

TB Outbreak Experience in British Columbia

Shelley Dean

TB Control

BC Centre for Disease Control



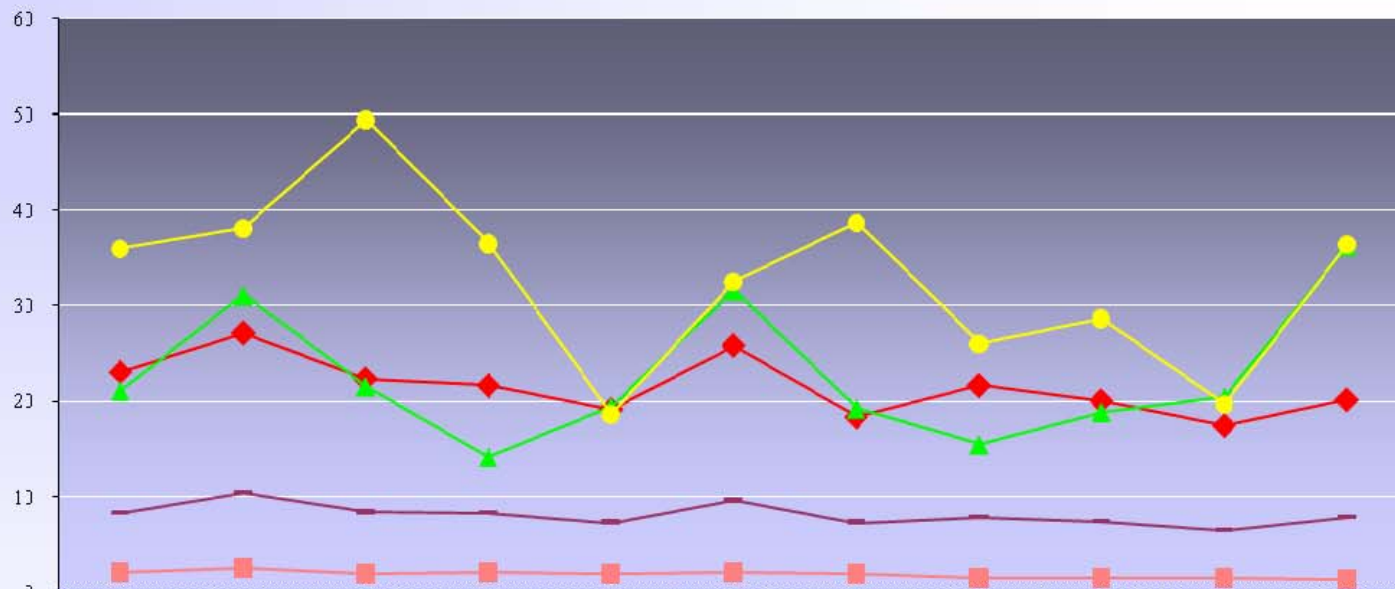
CVI TB Outbreak

- Introduction
- Overview of TB Outbreak
- Challenges
- Partnerships Developed

TB Incidence in BC by Origin and Year

Tuberculosis incidence rates per 100,000, by birthplace and year, B.C. 1996-2006

Incidence rates per 100,000 population

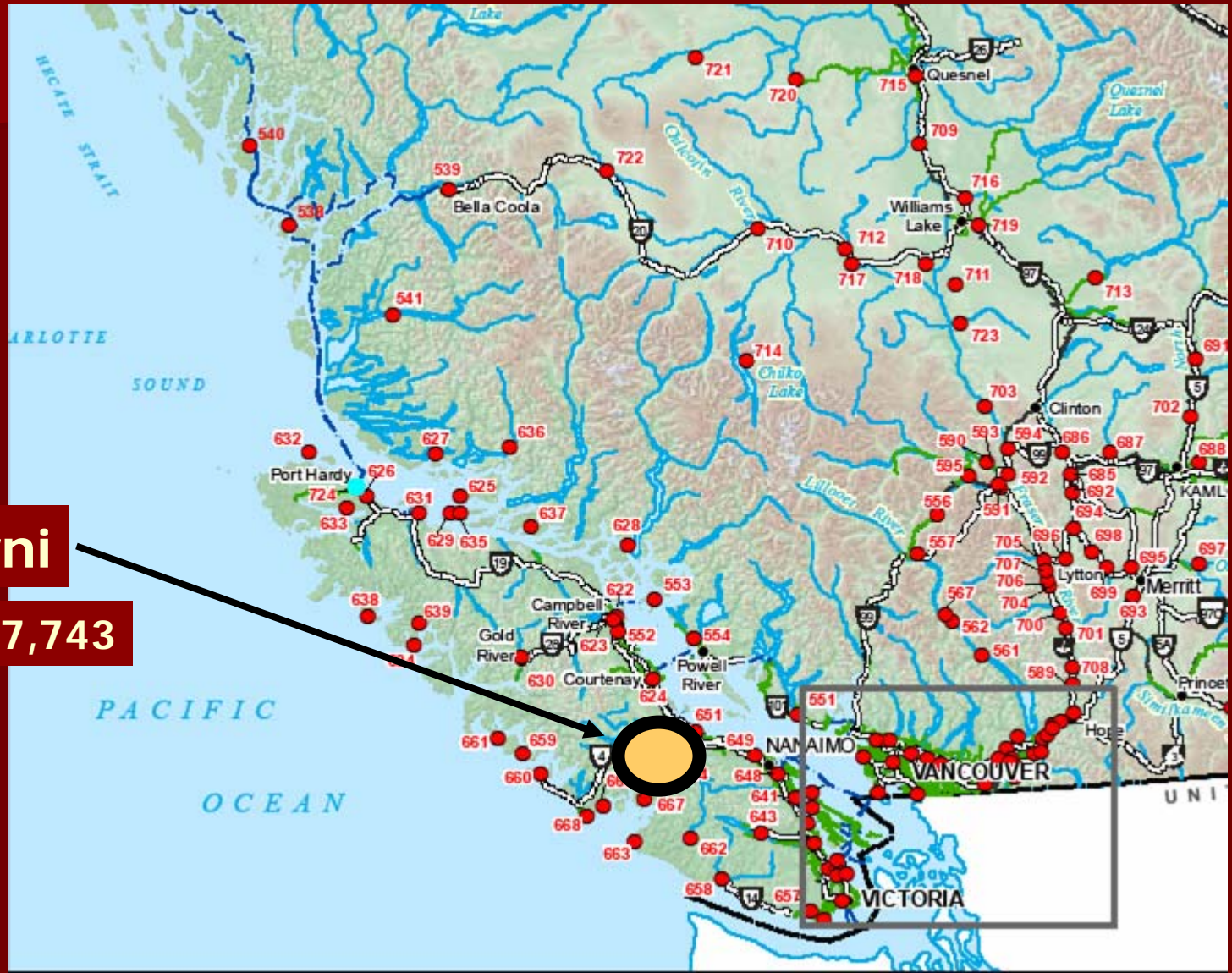


	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Foreign born	23	27.1	22.3	21.6	19.1	25.8	18.3	21.6	20	17.4	20.1
Canadian born*	2	2.5	1.9	2.1	1.9	2	1.9	1.4	1.4	1.4	1.3
Aboriginal, registered, on reserve	21.1	31.1	21.5	14.1	19.4	31.6	19.2	15.4	18.8	20.4	36.3
Aboriginal, registered, off reserve	36	38.1	49.4	36.5	18.6	32.5	38.7	26	28.6	19.6	36.4
Provincial rate (B.C.)	8.3	10.4	8.4	8.3	7.3	9.6	7.3	7.8	7.4	6.5	7.8

First Nations Communities in BC

- 120,044 Status Aboriginal persons in BC
- 58,781 Aboriginal persons living on-reserve (49%)
- ~ 200 First Nations Communities in British Columbia
- ~ 100 Health Centres
- Many communities are isolated and remote.

