

# Chapter 4: Building Research Systems for Universal Health Coverage

Jaleh Gholami



# Success of research

- The success of these selected studies, and of any study that aims to support universal health coverage, depends on having an **environment** that is conducive to doing research of the **highest quality**.

# Success of research

- The most credible research, reaching the largest number of people and producing the greatest benefits for health, will be done where there is:
  - an established **culture of enquiry**,
  - a set of procedures for **supporting and carrying out investigations**,
  - and **frequent dialogue** between researchers and policy-makers.

# Effective health research system

- An effective health research system needs to carry out 4 functions:
  - define research **questions and priorities**
  - raise **funds** and develop research **staff capacity** and **infrastructure**
  - establish **norms** and **standards** for research practice
  - **translate** research findings into a form that can guide policy

# WHO Strategy on Research for Health

- In 2010 the Sixty-third World Health Assembly adopted Resolution WHA63.21 concerning a strategy for the **management and organization of research** within WHO.

# WHO Strategy on Research for Health

Three criteria underpin the WHO approach to health research:

- **Quality** (high-quality research, ethical, expertly reviewed, effective, accessible, monitored, evaluated, ...)
- **Impact** (potential to improve global health security, inequities, MDGs, ...)
- **Inclusiveness** (partnership with stakeholders, multisectoral approach, participation of communities, ...)

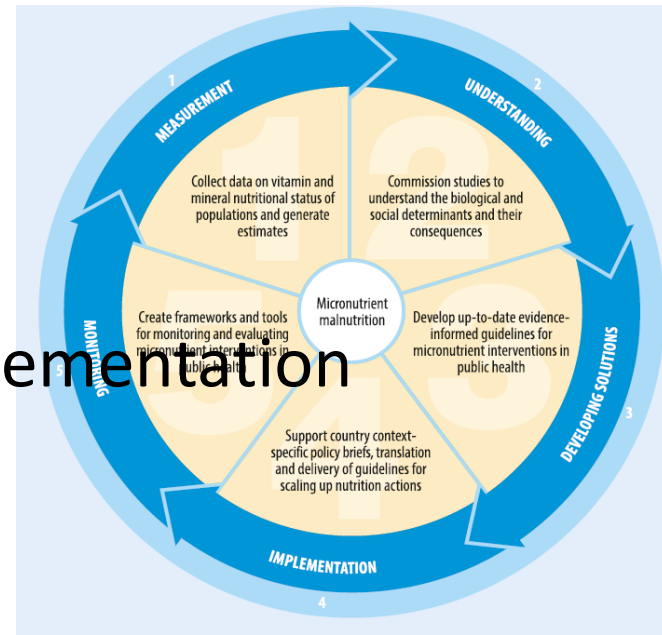
# WHO Strategy on Research for Health

- The strategy has five goals:
  - **organization** (reinforcing the research culture across WHO)
  - **priorities** (emphasizing research that addresses the most important health problems)
  - **capacity** (helping to develop and strengthen national health research systems)
  - **standards** (promoting good practice in research, setting norms and standards)
  - **translation** (linking policy, practice and the products of research)

# Effective health research system

Effective research systems allow investigators to go all the way round the research cycle:

- measuring the size of the health problem
- understanding its causes
- devise solutions
- translating the evidence
- evaluating effectiveness after implementation







# In this chapter

- principles underpinning each of the four key functions
- mechanisms to support these functions nationally and internationally, through monitoring, coordination and financing
- overview of the research process

# Effective health research system

## Key functions

- Setting research priorities
- Strengthening research capacity
  - A framework for strengthening capacity
  - Creating and retaining a skilled research workforce
  - Ensuring transparency and accountability in research funding
  - Building research institutions and networks
- Defining and implementing norms and standards
  - Ethics and ethical review
  - Reporting and sharing research data, tools and materials
  - Registering clinical trials
  - Using evidence to develop policy, practice and products
- Translating evidence into policy and practice

# Setting research priorities

## Step-by-step guide

- Context:
  - What is the exercise about and who is it for?
  - What resources are available?
  - What are the underlying values or principles?
  - What are the health, research and political environments?

