SESSION 4: CREATING A DATABASE

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Outline

• Background
• Frameworks and classifications
  – Why are they important?
  – International classifications & SHA
  – Using SHA with dual reporting
• Database implementation
  – Database design
  – Dual reporting
• SHA 2011 challenges
Background

• Difficulties in implementing SHA 1.0 at country level
  – Constructing consistent SHA reporting tables
  – Integrating with requirement to report to existing or local HA classifications

• Core problems related to internal database design
  – Compiling HA estimates & producing reporting tables
  – Commonalities in several national approaches

• Transition to SHA 2011
Guidelines

TECHNICAL NOTES FOR PREPARATION OF
HEALTH ACCOUNTS ESTIMATES

Number 1:
Developing health accounts classifications and
a health accounts database

ADB-WHO Project
Strengthening Evidence Based Policy-Making in the Pacific:
Support for Development of National Health Accounts
Frameworks & Classifications
Why classifications?

- Description demands the ability to categorize consistently
- Classification critical to defining what is health spending
- Mistakes in using frameworks and classifications a common cause of problems in health accounts
NHA Frameworks

Pre-2000

No global framework
– Ad-hoc national standards & international frameworks
– Lack of comparability in international estimates

System of National Accounts (SNA) 1993
– Not widely used for health

2000

OECD System of Health Accounts (SHA 1.0)
– First global standard
– Endorsed by WHO for international reporting

2011 September

System of Health Accounts 2011
– Updated SHA
– Collaboration of OECD, Eurostat, WHO
A “System of Health Accounts” OECD (SHA 1.0)

Developed by OECD:

- To provide standard reporting tables for international comparison
- To provide an internationally harmonised boundary for health care activities
- To provide a consistent framework for analysing health systems
- To provide a rigid framework for building NHA to permit consistent reporting over time
Features of SHA 1.0/2011

- Provides explicit and comprehensive boundary of health and health-related production
- Analyzes health expenditures in three core dimensions: financing sources, providers and functions
- Detailed sets of classifications for the uses of spending: providers and functions
- Analyzes health expenditure flows between revenue sources and financing schemes
- Basis for adaptation to meet specific national requirements
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International Classification of Health Expenditure (ICHA)

**SHA 1.0**
- Health care by function (ICHA-HC)
- Health care by provider industry (ICHA-HP)
- Sources of healthcare financing (ICHA-HF)

**SHA 2.0**
- Health care by function (ICHA-HC)
- Health care by provider industry (ICHA-HP)
- Health Financing Schemes (ICHA-HF)
- Financing Agents (ICHA-FA)
- Revenues of Health Financing Schemes (ICHA-FS)
ICH A Classification of Functions (core)

- HC.1 Curative care
  - HC.1.1 Inpatient curative care
  - HC.1.2 Day curative care
  - HC1.3 Outpatient curative care
  - HC1.4 Home-based curative care
- HC.2 Rehabilitative care
- HC.3 Long-term care (health)
- HC.4 Ancillary services (not specified by function)
- HC.5 Medical goods (not specified by function)
- HC.6 Preventive care
- HC.7 Governance, and health system and financing administration
ICHA-HC key elements

• Defines functional boundaries of health care

• Basic breakdowns of health functions
  – curative vs. preventive services
  – inpatient vs. outpatient
  – core health activities vs. health care-related activities
  – medical services vs. system administration/governance

• Totals for health reporting
  – Current Expenditure on Health (HC.1-9)
  – Memorandum items (HC.RI.1-3)
Reporting National Spending

Current Expenditure on Health

<table>
<thead>
<tr>
<th>HC.1</th>
<th>Curative care</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC.2</td>
<td>Rehabilitative care</td>
</tr>
<tr>
<td>HC.3</td>
<td>Long-term care (health)</td>
</tr>
<tr>
<td>HC.4</td>
<td>Ancillary services (not specified by function)</td>
</tr>
<tr>
<td>HC.5</td>
<td>Medical goods (not specified by function)</td>
</tr>
<tr>
<td>HC.6</td>
<td>Preventive care</td>
</tr>
<tr>
<td>HC.7</td>
<td>Governance, and health system and financing administration</td>
</tr>
<tr>
<td>HC.9</td>
<td>Other health care services n.e.c</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HC.RI.1</th>
<th>Total pharmaceutical expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC.RI.2</td>
<td>Traditional complementary alternative medicines</td>
</tr>
<tr>
<td>HC.RI.3</td>
<td>Prevention and public health services (according to SHA 1.0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HCR.1</th>
<th>Long-term care (social)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCR.2</td>
<td>Health promotion with a multi-sectoral approach</td>
</tr>
</tbody>
</table>
A note on the transition to SHA 2.0
A note on the transition to SHA 2.0

Figure 4.1 The core and extended accounting framework of SHA 2.0
Using SHA with Dual Reporting
How do we use SHA?