TB Outbreak in Central Vancouver Island



TB Incidence*, Central Vancouver Island

2003	0.8 (2)
2004	3.2 (8)
2005	1.6 (4)
2006	5.9 (15)
2006*	91 (15)
2007*	121 (~ 20)

*Registered Aboriginal Population based upon 2001 stats (~16,540)

* Case 1 – April 2006

- 29 year old FN woman off reserve in Port Alberni
- History of heavy alcohol use
- April developed increasing dyspnea and chest pain
- May hospitalized with left pleural effusion, bronchoscopy, thoracostomy, decortication of LLL
- Fluid subsequently grew *M. tuberculosis*
- Limited contact tracing, pleural TB, client not very forthcoming

* Index vs. Source Case

Case 2 – July 2006

- 15 month old FN girl on reserve in Port Alberni
- July 14 developed L-sided weakness
- July 16 admitted to BCCH with L hemiparesis due to cerebral infarctions
- CSF 50% lymphocytes, 50% neutrophils, CXR showed a miliary pattern
- Started on treatment for presumed TB meningitis
- Reverse contact tracing initiated

Case 3 – August 2006

- 20 year old FN man, Port Alberni and Ucluelet
- Contact of Case 2
- Daily crack cocaine use
- Symptomatic since April/06, cough, night sweats
- **Skin test negative**, CXR showed bilateral airspace disease, L pleural effusion, cavitation both upper lobes
- Treatment challenging due to non-compliance

Case 4 – August 2006

- 40 year old FN woman off reserve in Port Alberni
- History of heavy alcohol use
- Symptoms since April, cough, chest pain, night sweats, weight loss
- June 3 presented to hospital, R pleural effusion, skin test negative, treated for atypical pneumonia
- August 2 returned with increased symptoms, miliary pattern on CXR, respiratory failure, septic shock
- BAL specimen positive for M tuberculosis
- Survived initial presentation, died December/06 (details of death not known by TBC)

Case 5 – August 2006

- 37 year old FN man, mobile in Port Alberni area
- Daily alcohol and crack cocaine use
- Symptoms of cough and weight loss
- Sister become concerned, brought him to MD
- CXR showed bilateral infiltrates, L pleural effusion, L upper lobe cavitation
- Initially treated as an out-patient, significant challenges, MHO involved, transferred to TB2

Cases 6 - 11, October 2006

- 6 cases diagnosed in October, all FN
- 4 presented with symptoms, 2 picked up through reverse contact tracing of case 2
- Delay in diagnosis in 3 cases
- 3 pleural cases, 3 pulmonary cases
- 3 heavy drinkers, 1 using crack cocaine
- 3 lived on-reserve, 3 lived off-reserve

Situation in October 2006

- 11 cases active TB
- 6 pleural effusion
- 2 smear positive
- 1 child with TB Meningitis

BCCDC Epi Investigation

- TB Control invited a field epidemiologist and a community medicine resident to conduct an in-depth investigation
October/06

BCCDC Epi Investigation

- Initially reviewed information in iPHIS, contact lists, discussions with VIHA and FN Community nurses
- Developed a questionnaire, in-depth interview of each case

