CQI) plans – Conchy Roces and Mahomed Patel

Day 3: Faculty development and exchange plans – Rubina Imtiaz

Curriculum design, training strategies, development and exchange of training materials – Piyani Tharmaphornpilas

Day 4: Plans for 2004 global meeting in Beijing – Dionisio Herrera Guibert and Guang Zeng
Other issues: e.g. AETP Handbook

Invited participants: Dionisio Herrera Guibert, John Orr, Sai Tharmaphornpilas, Conchy Roces, Mary Beers-Deeble, Mahomed Patel, Guang Zeng, M.D. Gupte, Nobuhiko Okabe, Tomimasa Sunagawa, John Kobayashi, Korea ???, Zainudin Abdel- Wahab, Jun Lopez, Chito Navarro, Donald Dah-Shyong Jiang &/or Hsia-Ling Chang, Chuleeporn Jiraphongsa, Rubina Imtiaz, Hitoshi Oshitani, Robert Fontaine, Dato Tee

POSTER PRESENTATIONS

Surveillance

1. An Evaluation of Syndromic Surveillance during the FIFA World Cup in Japan, 2002
Satowa Suzuki, T. Sunagawa, T. Ohyama, K. Taniguchi, J. Kobayashi and N. Okabe
2. Overview of Multi-Disease Surveillance System in Orissa State, India
Madan M. Pradhan, M. Gupta and M. Gupte
3. An Evaluation of a Measles Surveillance System – Gongshu District, Hangzhou City, Zhejiang Province, China, 2002
Shuyun Xie, Z.G. Zhang and J. Fu
4. Pacific Public Health Surveillance Network
Tom Kiedrzyński

Vectorborne Diseases

5. Situational Analysis of Japanese Encephalitis, Dali Prefecture, Yunnan, China, 1992-2001
Zhang Yunzhi, Z. Hailin, and P. Siriaryaporn
6. Chloroquine plus Sulfadoxine/Pyrimethamine Treatment Efficacy in Uncomplicated *Plasmodium falciparum* Malaria Infection After an Outbreak – San Jose del Monte City, Philippines, 2002
Charito P. Aumentado, J. Tugadi, L. Sabido, C. Hugo, D. Bustos, J.R. Navarro, J. Lopez and M.C. Quizon
7. The Effectiveness of Ultra Low Volume (ULV) and Thermal Fogging to Reduce Mosquito Density Indoors and Outdoors
M. Omar
8. Situational Analysis of Dengue Fever (DF) and Dengue Hemorrhagic Fever (DHF), Southern Region of Vietnam, 1996-2001
Tran Cong Thanh, R. Rangsin, N. T. M. Phuong, H.B. Khiem, T.T. Duong, N.D. Vung, L.C. Quang, N.T. Toan and N.T.K. Tien

Airborne Diseases

9. Measles Outbreak - Lam Dong, Vietnam, 2001
Tran Cong Thanh, N.T.M. Phuong, N.T. Ha, T.Q. Ngoc, L.D. Huan, H.V. Thang, N.V. Dung, N.T. Hue, N.T. Lien and H.B. Khiem

RTI, STI and HIV-AIDS

10. Female Sex Workers and HIV, Philippines
Ricardo J. Mateo, Jr. and MCL Quizon

Foodborne Diseases

11. *Salmonella enterica* serotype *Weltevreden* Infection among Pupils of an Elementary School in Manila, Philippines, 2002
Jan Nicanor B. Tugadi, C. Aumentado, A. Garfin, L. Sabido, A. Daluro, E. Ocampo, J.R. Navarro, J. Lopez and M.C. Quizon
12. Clinical Characteristics of Enterohemorrhagic *Escherichia coli* (EHEC) Infection – Korea
Ji-Hwan Bang, H. Han, H. Lee, S. Lee, O. Park, B. Lee and J. Park

Institutional and Hospital-based Studies

13. Outbreak of Norwalk-like Virus in Three Residential Institutions – Australia, 2002
Megge J. Miller, L. Carter, K. Scott, G. Millard, B. Lynch and C. Guest
14. Investigation of Nosocomial Diarrhea in Nursery Ward at Somdej-Prapinklao Hospital, January 17 – March 6, 2002
Saipin Chotvichien, Chuleeporn Jiraphongsa, Cheewanan Lertpiriyasawat, Samroeng Poorahong, Mayuree Sampantawat, Supitcha Sangchot and Waranya Udomsak
15. Vancomycin-resistant Enterococcus Nosocomial Infection – Kitakyushu, Japan, 1998-2002
Hideki Yoshida, T. Sunagawa, T. Ohyama, J. Kobayashi, K. Taniguchi and N. Okabe
16. Effects of a Continuing Education Program on Nurses' Practices of Cancer Pain Assessment and Their Acceptance of Patients' Pain Reports – Taiwan, 2002
Luo-Ping Ger, C.Y. Chang, M.C. Lee, C.S. Chao and K.H. Lai

Toxicology

17. Chemical Poisoning aboard a Local Fishing Vessel – Philippines, 2002
Aurora Teresa M. Daluro, L. Sabido, A. Garfin, J. Tugadi, C. Aumentado, E. Ocampo, B. Goco, A. Rivera, R. Timbang, A. Dionisio, C. Ruiz, N. Maramba, J.R. Navarro, J. Lopez and M.C. Lim-Quizon
18. An Investigation on Occupational Poisoning by Menonsin – Jiaojiang District, Taizhou City, Zhejiang Province, China, 2002
Huanyu Wu, Q. Li, S.L. Zhang, W.L. Yu and G. Zeng

Miscellaneous Studies

19. Health Service Utilization among People – Socson District, Hanoi City, Vietnam, 2001
Nguyen Thu Anh
20. A Household Survey on Injection Safety in Wulong County, Chongqing Municipality, China, 2002
Jianming Ou, Q. Li and G. Zeng
21. Field Investigation after a Flood Disaster – ShanXi Province, China, 2002
Shuyun Xie and Q. Li
22. Evaluation of Short term Epidemiology Training Program for Surveillance, Epidemic Preparedness and Response in India
Vidya Ramachandran and M. Gupte

