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

Database management at the Social Health Clinic, Lessons Learned

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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.

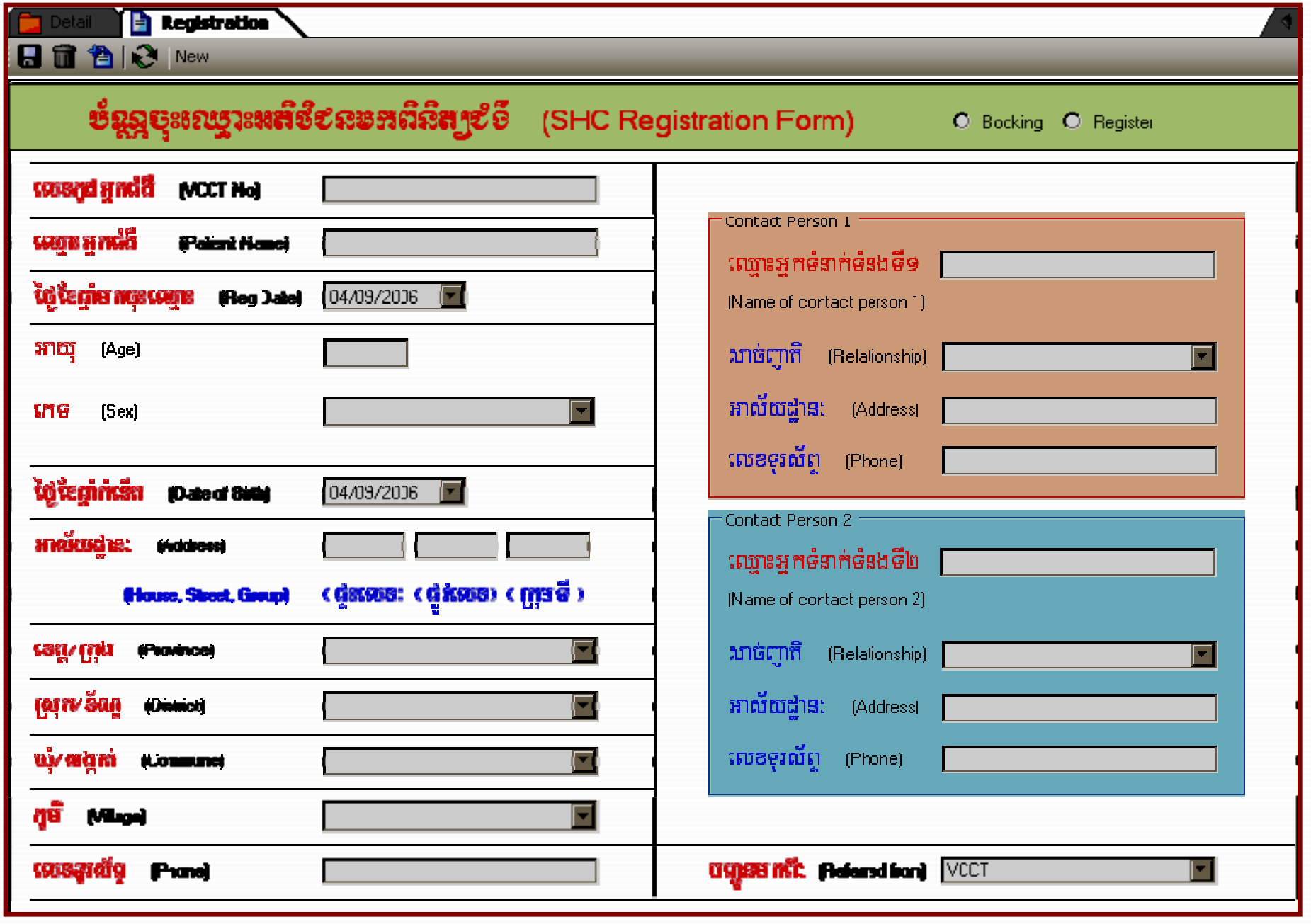
The SHC Doctors and Counseling staff use standard National Case Records Forms.

