

**National Center for HIV/AIDS, Dermatology and STI's, (NCHADS)
Social Health Clinic (SHC)**

Database management at the Social Health Clinic, Lessons Learned

**Hun Chenda, Pouv Sophea,
Sun Sokleng, Sarun Saramony
Research Assistant/Data manager
NCHADS/Social Health Clinic**



Background to the SHC



Social Health Clinic Provides care for HIV infected adults and children in an out patient setting in Phnom Penh

SHC is a part of collaboration between:

- National Centre for HIV /AIDS Dermatology and STDs (NCHADS), Ministry of Health, Cambodia.
- National Centre in HIV Epidemiology and Clinical Research (NCHECR), Australia.



Objective



- To describe the SHC database.
- Outline the steps taken to ensure the data entered is of good quality, including;
 - ✧ data collection,
 - ✧ data entry
 - ✧ data management and cleaning.
- Describe systems used to maintain confidentiality and control the security of the database



SHC Database



- SHC database was initially developed in Ms Access and is currently being upgraded to Ms SQL server.
- An SHC database management group assists with database development and quality assurance
- Database is managed by the SHC Research Assistants.
- Routine reports are generated for the National HIV Program and internal management. Data is exported and analyzed for research purposes..
- All aspects of data management are documented as Standard Operating Procedures (SOP)



Data collection



The database records information regarding:

- Patient registration and appointments
- Pharmacy management,
- Patient medical records and treatment profiles,
- Laboratory results
- Monitoring and evaluation of clinic activities,
- Clinic management, and clinical research.

The SHC Doctors and Counseling staff use standard National Case Records Forms.



Data Entry



- Patient data is entered by the Research Assistants on a daily basis
- Receptionist enters registration and appointment information directly into the database
- Pharmacists perform data entry for pharmacy management such as: Medicine Receive, Dispense, Damage, return.
- Double data entry with two computers is planned. Consistency check software will be used to compare tables

Data Entry Forms

Registration form

Detail Registration

New

ប័ណ្ណចុះឈ្មោះអតិថិជនបកពិសិដ្ឋទី (SHC Registration Form) Booking Register

លេខរៀងអ្នកជំងឺ (MCCT No)	<input type="text"/>
ឈ្មោះអ្នកជំងឺ (Patient Name)	<input type="text"/>
ថ្ងៃខែឆ្នាំកុះឈ្មោះ (Reg Date)	04/09/2016
អាយុ (Age)	<input type="text"/>
ភេទ (Sex)	<input type="text"/>
ថ្ងៃខែឆ្នាំកំណើត (Date of Birth)	04/09/2016
អាសយដ្ឋាន: (Address) (House, Street, Group) < ផ្លូវលេខ: (ផ្លូវលេខ) (ក្រុមទី)	<input type="text"/> <input type="text"/> <input type="text"/>
ខេត្ត/ក្រុង (Province)	<input type="text"/>
ស្រុក/ខ័ណ្ឌ (District)	<input type="text"/>
ឃុំ/សង្កាត់ (Commune)	<input type="text"/>
ភូមិ (Village)	<input type="text"/>
លេខទូរស័ព្ទ (Phone)	<input type="text"/>

Contact Person 1

ឈ្មោះអ្នកទំនាក់ទំនងទី១
(Name of contact person 1)

រាងកាយ (Relationship)

អាសយដ្ឋាន: (Address)

លេខទូរស័ព្ទ (Phone)

Contact Person 2

ឈ្មោះអ្នកទំនាក់ទំនងទី២
(Name of contact person 2)

រាងកាយ (Relationship)

អាសយដ្ឋាន: (Address)

លេខទូរស័ព្ទ (Phone)

បញ្ជូន កម្រិត: (Referral form) VCCT

Adult initial visit form

Detail Page 1 Page 2
New

ទំព័រទិន្នន័យបច្ចេកទេសវិទ្យាសាស្ត្រ (Adult Initial Visit Form) ៩៩

លេខកូដ អ្នកជំងឺ (Clinic ID number)	<input type="text"/>	ថ្ងៃនៃការ កំណត់ជួសជុល (Date first visit)	<input type="text" value="01/01/1900"/>
ឈ្មោះ (Name)	<input type="text"/>	អាយុ (Age)	<input type="text"/>
		<input type="radio"/> Female <input type="radio"/> Male <input type="radio"/> Trans Gender ស្រី ប្រុស ផ្សេង	
អាសយដ្ឋាន (Address)			
ផ្ទះលេខ (House)	<input type="text"/>	ផ្លូវលេខ (Street)	<input type="text"/>
ក្រុម (Group)	<input type="text"/>	ភូមិ (Village)	<input type="text"/>
ឃុំ/សង្កាត់ (Commune)	<input type="text"/>		
ស្រុក/ខេត្ត (District)	<input type="text"/>	ខេត្ត/ក្រុង (Province)	<input type="text"/>
លេខទូរស័ព្ទ (Phone)	<input type="text"/>		
ឈ្មោះ អ្នកទំនាក់ទំនងទី១ (Name of contact person 1)	<input type="text"/>	អាសយដ្ឋាន (Address)	<input type="text"/>
		លេខទូរស័ព្ទ (Phone)	<input type="text"/>
ឈ្មោះ អ្នកទំនាក់ទំនងទី២ (Name of contact person 2)	<input type="text"/>	អាសយដ្ឋាន (Address)	<input type="text"/>
		លេខទូរស័ព្ទ (Phone)	<input type="text"/>



Quality assurance of data entry



- Consistency and range checks are built into the database

Eg:

- ✧ DOB cannot be after Visit Date (consistency check)
- ✧ Weight (range check)

Weight (adult) Kg	Lower2	Lower1	Upper1	Upper2
	10	20	100	150

Diagram illustrating range checks for adult weight (Kg). The table shows two ranges: 10 to 20 Kg (Lower2 to Lower1) and 100 to 150 Kg (Upper1 to Upper2). Red double-headed arrows indicate the range from 10 to 20, and a green double-headed arrow indicates the range from 20 to 100.