Severe Acute Respiratory Syndrome (SARS)

23. An investigation of the first SARS outbreak in Sichuan, 2003
Lunguang Liu, Haiyan Wu, Gang Liu, Zhengfang Song, Dunzhi Wang
24. An investigation of Beijing Hospitals Treating SARS Patients
Zhang Yanping, Wu Zunyou, He Xong, et al.
25. A highly efficient transmission of SARS among extended family and hospital staff in Beijing, April 2003
Shuyun Xie, G. Zeng, J. Lei, Q. Li, H.B. Li, Q.B. Jia

TEPHINET

28. Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET)

**The Role of FETP in SARS
Preparedness and Response
--Taiwan Experience--**

**Jih-Haw Chou
Taiwan CDC**

CDC

Background of Taiwan FETP

**Established in 1984 with Assistance from
US CDC after the Poliomyelitis Outbreak
in 1982.**



CDC

Missions

- **Capacity Building of Health Authorities**
Training Field Epidemiologists through Learning by Doing
- **Outbreak/Epidemics Investigation**
- **Epidemiological Consulting and Assistance**
- **Study on Health Related Issues.**
 1. Health Plan Evaluation
 2. Health Problem Study
- **International Cooperation**

CDC

Current status of Taiwan FETP

- **10 Trainees per year (6 in 2003)**
- **160 Alumni and Trainees**
- **Physicians, Dentists, Nurses, Lab Workers & Public Health Staffs**
- **260 Outbreak Investigations Conducted**
- **111 Long-Term Research Plans Carried out**

CDC

Educational Background of Taiwan FETP Trainees and Alumni

	1984-2003	
	No.	%
Medicine	37	23.1
Dentistry	25	15.6
Pharmacy	8	5.0
Public Health	33	20.6
Nursing	31	19.4
Medical Technology	10	6.3
Others	16	10.0
	160	100.0

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Working Place Distribution of Taiwan FETP Trainees and Alumni

Working Places	1984-2003	
	No.	%
Department of Health	49	30.6
Local Health Authorities	43	26.9
Hospitals	21	13.1
Military Institutes	18	11.3
Others	29	18.1
Total	160	100

CDC

Current Status

- **2 Years Training Program**
- **6 Trainees**
- **160 FETP Alumni and Trainees**
- **260 Outbreak Investigations Conducted**
- **111 Long-Term Research Plans Carried out**

CDC

SARS Outbreaks

- **Nov. 16, 2002 – Atypical pneumonia in Guangdong, China**
- **Feb. 21, 2003 – Hong Kong**
- **Feb. 26, 2003 – Hanoi, Vietnam**
- **Mar.13, 2003 –Toronto, Canada**
- **Mar.14, 2003 – Taiwan**

3032 reported cases

1320 suspected cases

668 probable cases

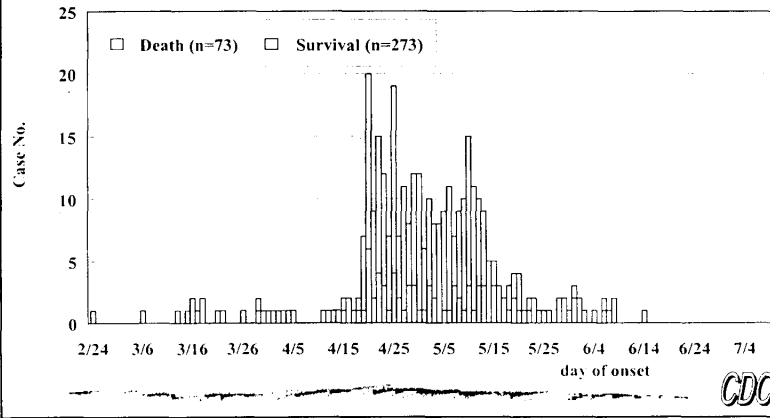
346 lab. confirmed

CDC

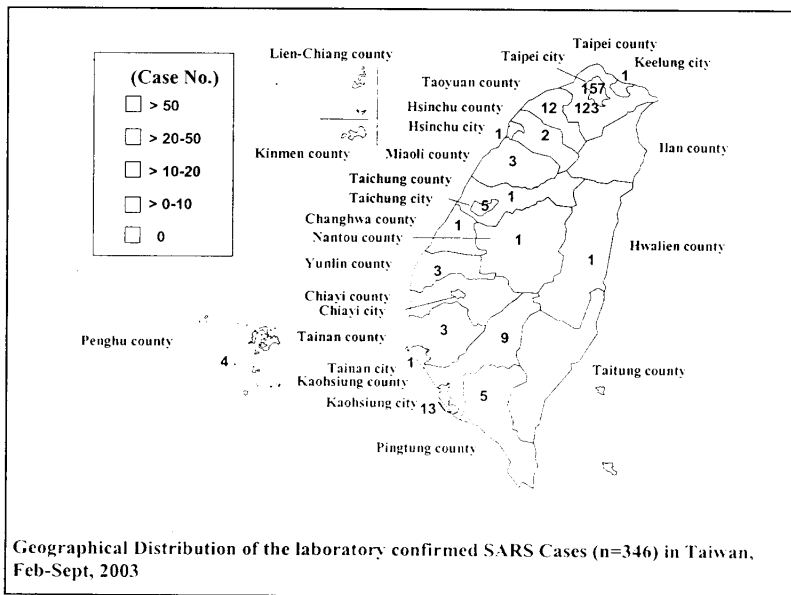
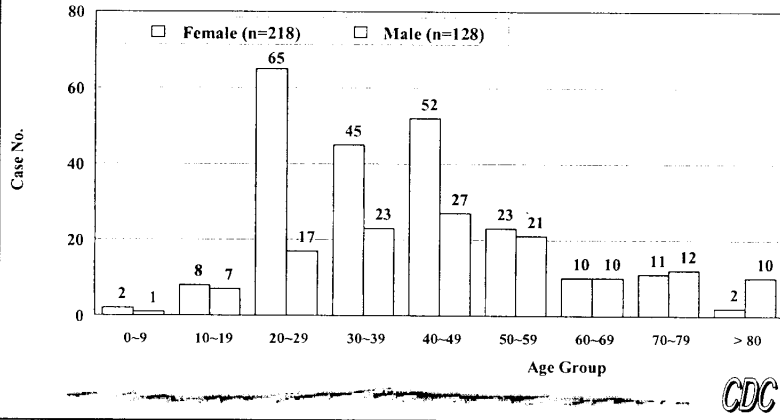
Demographic characteristics of the laboratory confirmed SARS cases in Taiwan, Feb-Sept, 2003

