



# Health and Telemedicine Scenario in Bhutan

## First National Telemedicine Workshop

15<sup>th</sup> October, 2019, Druk Hotel, Thimphu



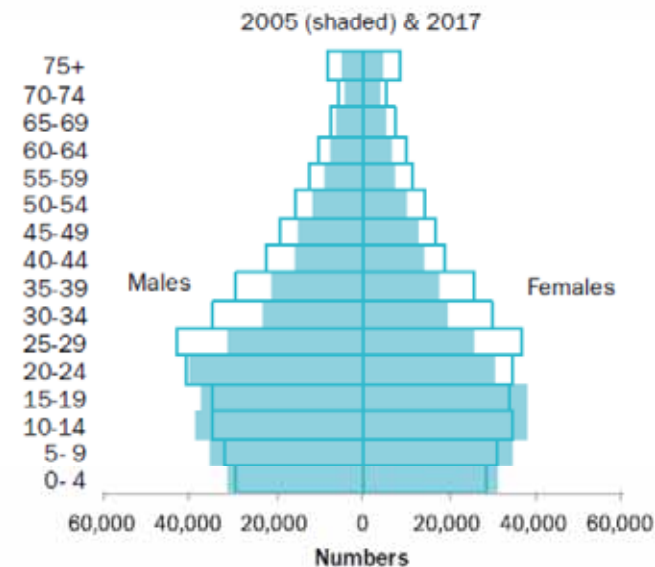
*DrukREN*

**TEMDEC**  
Telemedicine Development Center of Asia

Tashi Duba  
Telemedicine Programme  
Department of Medical Services  
Ministry of Health

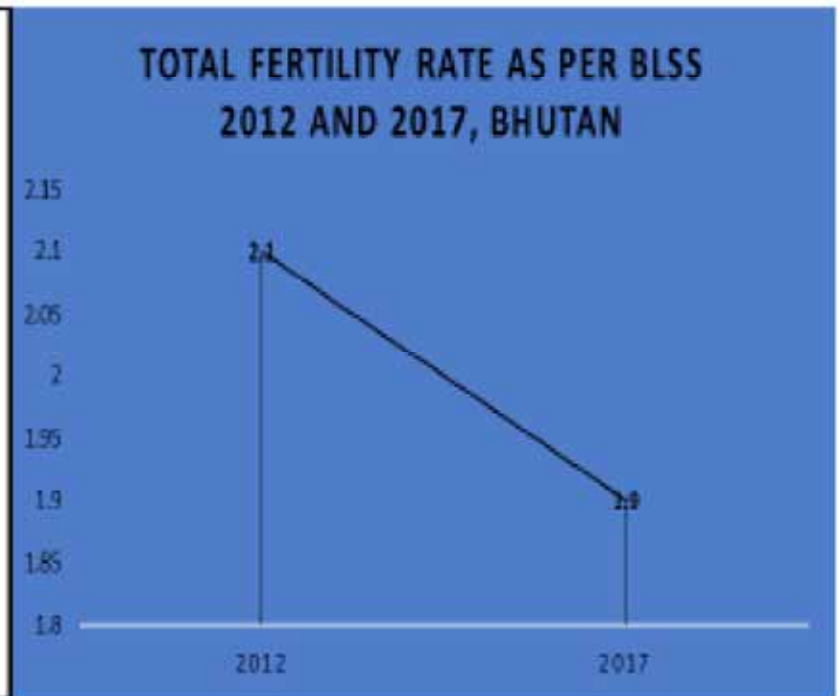
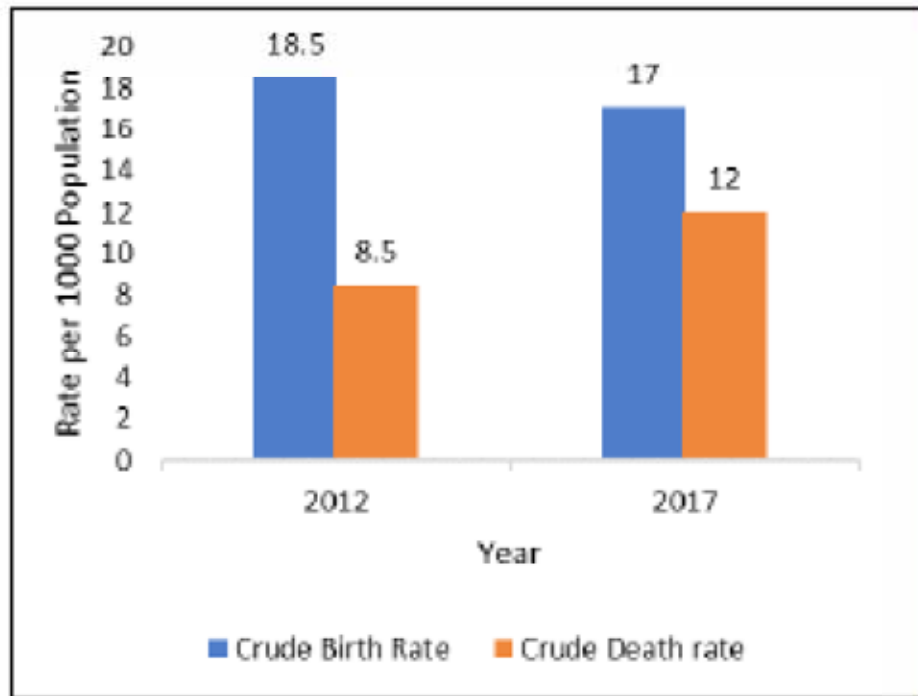
# Bhutan's Health (2017 data)