• SHA is NOT intended to be the core framework for NHA in a country
  – It is only provided for reporting at the international level
  – Local framework needed often to describe local system correctly and sufficiently

• Three ways in which it is used:
  1. Basis for developing NHA for first time
  2. Basis for replacing local NHA framework
  3. Reserved for international reporting, while retaining local framework
How do we use SHA and a local framework?

Dual coding > Dual reporting

- Recognizes that differences in national requirements relate to differences in classification
- Retains three dimensional basis of SHA core: financing sources, providers, functions
- Modifies classification systems for sources, functions and providers to meet national requirements, whilst ensuring all national categories map uniquely to single ICHA category

Enables

- Use of different functional boundary to national health spending to that in SHA, e.g., include environmental health expenditures, unlicensed medical care, etc
- Nationally relevant sequencing and presentation of classifications
- Easy production of SHA tables alongside national tables
Example of dual coding: Sri Lanka

**SHA ICHA-HC**

**HC6 Preventive & public health services**

- **HC6.1** MCH, FP and counselling
- **HC6.2** School health services
- **HC6.3** Prevention of communicable disease
- **HC6.4** Prevention of non-communicable disease
- **HC6.5** Occupational health care
- **HC6.9** All other miscellaneous public health services n.e.c.

**SLHA-HC**

**F6 Preventive & public health services**

- **F6.1** Family planning & RH services
  - Maternal health
  - Infant and child care
  - Family planning services
  - Other RH services
- **F6.2** School health services
- **F6.3** Prevention of communicable disease
  - Immunisation
  - STD’s
  - Prevention & management of other communicable diseases n.e.c.
- **F6.4** Prevention of non-communicable disease
- **F6.5** Occupational health care
- **F6.9** All other misc. services n.e.c.
Dual coding – cross-linking classifications

SHA classification

Local classification

Providers

Financing sources/schemes

Functions

Providers

Financing sources

Functions
Basic Approach to Database Implementation
Background reading

- **WHO-WPRO Technical Notes #1**
- Dual reporting
  - Local NHA classifications
  - Mapped to SHA classifications
- Database design
  - To support dual reporting and production of tables
Databases

• Two types of databases
  – **Production databases** – Collate and process primary data into format suitable for HA use
  – **Reporting databases** – Collate HA-processed data and produce reporting tables

• Production databases
  – Can be constructed in variety of file formats, database structures and software
  – Incorporate most processing and manipulation

• Reporting databases
  – Use single database structure and software
Disaggregate and code ALL spending by financing schemes into expenditure granules

Estimation & coding
Basic reporting database format

Y – HF – HP – HC – $XXXX

where

Y = Year
HF = Financing scheme code
HP = Provider code
HC = Function code
$XXX = Expenditure amount
## Dual code all spending into expenditure granules

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FINANCING SCHEME</th>
<th>PROVIDER</th>
<th>FUNCTION</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>S1.3</td>
<td>P2.4</td>
<td>F1.1</td>
<td>$1,020</td>
</tr>
<tr>
<td>2001</td>
<td>S1.3</td>
<td>P2.4</td>
<td>F1.2</td>
<td>$2,090</td>
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<tr>
<td>2001</td>
<td>S1.1</td>
<td>P1.1</td>
<td>F1.2</td>
<td>$  85</td>
</tr>
<tr>
<td>2001</td>
<td>S1.2</td>
<td>P3.1</td>
<td>F1.3</td>
<td>$ 231</td>
</tr>
</tbody>
</table>
Databases automatically generate tables

<table>
<thead>
<tr>
<th>YEAR</th>
<th>F. SCHEME</th>
<th>PROVIDER</th>
<th>FUNCTION</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>S1.3</td>
<td>P2.4</td>
<td>F1.1</td>
<td>$1020</td>
</tr>
<tr>
<td>2001</td>
<td>S1.3</td>
<td>P2.4</td>
<td>F1.2</td>
<td>$2090</td>
</tr>
<tr>
<td>2001</td>
<td>S1.1</td>
<td>P1.1</td>
<td>F1.2</td>
<td>$85</td>
</tr>
<tr>
<td>2001</td>
<td>S1.2</td>
<td>P3.1</td>
<td>F1.3</td>
<td>$231</td>
</tr>
<tr>
<td>2001</td>
<td>S1.3</td>
<td></td>
<td></td>
<td>$3120</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$3536</td>
</tr>
</tbody>
</table>