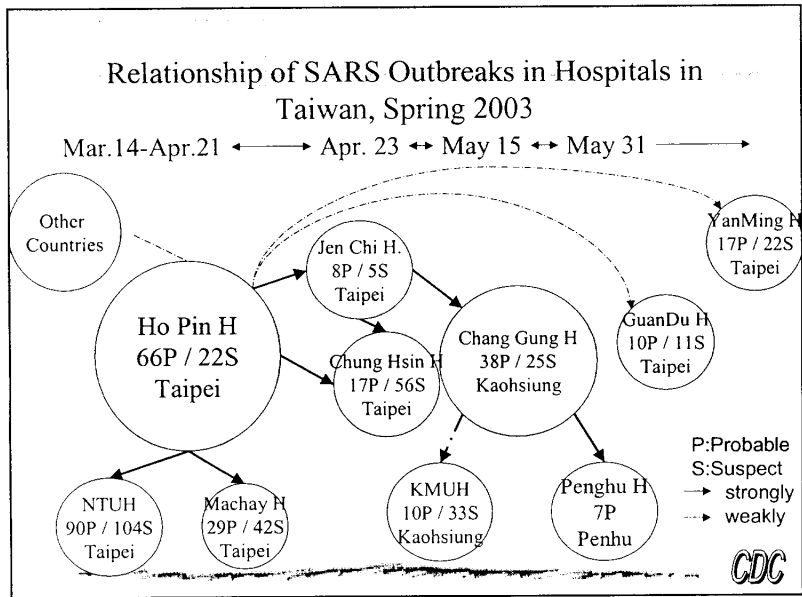
Characteristics	Survival n=273	Death n=73	Total n=346
Age (mean)	38	57.5	
Sex			
Female (%)	184 (67.4)	34 (46.6)	218 (63.0)
Male (%)	89 (32.6)	39 (53.4)	128 (37.0)
Probable source of infection			
Imported cases (%)	21 (7.7)	0 (0.0)	21 (61.0)
Family of other cases (%)	35 (12.8)	3 (4.1)	38 (11.0)
Health care workers (%)	93 (34.1)	12 (16.4)	105 (30.3)
Hospitalized patient (%)	89 (32.6)	53 (72.6)	142 (41.0)
To be identified (%)	35 (12.8)	5 (6.8)	40 (11.6)
Coexisting medical disorders			
Yes (%)	15 (5.5)	30 (41.1)	45 (13.0)
No (%)	258 (94.5)	43 (58.9)	301 (87.0)

Epidemiological Curve of Laboratory Confirmed SARS Cases in Taiwan, Feb-Sept 2003



Age-sex distribution of the Laboratory Confirmed SARS Cases in Taiwan, Feb-Sept 2003





- Role of FETP
During the SARS Epidemic**
- Disease surveillance
 - Contact tracing (early stage of the outbreak)
 - Hospital outbreak and social concerned case Investigation
 - Inspection on the infection control works in health care facilities
- CDC**



CDC

Lessons Learned

- **Negligence in Hospital Infection Control**
Travel and Economy Loss : 50 Billions USD
- **Delayed Reporting**
- **Logistics System Failure**
- **Poor Communication Between Local and Central Governments**
- **Social Panic : Media Communication**
- **Need for More Field Epidemiologist**
- **High Cost for Quarantine**

CDC



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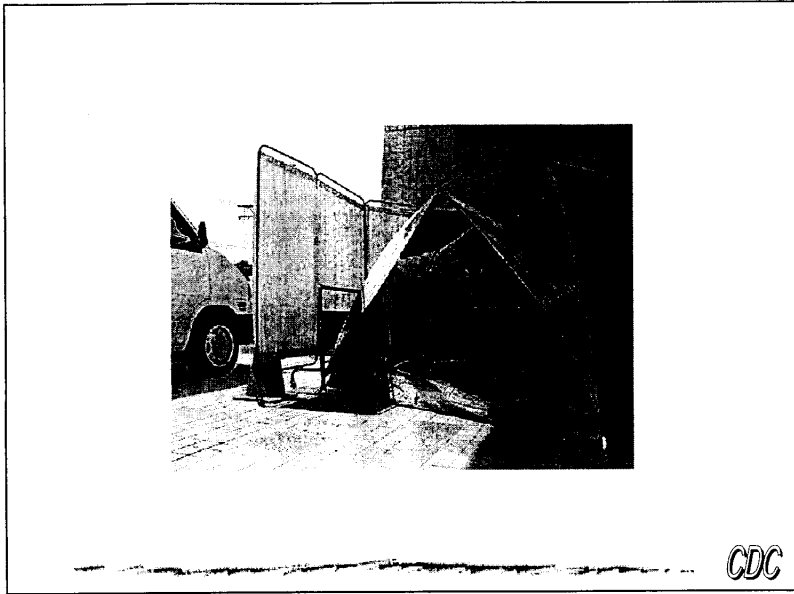


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Role of FETP in SARS Preparedness