# Setting research priorities

## Step-by-step guide

- Context
- Approach
  - 3D Combined Approach Matrix (CAM)
  - Essential National Health Research (ENHR)
  - the Child Health and Nutrition Research Initiative (CHNRI) approach

# 3D Combined Approach Matrix (CAM)

Table I. The global forum combined approach matrix for health research priority- setting

Institutional dimension

|  | Global / national/<br>local | Individual<br>household and<br>community | Ministry of Health<br>and other health<br>institutions | Organizations<br>outside ministry of<br>health | Macro-economic<br>policies |
|--|-----------------------------|--|--|--|----------------------------|
| Public Health Dimension<br>1. Disease burden                   |                             |  |  |  |                            |
| 2. Determinants  |                             |  |  |  |                            |
| 3. Current level of knowledge                                  |                             |  |  |  |                            |
| 4. Predicted cost and<br>effectiveness of new<br>interventions |                             |  |  |  |                            |
| 5. Resource flows  |                             |  |  |  |                            |

**Disease burden:** DALY or Other methods

**Determinants:** The factors responsible for the persistence of the burden

**Current level of knowledge:** The current knowledge to help solve the problem including the cost and the effectiveness of existing interventions

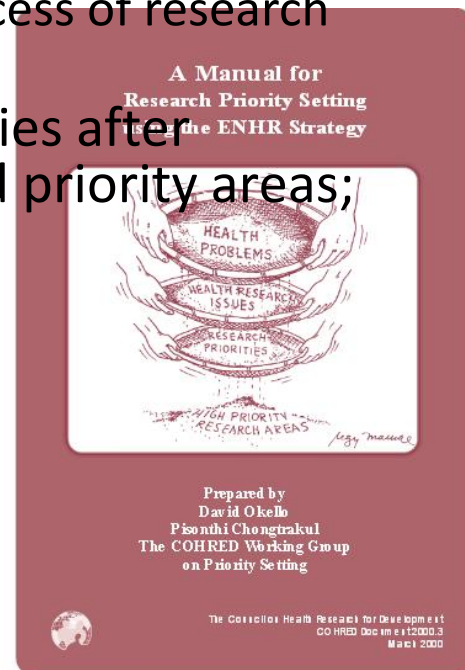
**Predicted cost and effectiveness of new interventions:** The promise of the research and development effort is assessed, against other potential interventions

**Resource flows:** The current level of investment on research for the specific disease and/or determinant is calculated.

# Essential National Health Research (ENHR)

- Preparatory work
  - Leadership creation,
  - Awareness raising,
  - Reaching agreement with stakeholders,
  - Planning for priority setting
- Elements of priority setting
  - Identification of stakeholders,
  - Situation analysis,
  - Identification of research areas,
- Criteria for priority setting
  - Create the list of criteria,
  - Group the selected criteria into representative categories,
- Assign score choices to all the criteria,
- Assign a scoring system ,
- Test the module,
- Modify the module,
- Double check the module,
- Produce a working module,
- Finish the process of research prioritization

- Follow-up activities after identifying broad priority areas;
- Implementation



# Child Health and Nutrition Research Initiative (CHNRI) approach

**Table 2.** Child Health and Nutrition Research Initiative's proposed framework for systematic listing of investment options in health research, which takes into account the varying "depth" of proposed research: the three most fundamental and mutually exclusive research domains; very broad research avenues within those domains; more specific research options; and very specific research questions

| Research domain   | Research avenue   | Research option   | Research question  |
|---|---|---|--|
| Health research to assess burden of health problem (disease) and its determinants | Measuring the burden  | Many research options within each of the avenues; research options should | Several very specific research questions within each of the research avenues should correspond |
|   | Understanding risk factors (in terms of their relative risks)       |   |  |
|   | Measuring prevalence of exposure to risk factors                    |   |  |
|   | Evaluating the efficacy and effectiveness of interventions in place |   |  |

**Table 3.** Some of the possible criteria and related questions proposed by Child Health and Nutrition Research Initiative that can be used to discriminate between any two (or more) health research options that compete for investments in order to set research priorities. The outcomes of the different criteria will necessarily conflict each other

| Criterion                              | Question   |
|--|--|
| Acceptability                          | How likely is the proposed research to be approved, taking into account any possible resistance based on ethical or political grounds and public opinion?                                |
| Affordability                          | How likely is it that the results will improve affordability of existing policies and programs?  |
| Answerability                          | How likely is it that the objectives will be met given the current state of science and the size of the gap in knowledge?  |
| Applicability                          | How likely is it that the results will be immediately applicable for guiding policies and programs?  |
| Deliverability                         | How likely is it that the results will improve the delivery of existing policies and programs?   |
| Equity                                 | How likely is it that the proposed research will benefit those who are most vulnerable to poor child development?  |
| Feasibility                            | How likely is it that the cost of the proposed research will be a feasible investment?   |
| Potential effect on disease burden     | How likely is the proposed research to lead to significant improvement in disease burden reduction?  |
| Sustainability                         | How likely is it that the results will improve sustainability of existing policies and programs?   |
| Usefulness                             | Given the quality of existing evidence, how likely is it that the proposed research will fill a critical gap in knowledge?   |
| Existing research capacity             | How likely is it that the objectives will be met given existing research capacity?   |
| Alignment with other policies          | How well are the objectives aligned with other existing policies in the society?   |
| Generation of commercial products      | How likely is it that the proposed research will lead to patents and generate commercial products?   |
| Competitiveness and publication impact | How likely is it that the results of the research will be seen as competitive against other ongoing work and be accepted for publication in the journals with the highest impact factor? |