Total
Extended coding format for dual reporting

Database
- FA
- P
- F

Local NHA
- FA
- P
- F

SHA-ICHA
- HF
- HP
- HC

Classifications must always map from left to right
## Example: Vanuatu Mapping

<table>
<thead>
<tr>
<th>Database code</th>
<th>Vanuatu HP code</th>
<th>Vanuatu HP label</th>
<th>ICHA-HP code</th>
<th>ICHA-HP label</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>HP.1</td>
<td>Hospitals</td>
<td>HP.1</td>
<td>Hospitals</td>
</tr>
<tr>
<td>1100</td>
<td>HP.1.1</td>
<td>General hospitals</td>
<td>HP.1.1</td>
<td>General hospitals</td>
</tr>
<tr>
<td>1110</td>
<td>HP.1.1.1</td>
<td>Public referral hospitals</td>
<td>HP.1.1</td>
<td>General hospitals</td>
</tr>
<tr>
<td>1111</td>
<td>HP.1.1.1</td>
<td>Vila Central Hospital</td>
<td>HP.1.1</td>
<td>General hospitals</td>
</tr>
<tr>
<td>1112</td>
<td>HP.1.1.1</td>
<td>Northern District Hospital</td>
<td>HP.1.1</td>
<td>General hospitals</td>
</tr>
<tr>
<td>1120</td>
<td>HP.1.1.2</td>
<td>Public provincial hospitals</td>
<td>HP.1.1</td>
<td>General hospitals</td>
</tr>
<tr>
<td>1121</td>
<td>HP.1.1.2</td>
<td>Lenakel Hospital</td>
<td>HP.1.1</td>
<td>General hospitals</td>
</tr>
<tr>
<td>1122</td>
<td>HP.1.1.2</td>
<td>Norsup Hospital</td>
<td>HP.1.1</td>
<td>General hospitals</td>
</tr>
<tr>
<td>1123</td>
<td>HP.1.1.2</td>
<td>Lolowai Hospital</td>
<td>HP.1.1</td>
<td>General hospitals</td>
</tr>
<tr>
<td>1124</td>
<td>HP.1.1.2</td>
<td>Torba Hospital</td>
<td>HP.1.1</td>
<td>General hospitals</td>
</tr>
<tr>
<td>1150</td>
<td>HP.1.1.5</td>
<td>Private general hospitals</td>
<td>HP.1.1</td>
<td>General hospitals</td>
</tr>
<tr>
<td>1200</td>
<td>HP.1.2</td>
<td>Mental health hospitals</td>
<td>HP.1.2</td>
<td>Mental health hospitals</td>
</tr>
<tr>
<td>1300</td>
<td>HP.1.3</td>
<td>Speciality (other than mental health and substance abuse) hospitals</td>
<td>HP.1.3</td>
<td>Specialized hospitals (other than mental hospitals)</td>
</tr>
<tr>
<td>2000</td>
<td>HP.2</td>
<td>Nursing and residential care facilities</td>
<td>HP.2</td>
<td>Residential long-term care facilities</td>
</tr>
<tr>
<td>2100</td>
<td>HP.2.1</td>
<td>Nursing care facilities</td>
<td>HP.2.1</td>
<td>Long-term nursing care facilities</td>
</tr>
<tr>
<td>2200</td>
<td>HP.2.2</td>
<td>Residential mental retardation, mental health and substance abuse facilities</td>
<td>HP.2.2</td>
<td>Mental health and substance abuse facilities</td>
</tr>
<tr>
<td>2300</td>
<td>HP.2.3</td>
<td>Community care facilities for the elderly</td>
<td>HP.2.9</td>
<td>Other residential long-term care facilities</td>
</tr>
</tbody>
</table>
Extended database format

With local NHA codes:
Y-NHF-NHP-NHC-$XXX

Adding database codes:
Y-DBHF-DBHP-DBHC-NHF-NHP-NHC--$XXX

Mapping to international ICHA codes:
Y-DBHF-DBHP-DBHC-NHF-NHP-NHC-HF-HP-HC-$XXX
Data flow

Primary data sources

Processing databases

Reporting databases

Primary data sources

Processing databases

Reporting databases
Important message

DON’T MAKE TABLES BY HAND

ALWAYS USE A REPORTING DATABASE
Specific issues in SHA 2011
Health financing framework in SHA 2011 – specific issues

• FS>HF totals do not always equal HF>HP totals, and revenues may not be allocated to specific functions/providers
  – Accordingly different reporting databases should be constructed for:
    – HF-HP-HC => HCxHF, HPxHF, HPxHC
    – HF-FS => HFxFS

• Financing Agents (FA)
  – Can be included in HF-HP-HC database as additional field
Reporting Databases in SHA 2011

HF-HP-HC Database:
Y-DBHF-DBHP-DBHC-NHF-NHP-NHC-HF-HP-HC-$XXX

HF-FS Database:
Y-DBHF-DBFS-DBFA-NHF-NFS-NFA-HF-FSF-FA-$XXX
Transitioning from SHA 1.0 to SHA 2011

• Three concerns
  – Need for comparability over time in reported national expenditures
  – Consistency between SHA 1.0 and SHA 2011 estimates
  – Likelihood that substantial globally comparable data using SHA 2011 will not be available until 2015 or later
Transitioning from SHA 1.0 to SHA 2011

- Recommendations
  - Dual code SHA 1.0 databases to map data to SHA 2011
    - Map at level of transactions
    - Use mapping tables where feasible, and collect data to split transactions in cases of overlapping categories
  - Report parallel SHA 1.0 and 2011 estimates during transition period
  - Backdate SHA 2011 estimates to extent feasible