Health Research Priorities

Directorate of Research and Studies
Directorate General of Planning

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Foreword

Health research is among the most important pillars of any health system. It is an essential component of all health system blocks; namely: service delivery, human resources for health, medical technology and medical products, health system finance and leadership and governance. Health research is a main source of information and evidence required during the process of planning, implementation and monitoring and evaluation.

The Ministry of Health is concerned to develop health research capacity and had taken effective steps to equip human resources for health with research capabilities and had established the systematic mechanisms for funding health research to be implemented at the central, governorate and wilayate levels.

Ministry of Health continuously evaluates health system performance and health status of the people through monitoring the prevalence and incidence of diseases and risk factors. The availability of information is thus essential and would be made available through capturing data routinely from health records of the health care facilities as well as from the results of health research. Accordingly it was necessary that Ministry of Health decide on the priority areas for health research as part of its planning for the future.

This booklet lists priorities of health research and is an indicative practical guide for all health researchers. We wish health researchers in Ministry of Health, in other public healthcare providers, in the private sector as well as the academic institutions make use of this booklet to direct their researches to contribute to the development of health services and health status of the people.

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Priorities of Health System Research
Introduction

The health system consists of all institutions, personnel, and procedures which are useful in enhancing and maintaining health. As other systems, the health system has its inputs, which represent in six major foundations, which can be evaluated in different ways in order to achieve a specific set of targets; these inputs include the following basis:

1. **Service delivery:**
   Good health services are those which provide personal and non-personal health inputs and shall be safe, effective and high quality for those who need it in the right time and place with minimum waste of resources.

2. **Health workforce:**
   Health workforce with good performance are those which operate in honest and effective ways that respond to achieve the best possible health outcomes under available resources and circumstances, as well as having a sufficient number and variety of categories of staff distributed in a fair manner. Health workforce should be competent with high response and high productivity.

3. **Health Information System:**
   Health Information System is the system which fulfils the purposes of planning and ensures the production, analysis, dissemination and use of trusted data available in a timely manner, as well as provides information on health determinants, health systems performance and health status.

4. **Medical products, Vaccines and Technology:**
   A well-functioning health system ensures equitable access to essential medical products, vaccines, and technologies of assured quality, safety, and cost-effectiveness.
5. **Leadership and governance:**

Leadership and governance involves ensuring strategic policy, having frameworks along with effective control, establishing coalition, providing appropriate regulations & incentives, attention to system design, accountability, and transparency.

6. **Financing:**

Good health funding system is the system that meets the needs of financial resources for health in a secure way to ensure that people use the necessary health services without being subjected to financial disaster or impoverishment.

**Health systems targets:** improving health, responding to the health system, equity, distribution, financial & social protection, and making the health system more efficient by using available resources.

The evaluation of health system performance is based on equitable access, coverage, quality of the provided services, and ensuring patient safety. The health system is defined either by focusing on its inputs of its six major foundations or targets or methods of evaluation.

Mentioned below are the most important research priorities that serve the health system categorized based on its six major building blocks which make up the basic structure of the health system?
Health System building blocks
- Services delivery
- Health workforce
- Health Information
- Medical products, Vaccines and Technology
- Financing
- Leadership/governance

Health System Performance
- Equitable Access & obtaining service.
  - Coverage
  - Quality
  - Safety

Outcome
- Improving Health (level, Equity, and distribution)
  - Responsiveness
  - Social and Financial risks Protection
  - Improved efficiency

Equity
Health System building blocks

1. Service delivery

Good health services are those which provide personal and non-personal health inputs and shall be safe, effective and high quality for those who need it in the right time and place with minimum waste of resources.

Providing Services Department shall concern the organizing way of the inputs and services in terms of management, ensuring access, quality, safety, and sustainability of care across the health conditions and across different sites over time.

1.1. Patient Satisfaction

- Patient satisfaction with the Provided Health Services:
- Identify the confidence level of patients on the provided health services.
- Identifying the causes of distrust among patients.
- Identifying the sense of distrust by the patient with medical cadres, and traveling abroad for management.
- The problem of medical errors and its impact on the confidence of citizens in health services.
- Knowledge of the impact of work pressure on the performance of doctors, consultants, and its reflection on the confidence of patients.
- Studying the magnitude of wrong diagnoses, and its relationship on patients’ confidence.
- Studying the willingness of patients in having a health institutions ‘focal point to communicate with stakeholders, and receive their complaints.
- The effect of having an authorized document for the rights of patients with various levels of health care, on patients’ confidence in the provided care.
- Identifying the extent of satisfaction of the beneficiaries on the provided health services.
- Identifying the relationship manner of health personnel, with patients’ satisfaction.
The impact of lack of transparency in handling patients.

The relationship between patient satisfaction and follow-up of treatment by the same doctor throughout the duration of treatment, particularly patients with chronic diseases.