- Pop = 735,553
- Median age = 26.9 years<sup>↑</sup>
- Life expectancy at birth = 70.2<sup>↑</sup>, f=71.7, m=68.8
- Overall sex ratio = 109.7
- Hospitals = 27
- BHUs = 208
- Indigenous Dispensaries = 66
- Doctors = 345
- Sisters & Nurses = 1,264
- Doctors per 10,000 Persons = 4.3
- Nurses per 10,000 Persons = 16.2
- Persons per Hospital Bed = 569
- Health Coverage (%) = 90
- Access to Safe Drinking Water (%) = 98
- Births Attended by Trained Personnel (%) = 96



(Source: BLSS/Census-17, AHB, 2018)

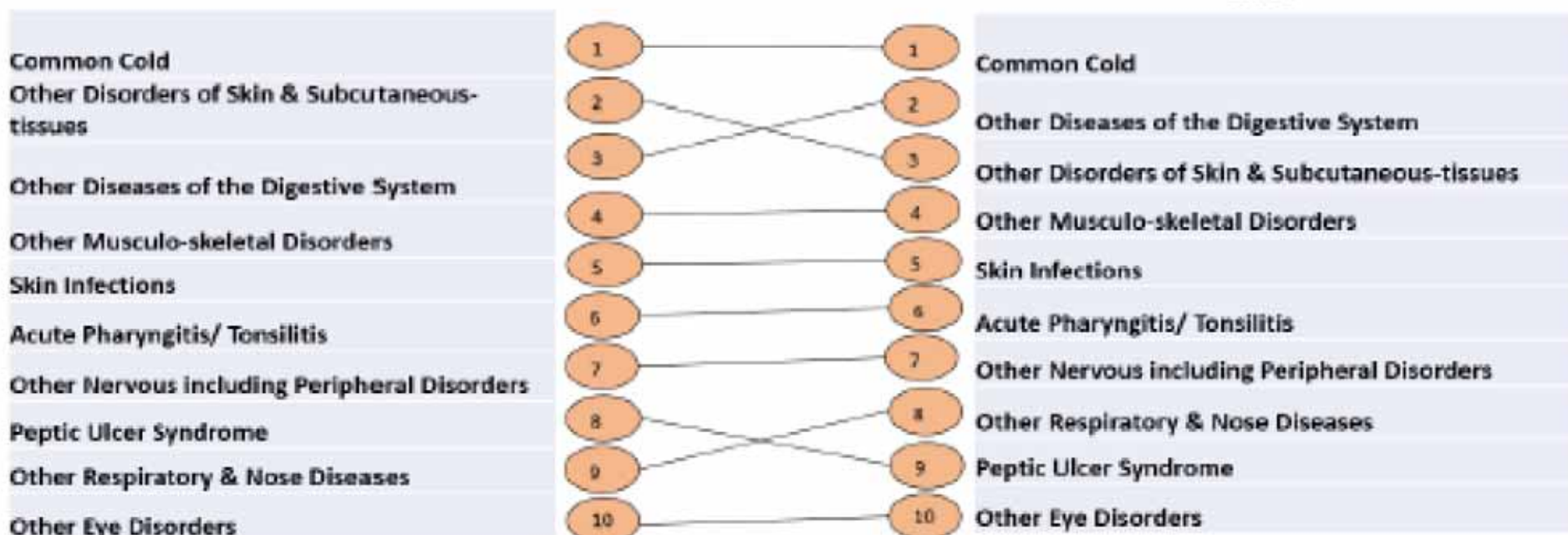
# CBR, CDR, TFR



# Top 10 Causes of Morbidity and their trends

2016

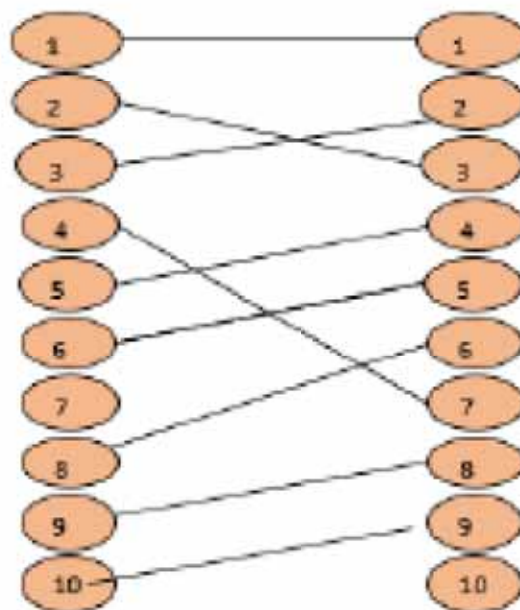
2017