# Setting research priorities

## Step-by-step guide

- Context
- Approach
  - 3D Combined Approach Matrix (CAM)
  - Essential National Health Research (ENHR)
  - the Child Health and Nutrition Research Initiative (CHNRI) approach
- Inclusiveness
  - Who should be involved in setting research priorities and why?
  - Is there an appropriate balance of expertise and interests?
  - Have all relevant parts of the health sector and other constituencies been included?
  - Different constituencies may have their own approaches to setting research priorities

# Setting research priorities

## Step-by-step guide

- Context
- Approach
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  - Essential National Health Research (ENHR)
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- Inclusiveness
- Information
- Planning
- Criteria
- Methods
- Evaluation
- Transparency

### Box 4.3. Setting priorities for research on selected health topics

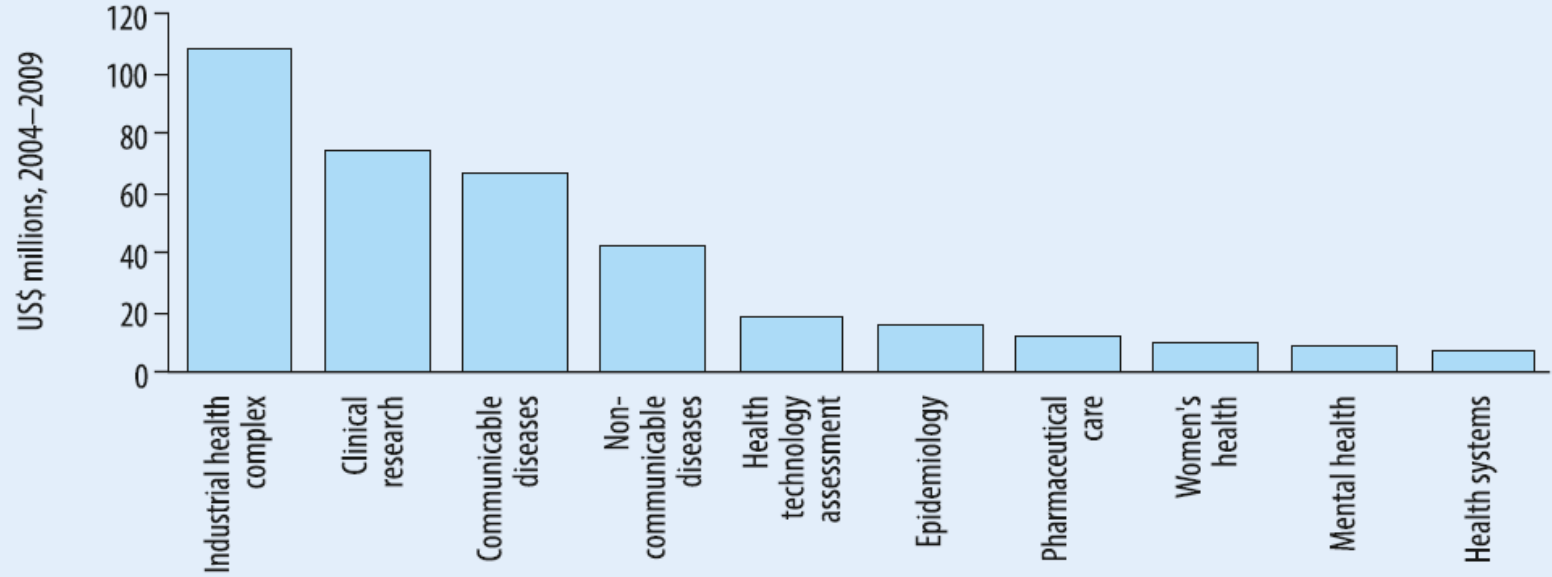
The majority of priority-setting exercises in health research have focused on specific topics. They have typically been carried out from the perspective of different thematic groups within the research community rather than being initiated by national governments. A selection of examples is listed in the table below.