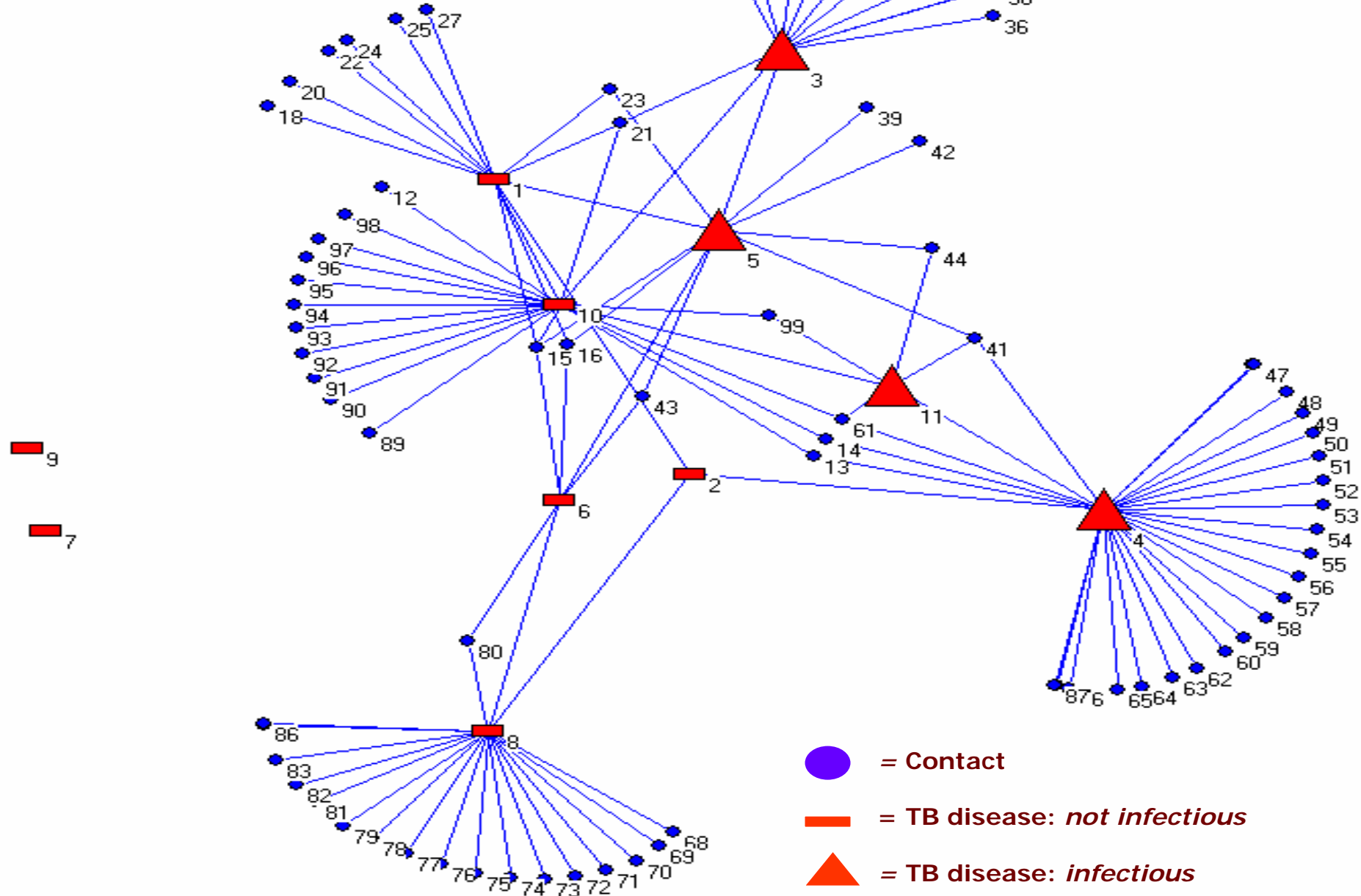
Networks and TB Investigations

Questionnaire included:

- Demographic
- Risk behaviors (Alcohol or illicit drug use)