# Top 10 Causes of Mortality and their trends

2016

- Alcohol Liver Diseases
- Other Circulatory Diseases
- Other Sepsis, including Septicaemia
- Other Cancers
- Other Respiratory & Nose Diseases
- Pneumonia
- Other Kidney, UT/Genital Disorders
- Cerebro-Vascular Diseases
- Meningitis/Encephalitis
- Other Diseases of the Digestive System

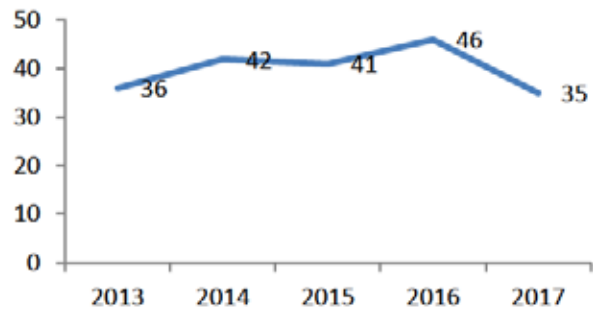


2017

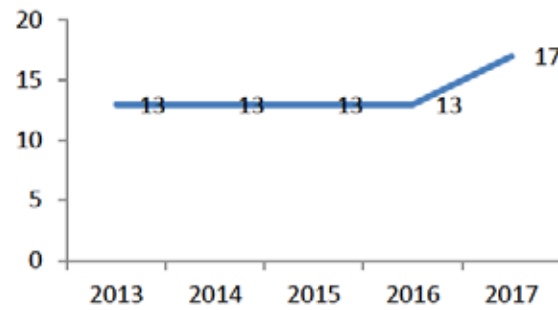
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- Pneumonia
- Cerebro-Vascular Diseases
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- Other Diseases of the Digestive System
- Conditions Originating in Perinatal Period