#### Priority-setting for research on specific topics

| Health topic  | Focus   |
|---|---|
| Preterm births and stillbirths                                  | Community level (18)  |
| Birth asphyxia  | Reducing mortality (19)   |
| Childhood pneumonia   | Reducing mortality (20)   |
| Childhood diarrhoea   | Reducing mortality (21)   |
| Child health  | South Africa (22)   |
| Mental health   | Low- and middle-income countries (23)   |
| Mental health and psychosocial support                          | Humanitarian settings (24)  |
| Tuberculosis  | From R&D to operational research (25–28)  |
| Malaria   | Eradication: drugs (29)   |
| Malaria   | Eradication: health systems and operational research (30)                         |
| Leishmaniasis   | Middle East and North Africa (31)   |
| Leishmaniasis   | Vaccines (32)   |
| Chagas disease, human African trypanosomiasis and leishmaniasis | Diagnostics, drugs, vaccines, vector control and health systems (33)              |
| Neglected infectious diseases                                   | Latin America and the Caribbean (34)  |
| Helminth infections   | Epidemiology and interventions against all major human helminths (35)             |
| Zoonoses and infections of marginalized human populations       | Epidemiology and interventions; research within and beyond the health sector (36) |
| Noncommunicable diseases  | Low- and middle-income countries (37)   |
| Human resources for health                                      | Low- and middle-income countries (38)   |
| Health systems financing  | “Developing” countries (39)   |
| Research and development for a national health service          | Interface between primary and secondary care in the United Kingdom (40)           |
| Equity and health   | Social determinants of health (41)  |

R&D, research and development.

## Brazil's top ten investments in health research, 2004–2009



# Research priority setting in 8 countries

- Tomlinson et al. systematically examined how research priorities were set in eight countries. They found weaknesses:
  - priorities were framed in broad disease categories rather than as specific research questions,
  - engagement with stakeholders was weak,
  - the exercises were poorly documented, and there were no procedures for appealing against the decisions reached.
  - All the exercises were based on internationally-recognized standard methods, but the application of these methods was incomplete.

# Effective health research system

## Key functions

- Setting research priorities
- Strengthening research capacity
  - A framework for strengthening capacity
  - Creating and retaining a skilled research workforce
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- Defining and implementing norms and standards
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- Translating evidence into policy and practice

# Strengthening research capacity

- Scientific research capacity grows disproportionately with national wealth.
- A 10-fold increase in wealth has the potential to increase research output (publications or numbers of researchers per capita) by a factor of 50.
- However, the research productivity of many countries lies well below this potential. How then can nations develop the capacity to exploit the full potential of health research?

# A framework for strengthening capacity

- The term “**capacity**” could refer to all elements of a research system. But here it means the **abilities of individuals, institutions and networks**, nationally and internationally, to undertake and disseminate research findings of the highest quality.




## ESSENCE: Enhancing Support for Strengthening the Effectiveness of National Capacity Efforts

- The general principles have been framed by the ESSENCE on Health Research initiative.
- ESSENCE is a collaboration between funding agencies that aims to improve the impact of investments in institutions and people, and provide enabling mechanisms to address needs and priorities within national strategies on research for health.

# ESSENCE principles

The principles for capacity strengthening in health research are:

- Participation and alignment
- Understanding the context
- Building on strengths
- Long-term commitment
- Interlinked capacity components on different levels
- Continuous learning
- Harmonization



Planning, Monitoring  
and Evaluation  
Framework for Capacity  
Strengthening in  
Health Research

# Strengthening capacity



- The decision to build and strengthen research capacity, and to allocate the necessary funds, is largely political.
- but the case for support must be made with a careful evaluation of what it takes to do research effectively.
- The needs include:
  - skilled and self-confident **workforce**
  - strong **leadership**
  - adequate **funding** with transparent and accountable methods for allocating funds
  - well equipped research **institutions** and **networks**.

# Strengthening capacity

- the approach to capacity-building in any setting depends on the **strategic vision** for the research and **what is needed** from research.
- It is sometimes, though not always, convenient to think of **institutions** nested within organizations. Views also differ on the emphasis to be placed on, for example:
  - building elite institutions,
  - creating international networks,
  - boosting translational research,
  - methods of sharing knowledge and information,
  - rewarding quality

# One framework for capacity building

**Table 4.1.** A framework to guide capacity-building, highlighting approaches and targets, the likelihood of sustainability, and the research focus

| Entity targeted                           | Approach to capacity strengthening |  |  |  |
|---|------------------------------------|--|--|--|
|   | Graduate or postgraduate training  | Learning by doing  | Institutional partnerships between countries | Centres of excellence                  |
| Individual <sup>a</sup>                   | +++                                | +  | ++   | +                                      |
| Institution                               | +++                                | ++   | +++  | +++                                    |
| Network                                   | ++                                 | ++   | +++  | ++                                     |
| National level                            | +                                  | ++   | ++   | +++                                    |
| Supranational level                       |                                    | ++   | +++  | ++                                     |
| Financial investment <sup>b</sup>         | ++                                 | +  | +++  | +++                                    |
| Research focus                            | Research skills                    |   |  | Programme, policy, systems development |
| Likelihood of sustainability <sup>c</sup> | +                                  |  |  | +++                                    |

<sup>a</sup> Plus (+) signs indicate the entity is targeted + sometimes, ++ often, +++ frequently.