Data Entry

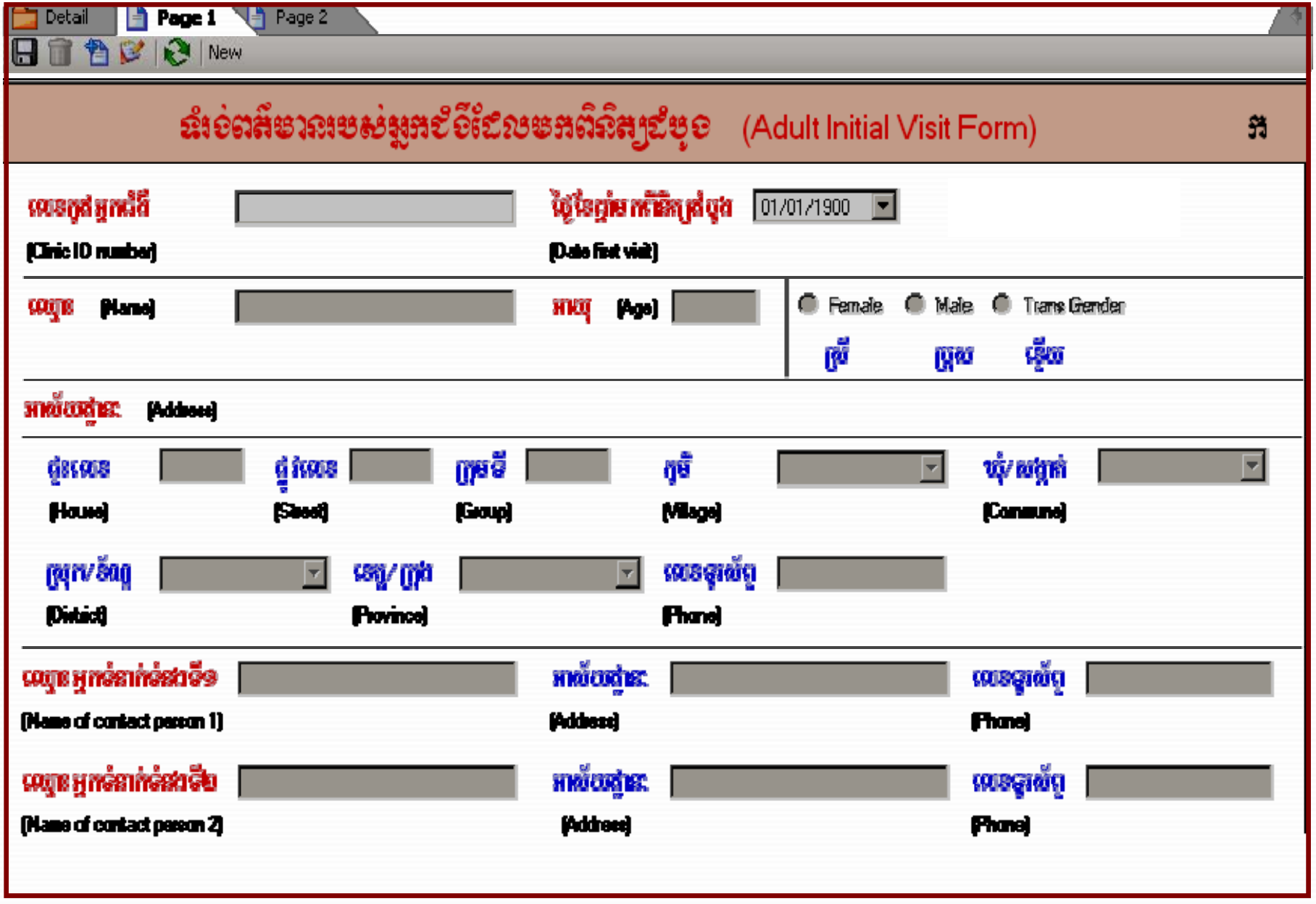
- Patient data is entered by the Research Assistants on a daily basis
- Receptionist enters registration and appointment information directly into the database
- Pharmacists perform data entry for pharmacy management such as: Medicine Receive, Dispense, Damage, return.
- Double data entry with two computers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