# Cause specific morbidity incidences per 10,000 pop and their trends (2013-2017) – AHB 2018

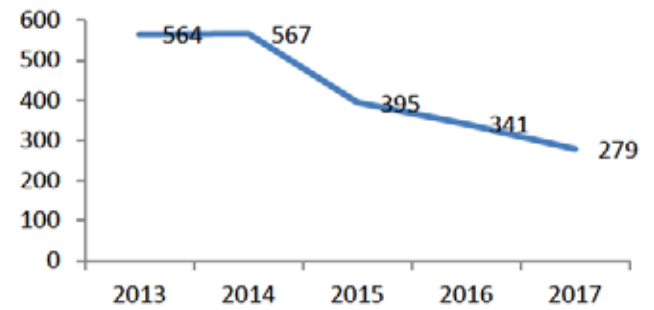
## Alcohol Liver Diseases



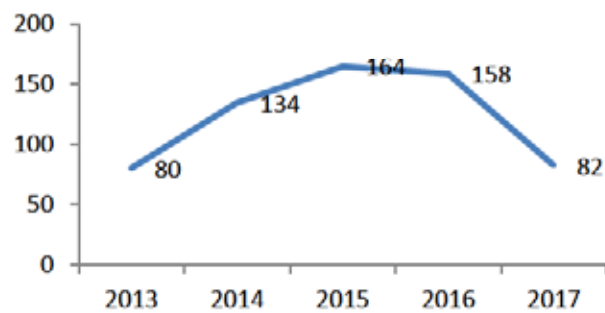
## Cancer



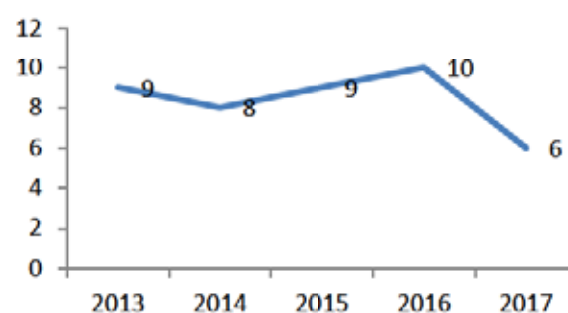
## Conjunctivitis



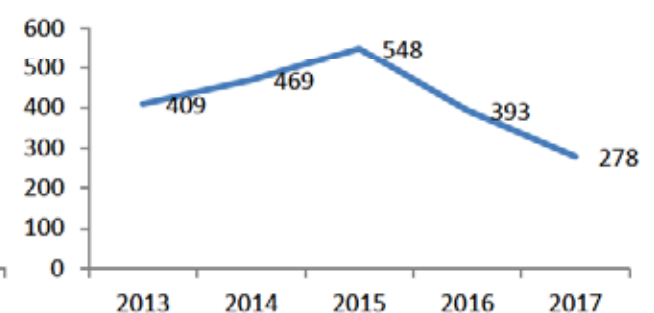
## Diabetes



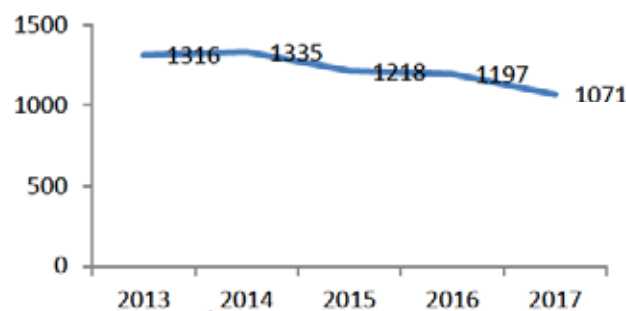
## Depression



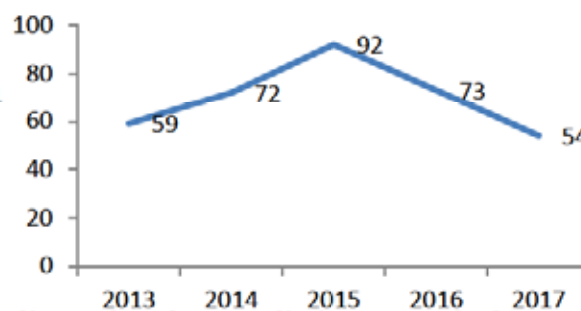
## Hypertension



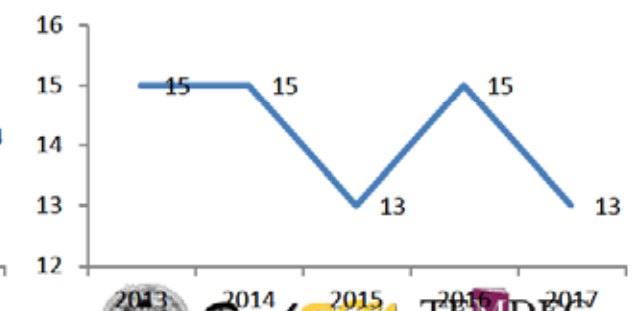
## Skin infections



## STD/STI

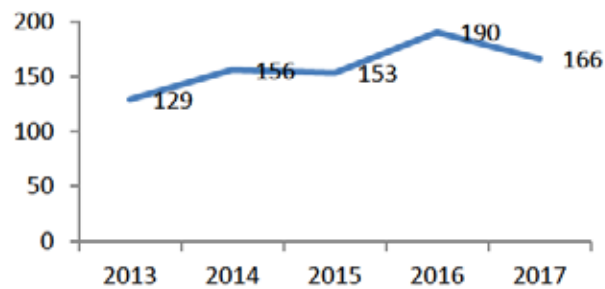