- Places of social aggregation
- Friends/family/acquaintances

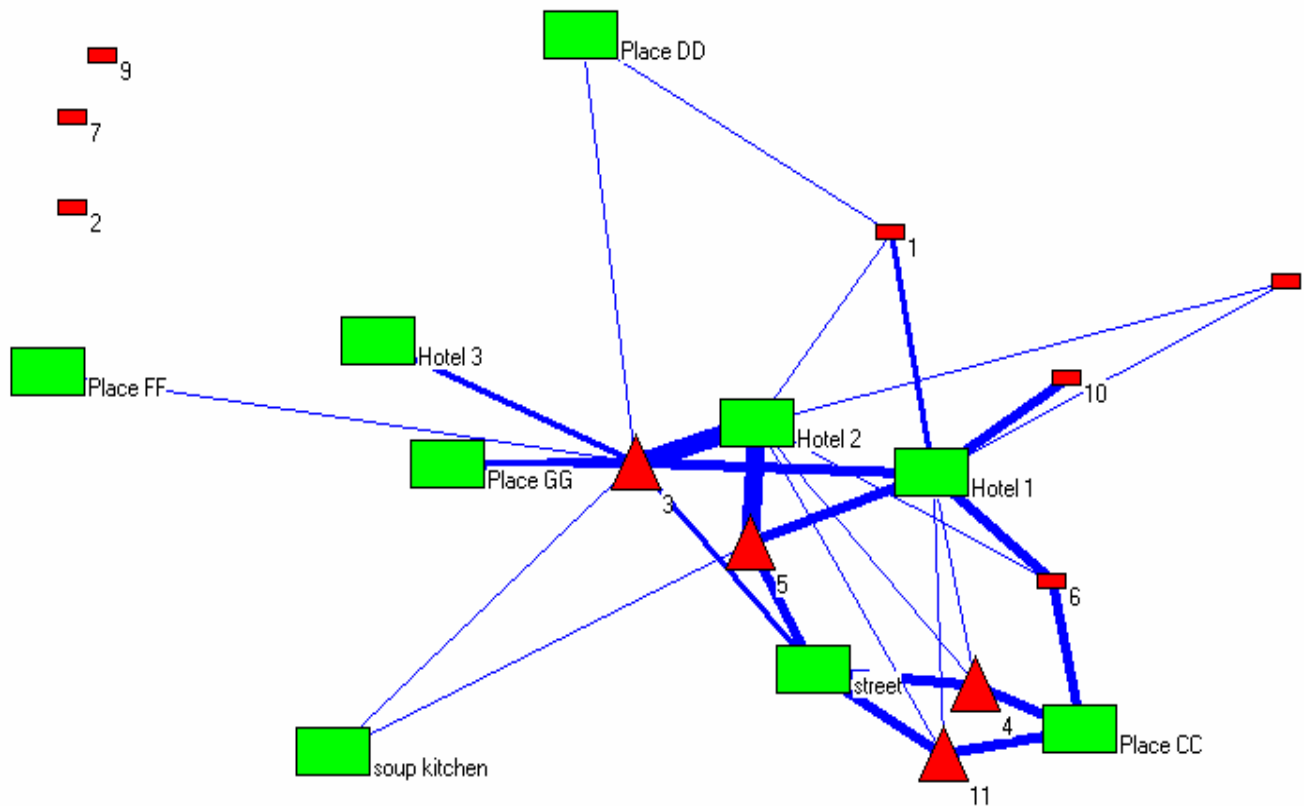
Connections According to Social Network Questionnaire

