Health Information Systems:
Information Planning, Decision Making, Resource Allocation and Problem Solving

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Overview

- Information planning
  - What are the information needs?

- Information and decision making
  - How do to encourage greater use of information in decision-making processes

- Resource allocation
  - How should we go about strengthening HIS

- Problem solving
  - How do we deal with challenges?
Health Information System

- A system providing information support to decision-making at all levels of the health system
  - Incorporates information generated by both population-based and institution-based data sources
(HMN, 2009)
Information Systems for Health

- A system providing information support to decision-making at all levels of the health system
  - Incorporates information generated by both population-based and institution-based data sources
  - Incorporates information on the determinants of health
Objective

To support the management and operation of the health services – administrative and clinical

- Cost-effective processes and interventions

- Processes include
  - Planning
  - Monitoring and evaluation
  - Surveillance
  - Research
INFORMATION PLANNING
Regional/International
Health Information Needs

- Information is needed for decision-making at the
  - Administrative level
    - Policy, planning, routine management
  - Clinical level
    - Clinical decision algorithms

- Needs are influenced by
  - Regional/international agreements
  - Local policy and plans
International and Regional Agreements

- CARICOM
  - Caribbean Cooperation in Health (CCH-III)
- CSME
- International agencies
  - WHO/PAHO
    - Caribbean HIS Technical Working Group
      - Goal: Strengthening national health information systems (NHIS) in the countries of the Caribbean (CARICOM community) to enable them to produce the necessary quality and timely information to support effective evidence-based action for the purpose of attaining national and regional health goals.
INFORMATION PLANNING
National/Local
The Local Information Needs

- Information for policy and planning
  - Include financial information
- Information for routine management
- Information for surveillance
- Information for monitoring and evaluation
- Information on health systems
- Information on health services
- Information on health programmes
Minimum Datasets and Health Indicators

- Should be selected through a multi-sectoral, multi-disciplinary, multi-country, multi-agency approach
  - PAHO/WHO
  - National statistical offices
- Data collection strategy should take into account local resources and the culture of data gathering and information use
- Includes longitudinal data collection (repeat surveys)
- Should be flexible to accommodate change
Non-Routine Information

- Information not subject to routine collection
- Special ad hoc surveys, research data
  - Need to have mechanism to collect and incorporate this data into the national health information system
Determinants of Health

These include:

- The social and economic environment
  - Income and social status
  - Level of education

- The physical environment
  - Safe water, sanitation and housing
  - Healthy workplaces
  - Road network
Determinants of Health

- Individual characteristics and behaviours
  - Gender
  - Genetics
  - Smoking, drinking, exercise
  - Access to healthcare
  - Healthcare seeking behaviour
MINISTRY OF HEALTH
COMMONWEALTH OF DOMINICA, W.I.

POLICY MAKING PROCESS (PLANNING, IMPLEMENTATION AND EVALUATION)

DATA ANALYSIS, REPORT GENERATION

INTEGRATED INFORMATION SYSTEM (draft)

MINISTRY OF FINANCE

CSO, SS and other Local Depts.
PAHO/WHO and other Regional / Int'l Agencies

ACCOUNTS

MEDICAL RECORDS

SURVEILLANCE SYSTEMS'

INVENTORY MANAGEMENT

IMAGING

PERSONNEL

COMMUNICATIONS

INTRANET AND INTERNET-BASED INFORMATION, PRINT

- MoH Intranet
- Email/Internet Service
- Intra-/Internet telephone

- Government Highspeed backbone
- Internet/Email & Data Servers
- Telemedicine (esp. imaging)
- Distance learning
- Videoconferencing

REGISTRY

Ricketts, P; Cloos, P.; Courneene, M.
Hannah, K., 2003
Assessments

- Formal assessments of existing systems
  - HMN
  - PRISM
  - PAHO OCPC
- Plan of action and budget
  - Synchronize with
    - Plans for e-government
    - Regional plans
- Plans for regional approach – PAHO ECC
Princess Margaret Hospital ICT Development Plan

- Strategic plans developed 1997 to 2001
  - PMH Information Systems Steering Committee formed
    - Princess Margaret Hospital Information System Plan
2001 Caribbean Development Bank Hospital Strengthening Project

- Canadian Institute for Health Information (Ann Campbell) Report
  - PAHO Health Informatics Advisor
- Begin with Patient Administration System
Electronic Patient Administration System

- PAHO study tour to Jamaica, 2003
- Plan of action developed and implemented
- Go-live June 15,
DECISION MAKING
Evidence for decision-making

Should be:

- Good quality
  - Accurate
    - Consistent with agreed standards
  - Complete
- Accessible
- Timely
- Presented in suitable format
Data Quality

Data quality needs to be addressed before or as part of the process of computerization of HIS

- GIGO principle

Data quality control mechanisms include

- Checking completeness of medical records,
- Use of ICD codes
- Use of manuals

Training is an integral part of improvement of data quality
3 main categories

a) Strategic decisions
   - Planning – medium to long term action

b) Tactical decisions
   - Programme related – medium term

c) Operational decisions
   - Operation/service delivery related – immediate/short term action
Use of Information in Decision-making