- Surveillance
- SARS investigation training for local health workers
- Revising computer systems for SARS surveillance and investigation
- Inspection on infection control works in health care facilities
- Consultation on SARS preparedness for local health workers
- Public Education Material Preparation

CDC



發燒了！怎麼辦？



**我發燒
所以我休息**

如何處理發燒了

1. 請儘速尋求醫師或「77」諮詢專線
2. 請儘速就醫
3. 不要自行用藥
4. 儘量在居家休息
5. 儘量避免前往醫院、診所、車站、機場、大眾運輸工具

休息是為了走更長遠的路

電話：02-26494181 / 1122
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Lessons Learned for FETP

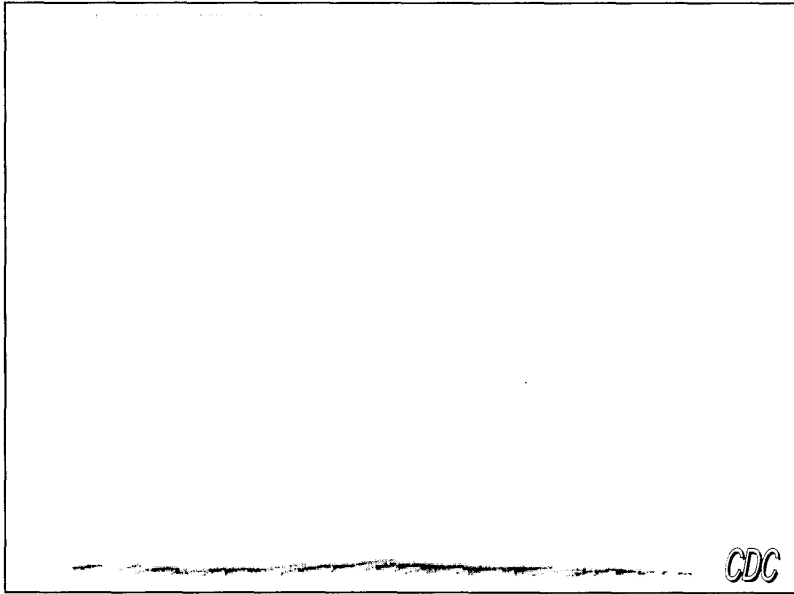
- **Need of systemic evaluation on hospital infection control performance**
- **More study on the reasons for delayed reporting**
- **Evaluation on logistics system**
- **How to improve the communication between local and central governments on health issues**
- **How to improve media communication on outbreak information**
- **Insufficient field epidemiologists**

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Thank You for Your Attention

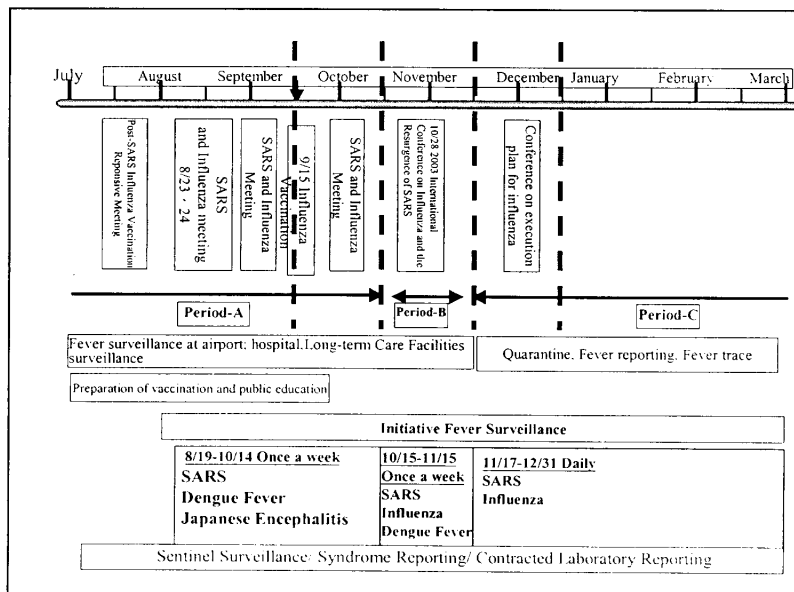
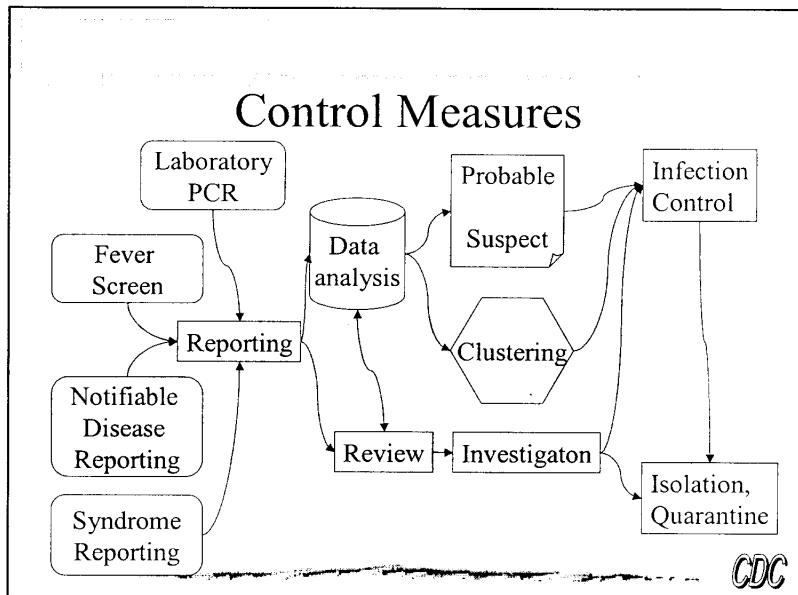
CDC



Preparedness SARS (I)