- I.e. Where do you hang out?



Locations

Hotel 1 = bar, residence
Hotel 2 = lounge, residence
CC = crack house
GG = crack house
Street = street and alleys



Suspected Chain of Transmission

5

Index Case

Alcohol Network

hotel pub #1
hotel lounge #2

1

4

6

7

8

12

9

room-mate of 6

10

barmaid at hotel pub #1

Crack Network

crack houses
streets and alleys

3

6

11

12

2

child cared for by 3

13

relative of 3

CVI TB Outbreak

Inner City Environment
occurring in a small town with
limited resources.

Social Challenges

Existing socio-economic conditions such as:

- poverty
- inadequate housing or homelessness
- substance use
- mental illness
- inadequate access to health care

These challenges require support and services over and above those connected with TB programming.



Port Alberni Social Services

- One shelter
- One free meal agency/drop-in
- Salvation Army Food Bank 2d/wk

Social Challenges

Nurses spend many hours and require support from allied staff in:

- Attempting to locate adequate housing for clients with TB
- Arranging for appointments with mental health and addictions programs

To facilitate provision of holistic health care



Volume of Work

One Public Health Nurse – TB part- time



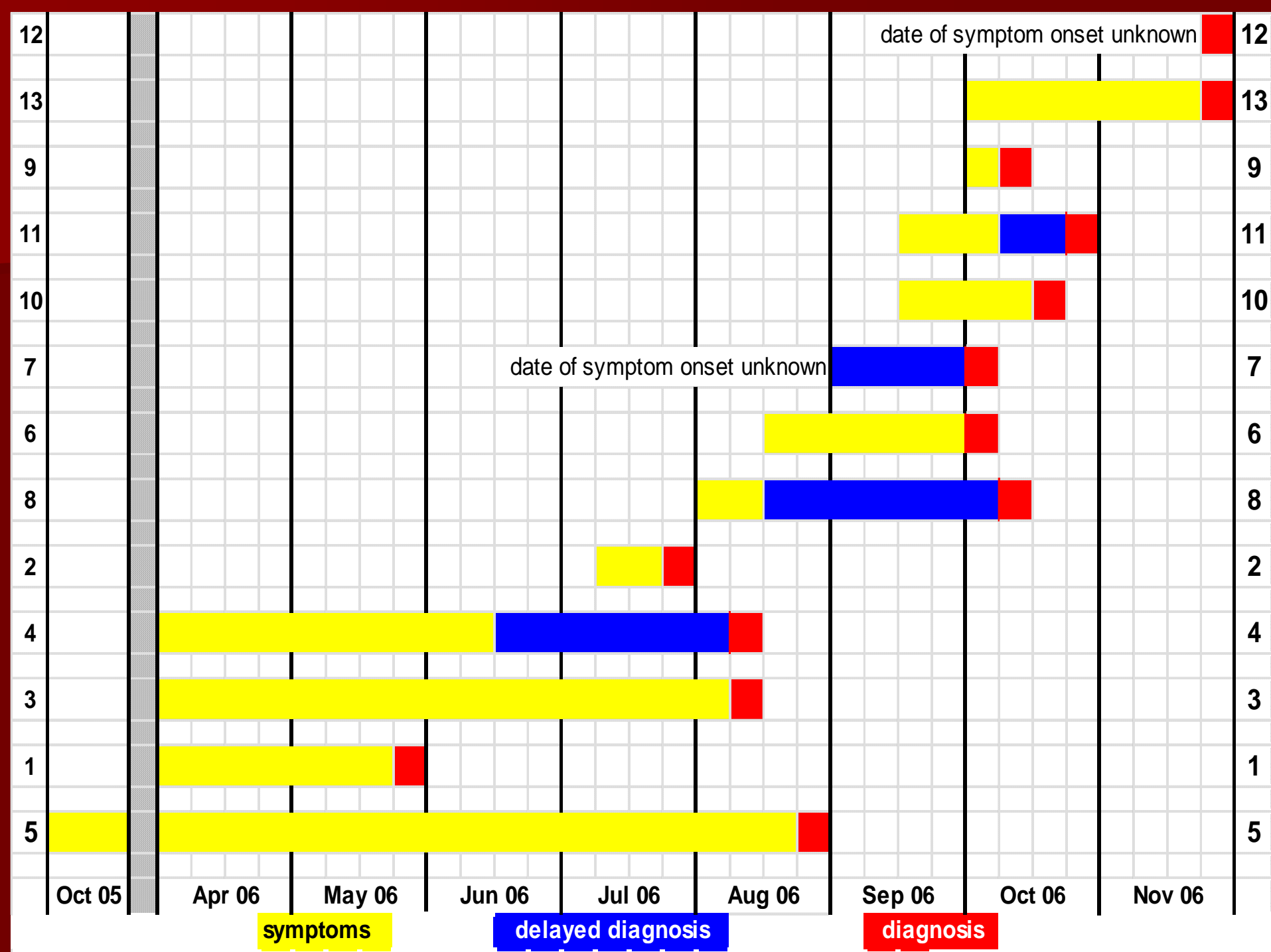
- Nurse Team Leader
- Seven Public Health Nurses
- Three DOT workers

Access to Health Care

- Many clients didn't have physicians
- 4 month period – no physician accepting new patients