- Strategies need to be consistent with the level of the system and the sophistication of decision-maker
  - Incentives for collection and use of data by district health team
  - Country recognition by regional agencies e.g. PAHO
- Mechanisms for rapid dissemination of information developed/strengthened
  - E.g. LAN for computerized systems
Use of Information in Decision-making

- Establish/facilitate access to relevant external data sources both local and international for sharing of health-related data
  - E.g. strengthening of linkages between MoH and Central Statistical Offices, Births and Deaths Registries
- Establish heath ‘data warehouses’
  - Online repository
Use of Information in Decision-making

- Strengthen capacity for data analysis, interpretation and application (e.g. planning, M&E) at various levels in the health system
  - Improved data quality
  - Data available to address specific areas of interest to data users/decision makers

- Develop/strengthen mechanisms for transmission of essential health information to policy and law-makers
  - National
    - Commissions, TWGs
  - Regional
Use of Information in Decision-making

- Produce regular publication of summary health data e.g. core health indicators including the MDGs, CMOs Report
- Develop marketing approach for dissemination of health-related data to various types of audiences
  - Website
  - News items (print, electronic)
RESOURCE ALLOCATION
Resource Allocation

- Human resources
- Physical Infrastructure
- Hardware/Software
- Policy and legislation
Assess/review HIS human resource requirements
- May involve re-assignment of current posts

Establish career path for HIS workforce

Establish training programmes in HIS related fields
- In-service (long term)
  - infrastructure
- Short-term/long-term fellowships (degree/non-degree)
Human Resources

- Allocate resources for extended training/change management
  - Trainers
  - Funding
  - Infrastructure
    - Training facilities?
- Develop written policies and manuals
- Establish redundancy and disaster plans
  - Data
  - Equipment
  - Human resource
Physical Infrastructure

- In-country
- Regional
Hardware/Software

- Technology is the means to the end
  - Investments in technology alone will not produce the desired results
- Harmonized policy on hardware/software acquisition
  - National
  - Regional/subregional
    - Small islands states of the EC are at a disadvantage individually in a global market place
Policy and Legislation

- Confidentiality/Privacy
- Unique identification
  - Local/regional
Legal Framework

- Security/Privacy issues
- Unique ID
- Financial systems
  - Audit department could not accept computer generated receipts
PROBLEM SOLVING
Approach to Problem-soling

- Challenges are inevitable
  - Attempt to anticipate and establish support mechanisms
    - Local
    - National
    - Regional
Local/National Support

- NHIS Committee
- Health care workers
- Managers
- Clinicians
- Technicians
- ICT specialists
- Statisticians
- Private sector representatives
- Regional information specialists

Political buy-in

- Return on investment, sustainability
Regional/International Support

- Establish regional technical working group
- Belize HIS meeting
- International networks
  - The Global Health Information Network (www.tghin.org)
  - RHINO (http://rhinonet.org/)

Help procure the right health information system

Health Professionals Take the Lead

Choosing and integrating a Health Information System represents a major challenge – and making the right choice is critical.

To help the global health community get to grips with the issues and define evolving HIS needs, this site will serve as an interactive online forum where professionals involved in procurement and HIS management can exchange views and information.
Limited Human Resource Base

- No dedicated ICT specialist
  - Ongoing training support, network support
- Limited external ICT support
  - Government ICT Unit recently formed
  - Private sector
  - Regional agencies
- Limited uptake by staff
  - Computers seen by some as a challenge to use
- Limited buy-in by managers
  - Some supervisors see ICT as opportunity for time wasting by staff
- Competing priorities
Recruitment
- Local/regional
- ICT Volunteers
  - Canadian Society for International Health
  - Japanese Overseas Volunteer Corps
  - US Peace Corps
- Others

Training
- Short term
- Long term
Funding

- Establish specific MOH budget line specific to HIS
  - Advocacy by external required
    - CARICOM

- Special programmes for strengthening HIS
  - Global Fund
  - World Bank
  - PAHO/WHO
  - CDB?
Funding

- e-Health key component of e-Government programme
  - ICT to improve data management, information exchange, health surveillance, decision making & patient care
  - Bilateral/multilateral agreements
    - e.g. EU (OECS e-GRIP project) Taiwan, India
Key Lessons Learned

- Political, financial and technical support is critical
  - National
    - Government
    - Private sector
  - International
    - Technical Assistance: PAHO/WHO,
    - Funding: GF, WB and other development banks, Governments e.g. EU, Taiwan, China

- Health leadership important
  - Technology is a means to the end, developments guided by end-users
In conclusion...

- The development/strengthening of Information Systems for Health is complex and challenging and will require *long term* commitment and significant investments in human capital and in information and communication technology.
Dreams... ...can become realities
References

1. PAHO technical series on health information and information systems, *Information for Decision-making in Health Systems – draft - (No. 2).* 2006
2. World Health Organization, Regional Office for South-East Asia, *10-Point Regional Strategy for Strengthening Health Information Systems.* 2006
Thank You