Does patients’ satisfaction regarding the provided services have any relationship with the language and nationality of the medical staff?

The level of patient satisfaction in Health Governmental institutions in terms of treatment methods and medicines disbursed to them in comparison with the private sector and institutions not affiliated to the Ministry of Health.

Comparative study of variations in the availability of health services between governorate centres and the willayats of the governorate, and its impact on the patient and his/her family.

1.2. Quality of Health Care

Study to know the ways of evaluation of the performance of the working groups in the health field to support the quality of the provided health care from chairmen and subordinates ‘point of view.

Evaluation in terms of the commitment to official working hours.

Evaluation in terms of doing the assigned jobs as requested.

Evaluation of the productivity of health personnel and its effectiveness.

Study on medical mistakes, in terms of its identification, the way of reporting them, and handling this issue.

The possibility of applying electronic record for patients.

Study on the effectiveness of the system which is used to send lab samples from regional hospitals to central hospitals:

- Studying the average time it takes from the time of obtaining the sample till receipt of the results.
- The effectiveness of the applied system on diagnosis and treatment delay, and incidence of complications.
- Relation of the applied system with patients ‘consent regarding the provided services.
- Identifying the rate that patient samples are damaged or lost due to the existing system.
- The impact of the applied system on work effort and the consumption of time.
- Identifying the effect of applying electronic Registry on reducing the time to get the results, as well as, reducing the chances of losing samples or results, in addition to its reducing the required efforts to samples and results ‘data entry.

- The impact of the shortage or poor distribution of specialists’ doctors and consultants on the quality of the provided health.
- Study on the impact of irregular leaves of doctors and medical assistance groups on job performance.
- A comparative study on variations in the availability of health services between Muscat, and other governorates, and their impact on the patient, and his/her family.
- Studies to find out the social determinants of health, and the causes of inequality in health services.
- The impact of social and economic situation such as gender, income, employment, education, place of residence on inequality in health services, morbidity, disability, and mortality.
- Studying the quality of the provided health care by the Private Health Sector.
- Study on the clinical checking system from the viewpoint of service providers within the health services
- Studying the requirements of reporting systems for medical errors from the perspective of service providers.

1.3. Treatment Abroad

- Identifying the number of patients traveling abroad for treatment over a period of several years, both at the country expense or at their own expense.
- Identifying the most common diseases that citizens travel abroad for treatment.
- Identifying the extent of improvement, deterioration, and response to treatment, for which the patient travelled abroad, and the extent of matching in the diagnosis.
Priorities of Health System Research

- Identifying patients’ satisfaction with the received health care abroad.
- The impact of health awareness on citizens desire to travel abroad.
- Identifying the most common medical destinations and treatment centers in order to take advantage of these experiences.
- Cost Accounting of medical and non-medical treatment abroad.

1.4. Primary Health Care

- Evaluation and improvement of the referral system.
- Efficiency of level of appointments’ system in primary health care.
- The impact of informing the patient of his/her treatment plan, and involving him in decision-making regarding the treatment on the extent of his/her satisfaction with the provided health service.
- Identifying the extent of patient satisfaction in the type of the provided primary health care service.
- Pilot study on the effect of establishing Community Health Centre for community health & diagnosis, research and planning in the smallest administrative units (including a database of family socio-demographics, lifestyles, family history and genetic disorder and carriers, screening, school health .. elderly care; social support, problems, outreach/home care and other programs.) on the health status of the inhabitants in the catchment area.
- Pilot study to introduce and evaluate long term care facilities affiliated to PHC
- Pilot study on the effect of establishing specialized Primary Health Centre

1.5. Secondary and Tertiary health care

- Study on the size of the problem of infection in hospitals and its distribution in terms of governorates, hospitals and departments.
- Study on the causes of infections in hospitals and how to control them.
- The impact of counselling for patients with chronic diseases in improving the quality of life.
- Study on evaluation of the actual need for hospitals of specialized medical personnel.
- Impact of having an implementation plan to replace and develop medical devices on the quality of the provided service in secondary and tertiary health care institutions.
- Conduct a study to find out the requirements of regional hospitals for devices and advanced diagnostic analysis machines, and set standards of what should be supplied at the regional level.
- Study on barriers of access, and utilization of health services (policy, Health Care System, social barriers).

1.6. The duration of waiting time

- Identifying the average time of patients’ waiting period for an appointment for investigations, analysis and obtaining results, or required time for referral to a higher level.
- Are long waiting times for appointments associated with certain health situations?
- The impact of a long wait in clinics before seeing the doctor on the satisfaction of the provided services of primary health care institutions.
- Reasons of long waiting times to obtain appointments for diagnostic, operations, treatment, results, prosthetic devices, and assistance (from patients and service providers ‘point of view).
- The relationship and effect of appointment waiting times on the satisfaction of patients with the provided health services.
- The impact of long waiting times for appointments on health complications.
- The impact of delayed appointments in health institutions on traveling abroad for treatment or resorting to the private sector.