- Feb/07 Nurse Clinic 3d/wk at Drop-In
- Oct/08 Physician 1d/wk at Drop-In

- Future Street Clinic is being Planned



Cultural Challenges

- First Nations population
- Street population

Working with Street People

- Build trusting relationship
- Flexibility

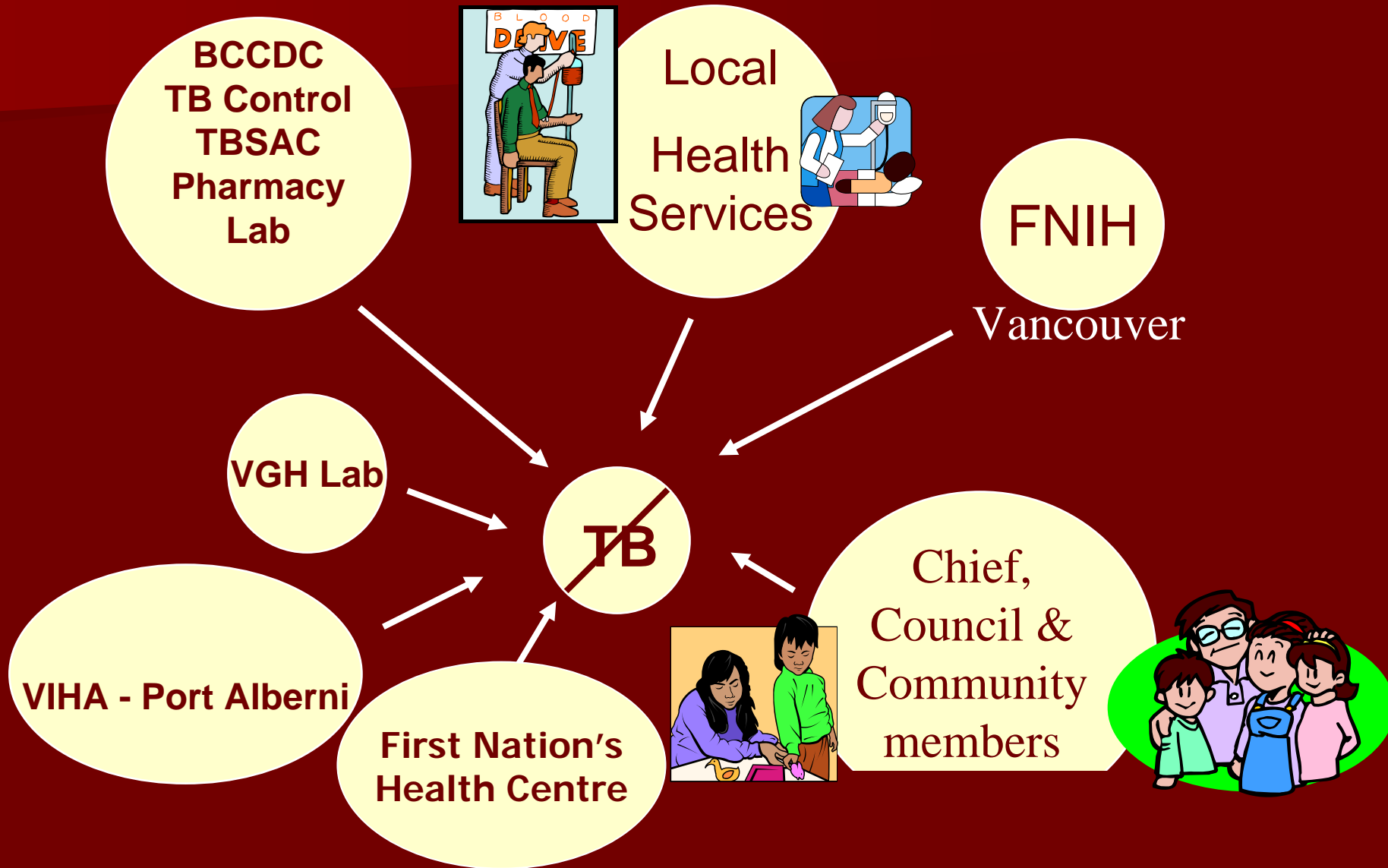
Building Trust

- Respect – person and their priorities
- Understanding – lifestyle and social issues
- Knowledge of Support Agencies
- Interact with staff at Support Agencies
(and be seen interacting)
- Mingle with street people and get to know them
- Humour

Challenges

- Communication - many agencies & individuals involved.
- No existing health care services to access street people.
- Limited social services for street people.
- Number of cases → overwhelming volume of work
- Cultural
- Limited experience working with street people.

Lines of Communication



Developed Partnerships

- Partnerships were developed between nurses and agencies supporting street people.
- Partnerships were developed between Public Health Nurses and Community Health Nurses.
- Nurses working hard with their Health Authority to open a Health Care Clinic/Centre for street people.

CVI Outbreak

- CVI Outbreak is ongoing (43 cases to date)
- ~ 7 live "on-reserve",
~ 35 live "off-reserve"
however boundary is artificial
- Treatment for LTBI: ~ 80 completed
- Contact Investigation: > 1000 Client's Screened



Contact Tracing

- Named or Social Contacts: 829
- Clients placed on prophylaxis: 115
- Completed prophylaxis: 80
- Defaulted on prophylaxis: 25
- Currently on prophylaxis: 35
- Currently on x-ray follow-up: 115

Contact Tracing

- 110 contacts diagnosed with Latent TB refused INH prophylaxis.
- These contacts are being followed by chest x-ray and symptom checks.
- 10 of these contacts have developed Active TB.

Acknowledgements

- Dr Victoria Cook, BCCDC
- Dr Elizabeth Brodtkin
- Lena Shah, Field Epi Program
- Shirley Rempel, Nurse Consultant, TBSAC
- Janice Jespersen, Nurse Leader, VIHA
- Jeannette Watts, Nursing Manager, NTC
- Nuu-Chah-Nulth Tribal Council Health Services
- CVI Public Health
- VIHA MHOs and Infection Prevention & Control
- FNIH-BC Region and Health Canada
- Division of Epidemiology, BCCDC