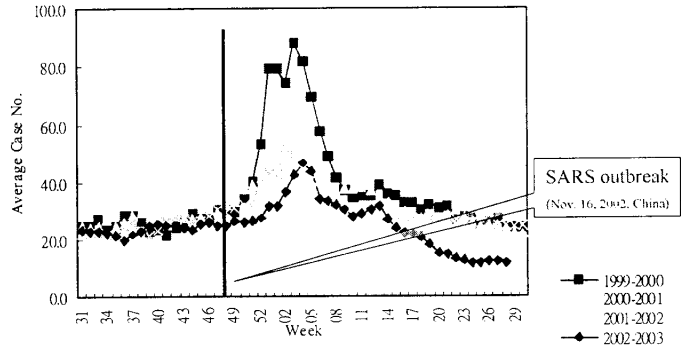
- **Surveillance System**
 - a. Notifiable disease surveillance system
 - b. Laboratory surveillance system
 - c. Fever surveillance system
 - d. Syndromic surveillance system
 - e. School surveillance system
- **Outbreak Investigation**





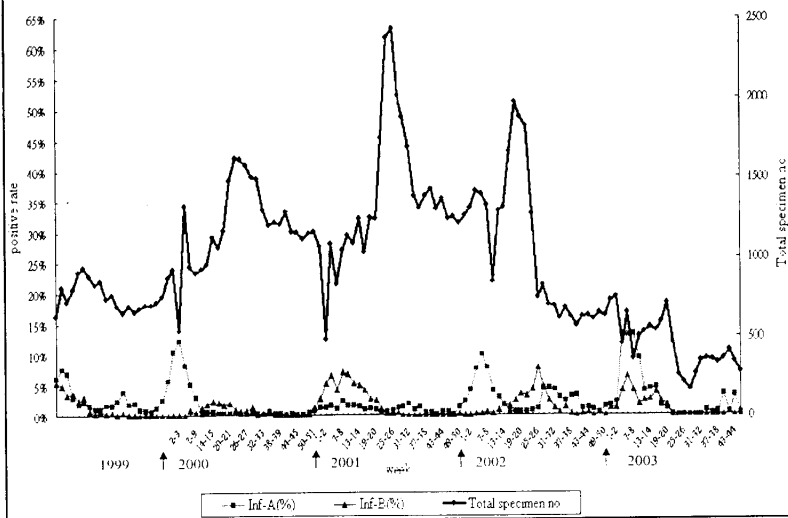


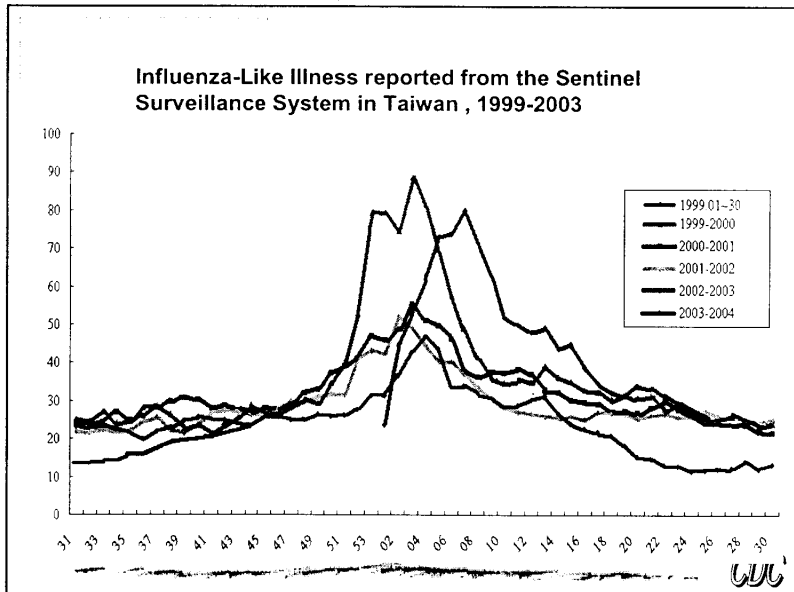
Immediate Challenges



•How to rapidly distinguish SARS from flu in the coming flu season?

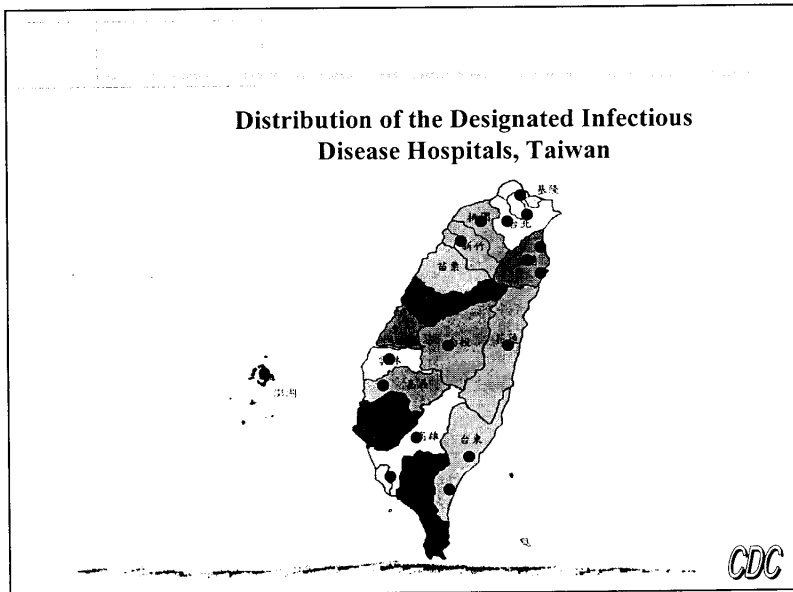
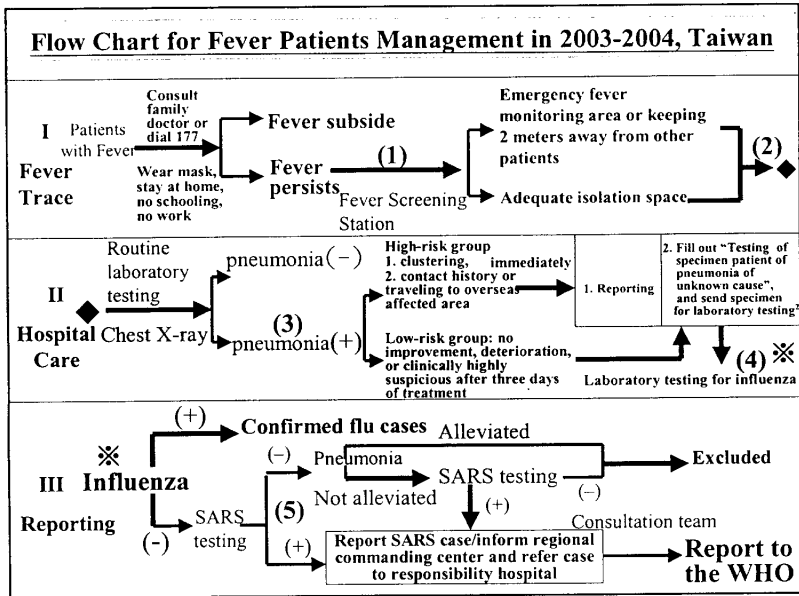
Positive rate of influenza virus reported by 11 contract laboratories in Taiwan
Mar. 01, 1999-Nov.05, 2003