## Tuberculosis

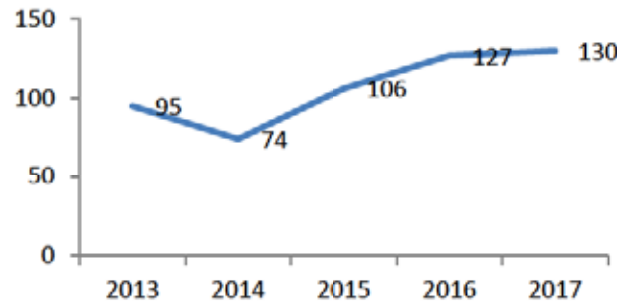


# Cause specific mortality trends (2013-2017) – AHB 2018 Data

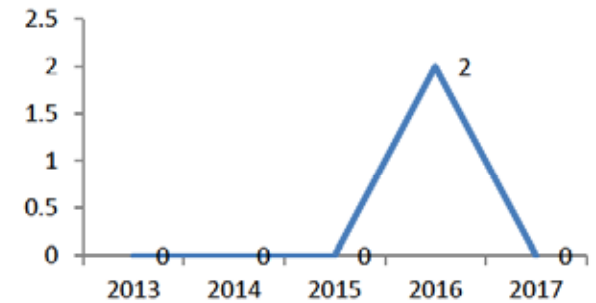
### Alcohol Liver Diseases



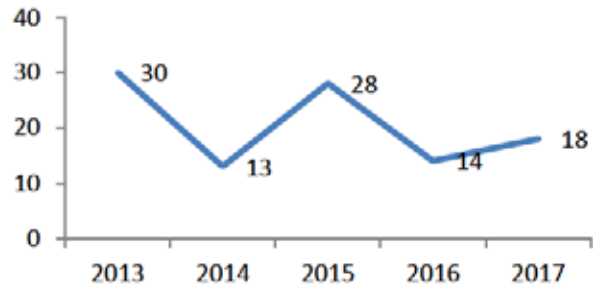
### Cancer



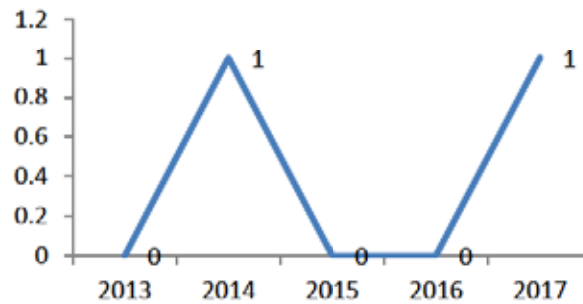
### Conjunctivitis



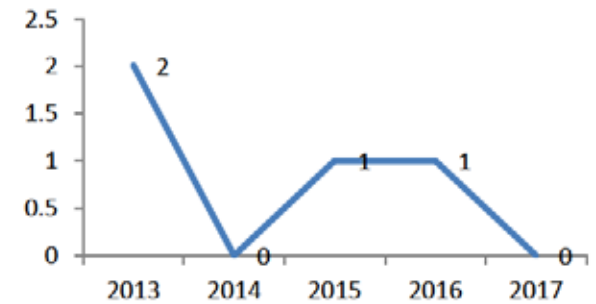
### Diabetes



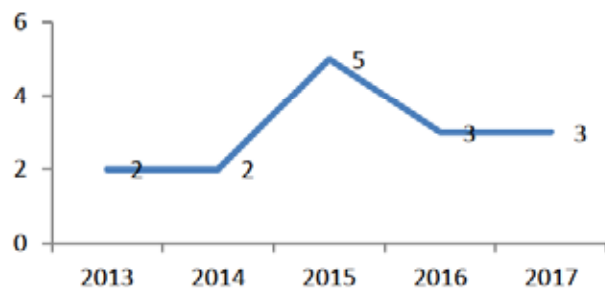
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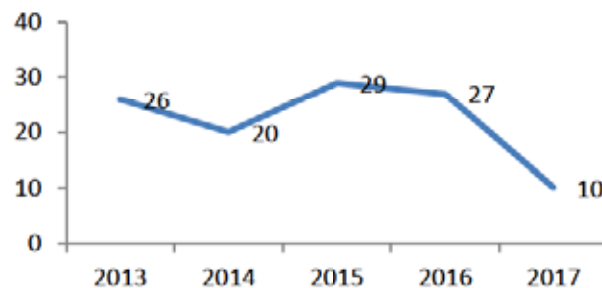
### Skin infections