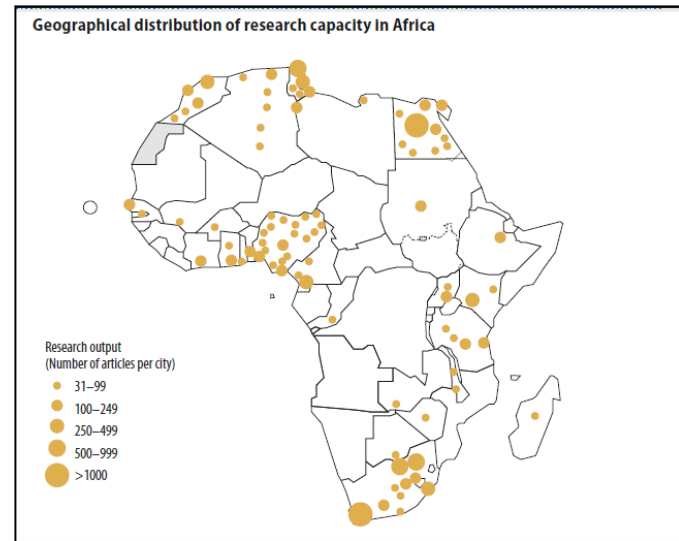
<sup>b</sup> Plus (+) signs in this row indicate that the extent of financial investment needed by national health research systems or funding agencies is + low, ++ medium, +++ high.

<sup>c</sup> Plus signs in this row indicate the likelihood of sustainability of various approaches is + fair, +++ strong.

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# Strengthening capacity

- Any program to strengthen research capacity must define, monitor and evaluate success
- A simple geographical mapping of research activity can be illuminating , but a deeper understanding comes from measuring success.



# indicators of research capacity

- One evaluation examined which indicators of research capacity were most useful in four different settings.
- The most expedient indicators changed as program matured:
  - At the outset: the engagement of stakeholders and planning for scale-up
  - During expansion stage: innovation, financial resources, and the institutionalization of activities
  - During the consolidation stage: funding for core activities and local management

# Creating and retaining a skilled research workforce

- *The world health report 2006 – “working together for health”* highlighted the critical role, and the chronic shortage, of health workers, especially in low-income countries
- The research carried out in many low- and middle-income countries is still dominated by scientists from wealthier countries.



# skilled research workforce

- International collaboration is part of the solution so long as some basic principles are followed

## Box 4.6. Principles of research partnership

Further details of these 11 principles can be found in *Guidelines for research in partnership with developing countries* prepared by the Swiss Commission for Research Partnership with Developing Countries (64). The 11 principles (with minor adaptation) are as follows:

1. Decide on research objectives together, including those who will use the results.
2. Build mutual trust, stimulating honest and open research collaboration.
3. Share information and develop networks for coordination.
4. Share responsibility and ownership.
5. Create transparency in financial and other transactions.
6. Monitor and evaluate collaboration, judging performance through regular internal and 1. external evaluations.
7. Disseminate the results through joint publications and other means, with adequate communication to those who will finally use them.
8. Apply the results as far as is possible, recognizing the obligation to ensure that results are used to benefit the target group.
9. Share the benefits of research profits equitably including any profit, publications and patents.
10. Increase research capacity at individual and institutional levels.
11. Build on the achievements of research – especially new knowledge, sustainable development and research capacity.

- Alongside the numerous examples of “north–south” research collaboration run a variety of training schemes for young researchers – such as those offered by :
- TDR ([www.who.int/tdr](http://www.who.int/tdr)),
- the Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET, [www.tephinet.org](http://www.tephinet.org)),
- the European Foundation Initiative for African Research into Neglected Tropical Diseases (EFINTD, [www.ntd-africa.net](http://www.ntd-africa.net)),
- Brazil’s Science without Borders programme ([www.cienciasemfronteiras.gov.br](http://www.cienciasemfronteiras.gov.br)),
- the product-orientated operational research courses offered by the International Union against Tuberculosis and Lung Disease and Medecins Sans Frontieres (MSF) Luxembourg

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