- Preparedness SARS (II)**
- **Health Care/Hospital Infection Control**
 1. **Revising Communicable Control ACT**
 2. **Preparation of Guidelines**
 3. **Inspection and Evaluation Control Works**
 4. **Training for Health Care workers**

 - **Establish a National Network of Hospitals for Infectious Diseases**
- CDC





CDC



CDC

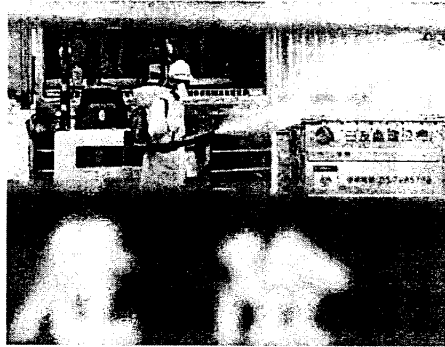
Preparedness SARS (III)

- **Community Control**
 - Home Quarantine
 - Temperature Screening at Public Buildings and Ports
 - Fever Screening Stations

CDC



CDC



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Preparedness SARS (IV)

- **Upgrade 12 Virology Laboratories and Set Up Specimen Transportation and Lab Results Forwarding System**

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Preparedness SARS (V)

- **Formulating Health Education Plan**
- **Logistics**
- **Consultation**
- **Training for Public Health Workers**

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 少一點疫病

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自我健康管理

身體要自強——
 照顧自己，增強抵抗力

- 勤洗手
- 保持環境衛生及空氣流通
- 避免到人多聚集或空氣不流通地方
- 避免不必要的探病
- 均衡飲食
- 適量休息及運動

公德要管理——
 管自己，提醒別人

- 生病發燒在家休息
- 公共場所說話輕聲，口沫不隨風
- 打噴涕或咳嗽先遮住口鼻
- 擦完鼻涕必先洗手
- 不隨地吐痰及擤鼻涕，用過手紙不亂丟
- 與人招呼揮手致意即可

衛生署疾病管制局 編譯
 諮詢專線：1922



Preparedness SARS (VI)

- **Catch-up on Vaccination Schedule**
- **Flu Vaccination Plan in 2003**
 - (1) **Elderly \geq 65 yrs (80%)**
 - (2) **Health care workers (100%)**
 - (3) **Other High risk groups**

CDC

The cost-effectiveness of influenza vaccination in elderly based on the National Health Insurance Database