### STD/STI



### Tuberculosis



# Background to Telemedicine





Teleradiology Project-  
JDWNRH and Jakar hospital

1999

1997

Conceptualized by HM 4<sup>th</sup> King

2000

MRRH and JDWNRH were connected (WHO)

CRRH (X-ray, digitizer, Digital  
camera)

2002

2003

East Bhutan Tele-ECG Project in Trashi Yangtse and  
Lhuentse hospitals (GGP-Japan)

2006

Web-based Telemedicine system  
developed at JDWNRH- training to 10 DH

SAARC Telemedicine eNetwork Project  
established JDWNRH; VSAT link to  
SGPGIMS, Lucknow & PGIMER, Chandigarh

2009

2008

9 more sites introduced  
with Web-based system

2009

Rural Telemedicine Project – 14 sites; portable  
ECG, vital sign and a laptop/software

2014

eHealth Service Center piloted  
at Tang BHU II & Bumthang  
Hospital – ADB & HP

2016

SASEC RTN Project at  
Umling BHU & CRRH  
Gelephu (ADB and CST)



# Challenges (past)

- Irregular power supply
- Inadequate internet bandwidth (X-Ray images, etc.)
- No proper ICT infrastructure in place - were using dial up.
- Issue with Software Interface
- High equipment & maintenance cost
- Limited ICT know-how (remote areas) & need-based training (equipment/services)
- Lack of recognition and support
- Staff movement & ownership
- Limited participation

# Training



15<sup>th</sup> Oct. 2019

First National Telemedicine Workshop



DrukREN

TEMDEC  
Telemedicine Development Center of Nepal

# Training



TRASHIYANGTSE HOSPITAL C15R 30-04-03  
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G:4.7  
IP:7  
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TRASHIYANGTSE HOSPITAL C15R 30-04-03  
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FR: 42  
F:3.5  
G:4.7  
IP:7  
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CON:4  
FRM:H  
AGC:0  
GAM:8

# Consultations

- *Dear sir,*
- *This is a case of Ms Dema 19 yr old student who is having persistent hemoptysis and giddiness for the last two years. She has no other complaints. O/E she is avg built. General examination is WNL. She has a weak pulse in the left side and a good volume pulse on the right.*
- *BP is 140/90 in the right and only 100/70 in the left. There is no radiofemoral delay. She has a very prominent suprasternal pulsatile swelling which on palpation is likely to be arterial the suprasternal hollow is full with the swelling Chest exam is normal clinically and so is the heart except the slightly loud second sound. No clinical evidence of heart failure.*
- *Blood esr-75, ASO negative, Chest xray shows prominent aorta. I am sending her 2 D echo, PSL view*
- *please advise.*
  
- *Dr. P.Bhandari, DMO*
- *Trashiyangtse Hospita*

# Reply

- From: <sxxxx@is.icc.u-tokai.ac.jp>
- To: "username dxxxx" <dxxxx@druknet.bt>
- Cc: "Futoshi Ohyama(Isehara)" <fxxx@is.icc.u-tokai.ac.jp>
- Sent: Thursday, May 01, 2003 6:22 PM
- Subject: RE
- Dear Dr. Bhandari

This looks to be a case of chronic aortic dissection or aneurysmal dissection. Please look for the signs of Marfan syndrome in this patient. I think it is better if you refer her to some cardiovascular center in India without much delay!