Data Entry Forms

Registration form



Adult initial visit form



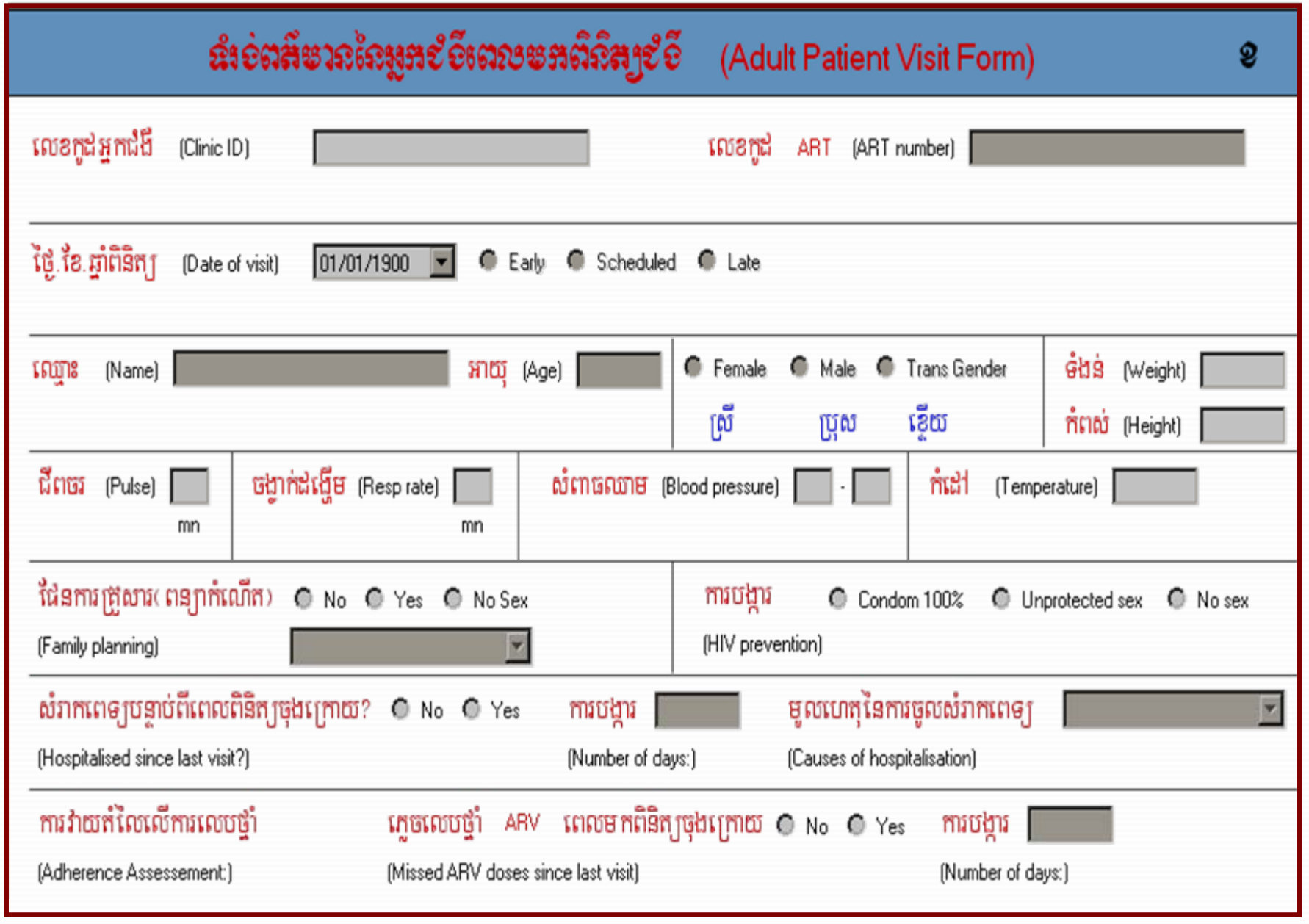
Quality assurance of data entry

- 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

- 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



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 form[1] 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