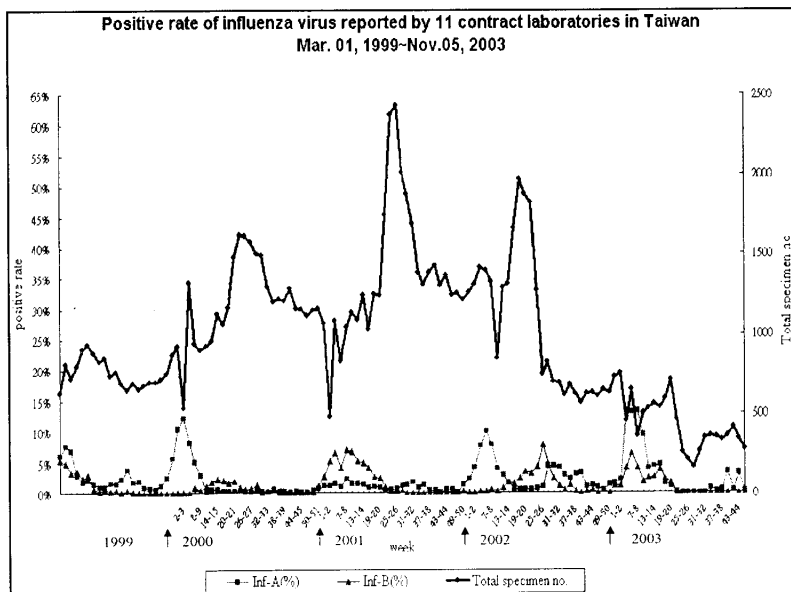
**Li-Ching ,Hsu
Taiwan CDC**

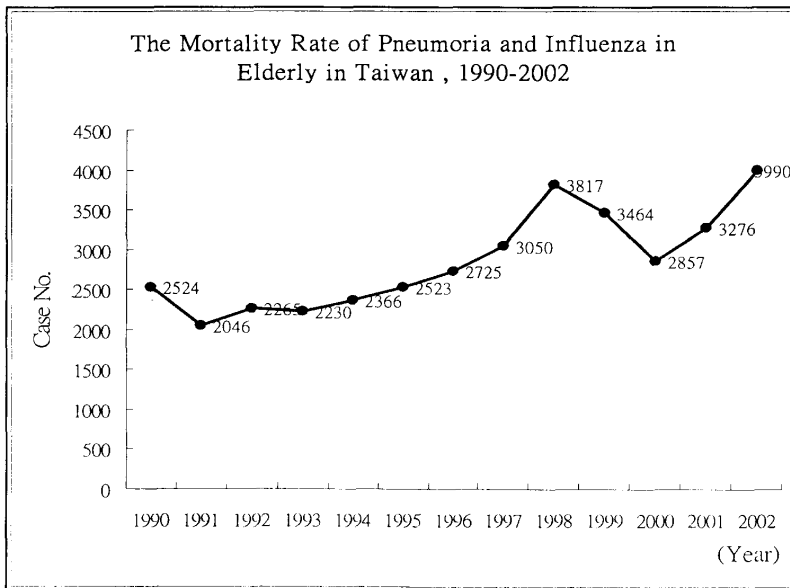
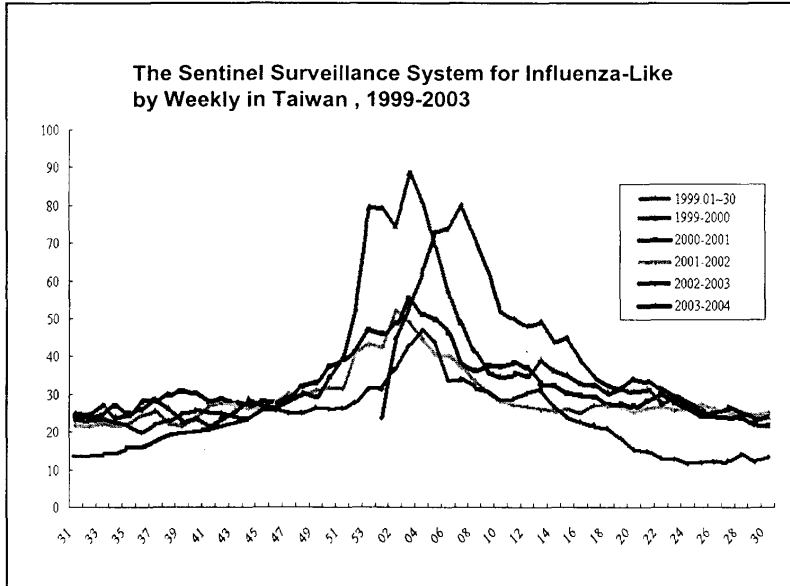
Impact of Influenza

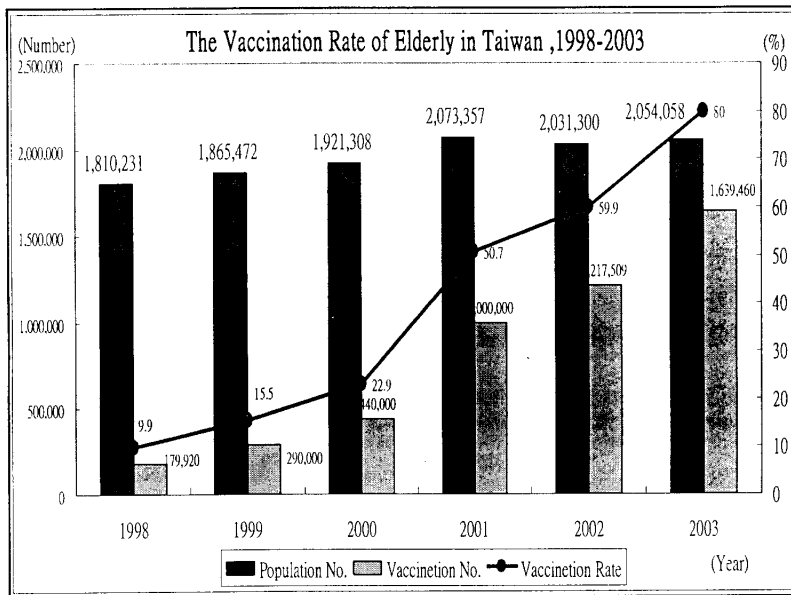
- **The most serious influenza pandemic occurred in 1918 and killed more than 20 million people worldwide.**
- **The H5N1 influenza infection with 6 deaths had been reported in Hong Kong at 1997**
- **The influenza epidemic is also the main cause of the death or hospitalization of most elderly people, this will result in the increase of medical and social cost.**

Influenza Vaccine Efficacy

- Data from a variety of countries has demonstrated that vaccination can reduce mortality, medical cost and social cost in elderly.
- Evaluation of the vaccine effectiveness in persons aged 65 years and over.
 - Population-based, Institute, Nursing home or health care worker of long-term care.







Background

- Taiwan carried out its first pilot influenza vaccination program for the high-risk elderly from October to December 1998, and this program has been gradually expanded since 1999.

Objectives

- to assess the health and economic benefits of influenza vaccination in elderly

Study Design

- Vaccination period : Oct-Dec 1999
- participants : age 65 and over
 - High-risk group(n=42,975)
 - has been hospitalized during the half year from Apr-Sep,1999 for cardiopulmonary diseases or diabetes
 - Intermediate-risk group(n=198,980)
 - has been hospitalized for cardiopulmonary diseases or diabetes before Mar 1999
 - Low-risk group(n=306,512)
 - has been outpatient during the half year from Apr-Sep,1999 for cardiopulmonary diseases or diabetes

Data Collection

- 290,000 doses of vaccine
- Data collection
 - National mortality database in 2000
 - health insurance claim database during Jan-Mar 2000
 - Inpatient and outpatient
 - Diagnostic of disease(ICD9) 、 days of hospitalization 、 cost of hospitalization
 - Vaccination record