# Feasibility Study on deploying Drones

Team from MATTENET,  
USA identified-study  
the feasibility of  
deploying drones

Test flights:

1. Buddha point-  
Chamgang BHU
2. Bajo Hospital
3. Phobjikha BHU
4. JDWNRH Hospital to  
Chamgang BHU
5. JDWNRH Hospital to  
Buddha point and  
back





# Where are we now?

- Social Media- popular platform for exchanging expert advice and opinions among health personnel
- Traditional Telephone conversation- still most preferred way
- SASEC Telemedicine Project piloted at Umling BHU II & CRRH still functioning
- No National Digital/eHealth/ Telemedicine Policy or rules to facilitate telemedicine practice
- Telemedicine sites are identified to report on any consultations carried out by them

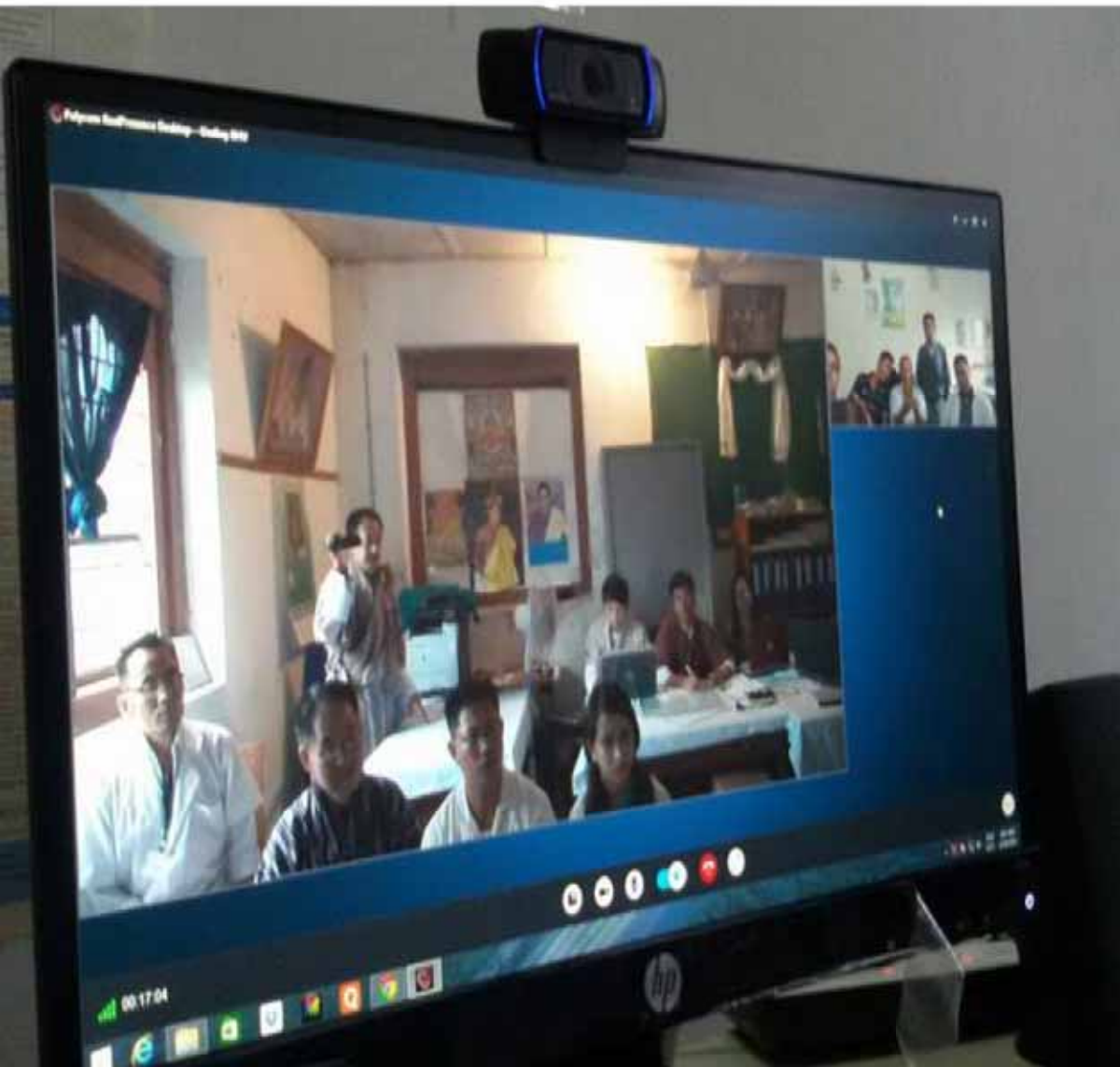
# Umling CRRH Telemedicine project



# BHU end



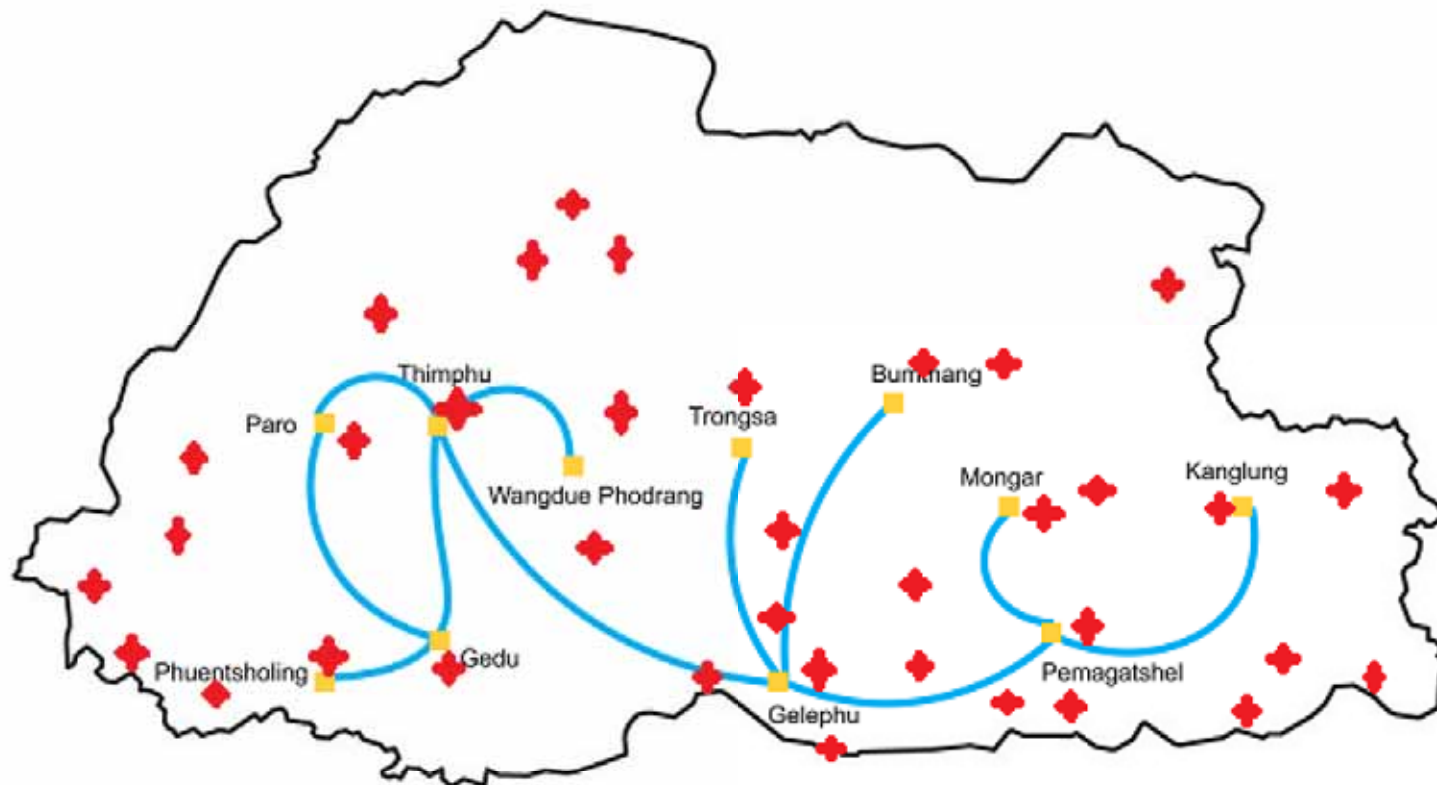
# Specialist end



# Telemedicine Sites and DrukREN Connectivity

DrukREN Network

*DrukREN*



-  DrukREN PoP
-  10 Gbps

# Opportunities

- Improved Internet connectivity – DrukREN, Government Data Center, etc.
- National eHealth Strategy
- ePIS
- Renewed commitment and hope from key stakeholders (DITT, Cabinet, MOH)
- More ICT literate than before – new age of ICT
- Easy & mobile communication systems
- Enthusiastic & forward looking partners
- Integration with HHC (for data packages and vouchers)
- Use of other platforms like zoom, etc. for VideoCon

*Thank You*