- At 6 monthly intervals a random selection of 10% of patients' prospective data on the central database will be checked against data in their medical records. More than 10% data errors in those prospective data checked will lead to a further 10% data check. If the data error rate remains above 10%, all prospective data will be checked. Each error that is identified in the checking must be corrected.

Adult patient visit form

ទំព័រពិនិត្យជំងឺរបស់អ្នកជំងឺពេទ្យ (Adult Patient Visit Form)

លេខកូដអ្នកជំងឺ (Clinic ID)

លេខកូដ ART (ART number)

ថ្ងៃខែឆ្នាំពិនិត្យ (Date of visit) Early Scheduled Late

ឈ្មោះ (Name) <input type="text"/>	អាយុ (Age) <input type="text"/>	<input type="radio"/> Female <input type="radio"/> Male <input type="radio"/> Trans Gender	ទម្ងន់ (Weight) <input type="text"/>
		ស្រី ប្រុស ខ្ចីយ	កម្ពស់ (Height) <input type="text"/>

ដីពេក (Pulse) <input type="text"/> mn	ចង្វាក់ដង្ហើម (Resp rate) <input type="text"/> mn	សំពាធឈាម (Blood pressure) <input type="text"/> - <input type="text"/>	កំដៅ (Temperature) <input type="text"/>
---------------------------------------	---	---	---

ផែនការគ្រួសារ (ពន្យារកំណើត) <input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No Sex (Family planning) <input type="text"/>	ការបង្ការ <input type="radio"/> Condom 100% <input type="radio"/> Unprotected sex <input type="radio"/> No sex (HIV prevention)
---	--

សំរាកពេទ្យបន្ទាប់ពីពេលពិនិត្យចុងក្រោយ? <input type="radio"/> No <input type="radio"/> Yes (Hospitalised since last visit?)	ការបង្ការ <input type="text"/> (Number of days:)	មូលហេតុនៃការចូលសំរាកពេទ្យ <input type="text"/> (Causes of hospitalisation)
---	---	---

ការវាយតម្លៃលើការលេបថ្នាំ (Adherence Assessment:)	ភ្លេចលេបថ្នាំ ARV ពេលមកពិនិត្យចុងក្រោយ <input type="radio"/> No <input type="radio"/> Yes (Missed ARV doses since last visit)	ការបង្ការ <input type="text"/> (Number of days:)
---	--	---



Data cleaning and validation



The key purpose of data cleaning is to deliver Useful data.

Data cleaning procedures aim to:

- Eliminate Errors
- Eliminate Redundancy
- Increase Data Reliability
- Deliver Accuracy
- Ensure Consistency
- Assure Completeness
- Provide Feedback for Improvements in data collection + entry methods



Data Cleaning – routine procedures



A Typical Cleaning Routine: spend 10 to 15 minutes when finished daily data entry:

- **Identify invalid data**
- Investigate the **reasons for the bad data**
Eg, you may want to compare a generated report with the dataset that was recently entered
- Perform **accuracy tests** to ensure the data were properly cleaned. Accuracy tests are a physical comparison of the patient's file with the dataset.



Data Query



Data query performed by research assistants (RA):

a). Few missing data ring (by internal phone) or bring patients' file directly to data collectors. Data collector should sign any changes.

b). But in case they are busy, RA write on Query form¹ and attach into patient file.

A message will alert when entering data after the next visit if data is missing, so at that time RA may resolve missing data on database form.



Query Form



From:

To:

Please complete on the file with the question bellow:

.....

.....

.....

.....

.....

If you finished could you please tick:

Completed

I can not find the answer or unknown “?”



Data security and confidentiality



- To ensure security each computer is password protected, and a user name and password is required to log in to the database
- Assigned various user permission for SHC staff.
Eg: Read, enter, update, see reports.
- Confidentiality is maintained by:
 - ✧ Restricted access
 - ✧ Aggregate data reports are de-identified
 - ✧ Authority required for data export for research purposes, this data is also de-identified.



Lessons learned



- The database management group can work together to guide database development, and identify and solve problems to ensure data quality.
- It is important to have good collaboration with all staff involved data management and training on data collection and entry at the clinic level, and data entry and management by the Research Assistants.



Recommendation



Major areas where quality problems can be avoided:

- **Application Design:** By adding consistency and range checks to your database program/interface
- **Adequate training** of staff collecting and managing data
- Prioritize accurate recording of data.
- **Close cooperation** between those collecting data, and the staff performing data entry and management is essential.
- Have good quality assurance systems to ensure more accurate data in the future.

Thank you