Study Outcome and Statistical Analysis

- outcome
 - Mortality
 - all-cause 、 pneumonia and influenza(ICD9:480-487)
 - Hospitalization
 - all-cause 、 pneumonia and influenza(ICD9:480-487)
 - indirect medical costs
- Multiple regression and Logistic regression analysis controlling
 - age 、 gender 、 marriage status 、 degree of education 、 vaccination status 、 health status 、 days of hospitalization 、 cost of hospitalization

**Analysis of Mortality Effected by Influenza Vaccination
in Logistic Regression Model^a**

	Jan-Mar			Jan-Jun			Jan-Dec		
	Adj-Odd	95%C.I.	P ^b	Adj-Odd	95%C.I.	P	Adj-Odd	95%C.I.	P
High-risk									
All-cause	0.78	0.61 - 0.97	*	0.22	0.91 0.77 - 1.08	0.09	0.92	0.81 - 1.04	0.08
P I	1.23	0.29 - 3.53		-0.23	0.89 0.27 - 2.17	0.11	0.99	0.46 - 1.87	0.01
Intermediate-risk									
All-cause	0.75	0.70 - 0.80	***	0.25	0.68 0.62 - 0.75	***	0.32	0.70 0.65 - 0.76	*** 0.30
P I	0.60	0.42 - 0.86	**	0.40	0.65 0.49 - 0.84	**	0.35	0.79 0.66 - 0.95	* 0.21
Low-risk									
All-cause	0.76	0.66 - 0.87	***	0.24	0.78 0.71 - 0.86	***	0.22	0.87 0.81 - 0.93	*** 0.13
P I	0.68	0.16 - 1.86		0.32	0.89 0.44 - 1.62	0.11	0.98	0.63 - 1.46	0.02

a : Regulation logical control by sex, ages, marriage, education, history and log(number of outpatient service) · log(days of hc (age-65)·vaccine etc

b : *p<0.05 ; **p<0.01 ; ***p<0.001

**Analysis of hospitalization effected by Influenza Vaccination
in Multiple Regression Model^a**

	Crue-Odd	95%C.I.	P ^b	Adj-Odd	95%C.I.	P	1-OR
High-risk							
All Disease	1.16	1.06 - 1.26	**	1.10	1.01 - 1.21	*	-0.10
P I	1.24	0.92 - 1.68		1.27	0.92 - 1.71		-0.27
Intermediate-risk							
All Disease	1.19	1.16 - 1.22	***	0.98	0.93 - 1.03		0.02
P I	1.09	1.01 - 1.18	*	0.95	0.80 - 1.12		0.05
Lowrisk							
All Disease	1.05	1.01 - 1.10	*	0.99	0.95 - 1.04		0.01
P I	1.10	0.92 - 1.31		1.07	0.89 - 1.27		-0.07

a : Regulation logical control by sex, ages, marriage, education, history and log(number of outpatient service) · log(days of hospitalization) · (age-65)·vaccine record etc

b : *p<0.05 ; **p<0.01 ; ***p<0.001

**The differency of days of hospitalization analyzed
by Multiple Regression Model**

	High-risk			Intermediate-risk			Low-risk		
	Estimate	SE	P ^c	Estimate	SE	P	Estimate	SE	P
All-cause	-0.09	0.05	*	-0.07	0.01	***	-0.01	0.02	
P I	-0.32	0.15	*	-0.04	0.02	*	-0.07	0.03	*

a : Regulation logical control by sex, ages, marriage, education, history and log(number of outpatient service) - log(days of hospitalization) - (age-65)*vaccine etc

c : *p<0.05 : **p<0.01 : ***p<0.001

**The Cost Effect of Hospitalization by Influenza Vaccination
Analyzed by Multiple Regression Model^a**

	High-risk			Intermediate-risk			Low-risk		
	Estimate	SE	P ^b	Estimate	SE	P	Estimate	SE	P
All Diseases	-0.054	0.011	***	-0.054	0.011	***	-0.004	0.018	
P I	-0.105	0.020	***	-0.105	0.020	***	-0.060	0.040	

a : Regulation logical control by sex, ages, marriage, education, history and log(number of outpatient service) -

log(days of hospitalization) - (age-65)*vaccine etc

b : *p<0.05 : **p<0.01 : ***p<0.001

The cost-effectiveness in different old age groups

	mean costs of hospitalization ^a	mean costs of influenza-vaccination program ^b	Mean cost savings ^c	vaccination no.	Total cost saving ^d	Net cost savings per vaccination ^e
Total					235,362,009	1975
High-risk	-1,384	344	-1,728	3,808	-6,580,605	-
Intermediate-risk	3,183	344	2,839	85,534	242,805,366	-
Low-risk	315	344	-29	29,853	-862,752	-

Notes: a : * - mean hospitalization cost of vaccination are higher than unvaccination
b : the average vaccine cost=(material cost of vaccine + miscellaneous fee + local support + health insurance) +vaccination numbers
{344= (34,249,600+3,427,332+2,753,267+60,945,147) +294,496}
c : Mean cost savings=mean costs of hospitalization – mean costs of influenza-vaccination program
d : Total cost saving = Mean cost savings*Number of vaccination
e : Net cost savings per vaccination = Total cost saving/ Number of vaccination

- ## Conclusion
- vaccine effectiveness was 22-25% for reducing deaths from all cause in different risk group .
 - vaccination will reduce 32-40% of death for pneumonia and influenza except the high-risk group
 - Although vaccination can not effectively reduce the rate and number of hospitalization in different risk group , it will reduce the number of days and hospital cost, and will reduce the serious of the diseases.

Conclusion

- For the High-risk group and the Low-risk group, although there is no effectiveness of medical cost reduction, still the mortality rate can be decreased.
- For the Intermediate-risk, it not only reduce the mortality, but also resulted in a cost saving of \$2 839NT (US\$84) per hospitalisation.
- The vaccination save medical cost 236 million dollars (US\$7million), that is to save 1,975 dollars(US\$58) per vaccination.