2. Health workforce

Health workforce with good performance are those which operate in honest and effective ways that respond to achieve the best possible health outcomes under available resources and circumstances, as well as having a sufficient number and
variety of categories of staff distributed in a fair manner. Health workforce should be competent with high response and high productivity.

- Immigration of health personnel (problems and solutions).
- Does placing regulations on dual practice (practice in government and the private sector) required? And if so, how should this be designed and implemented?
- How can financial and non-financial incentives maintain qualified health personnel of health institutions, and increase their satisfaction for the purpose of improving the efficiency and quality of health care?
- What is the perfect mix of financial and non-financial regulatory policies to improve the distribution and maintaining health personnel?
- Study on the evaluation of training programs, and their role in improving job performance.
- Studies on evaluation programs and plans for external scholarship in health sector according to the actual needs of the Ministry of Health, and its role in improving career performance and improving the provided services.
- What are the required mechanisms of regulation to maintain quality of education, training, and practice?
- What is the required strategic information to provide monitoring system for observing economization and distribution of the performance of health personnel?
- How to fund the expansion of educational programs, and the number of health personnel in a realistic and sustainable manner in various fields?
- How to organize the health personnel in order to provide effective services, on various levels regarding the system (primary, secondary, and higher education) and the way to control and improve their performance?
- Set rational distribution of manpower in health institutions, and managing them in an effective management and right manner.
- Satisfaction of health personnel in health field on the right environment, and provision of a creative and promising environment.
- Equating the monthly wages with the nature of work and official working hours.
• Explaining the way of health personnel in dealing with work pressure, time management, and crises.
• The effectiveness of the applied evaluation mechanism on stimulating and providing on-going supervision to the performance of medical staff.
• The impact of creating a clear career path on hierarchy and promotions with an emphasis on efficiency and scientific certificates.
• The satisfaction of health personnel with their nature of profession.
• Is patient's preference for particular nationality in health staff affecting performance career?
• The importance of ensuring employee satisfaction, and motivating them by various means, (such as a good salary, appreciation for their work conducted and make them part of the team) on the quality of the provided health care.

3. Health Information System

Health Information System is the system which fulfils the purposes of planning and ensures the production, analysis, dissemination and use of trusted data available in a timely manner, as well as provides information on health determinants, health systems performance and health status

National Information Systems: Information Systems Support the information which is based on health institutions, census and others, in order to generate, analyse, and use reliable information from multiple data sources.

• Improving the notification system and reports in the surveillance system for diseases and risk factors and related vital status.
• Developing a set of fundamental & additional standards and indicators to track the performance of the health system.
• Completion of provision of comprehensive data and information to cover the needs of the health system in planning, evaluation and follow-up, to be placed in a database serving research in health institutions.
• Pilot study to establish a community database in PHC for community health & diagnosis in the smallest administrative units, research and planning (including the data of family socio-demographics, lifestyles, family history,
genetic disorders or carriers, early screening, elderly care “social support, problems, outreach/home care”, vaccination, reproductive health, school health and other programs) for the inhabitants in the catchment area.

- Improving the quality of the outputs of health information system.
- Ensuring the optimal use of health information issued from research or routine reports by health personnel (planners, managers and service providers).

4. Medical products, Vaccines and Technology

A well-functioning health system ensures equitable access to essential medical products, vaccines, and technologies of assured quality, safety, and cost-effectiveness.

- The availability of criteria to enhance the quality of medical products, vaccines and technology.
- Encouraging equitable access, rational use, adherence to vaccines products, and technologies with high quality.
- Observing the quality and safety of medical products, vaccines and technology.
- Laboratory services: The extent of coverage, quality and degree of efficiency.
- Credibility and adopting the results of medical diagnostic laboratories in public and private sectors.
- Expansion of the digital mainframe in health departments and institutions, and standardize the Al Shifa system among different health institutions.
- Manpower operating in terms of number, expertise and distribution.
- Initiating the methods of communication and remote electronic consulting within the health system (especially strokes, psychological diseases, malignancies, and emergencies ....)
- Access to the patient via a national health electronic file, holding an authorized national number.
- The impact of the disparity in the quality of medicines disbursed for the patients in the public sector compared with the private sector and institutions not affiliated to the Ministry of Health.
• Ensuring patient access to safe and effective medication at a reasonable cost.

5. Health funding

Good health funding system is the system that meets the needs of financial resources for health in a secure way to ensure that people use the necessary health services without being subjected to financial catastrophes or impoverishment.

• Improve provision of information of health financing system, and its ‘use’ policy.
• Cost recovery of some implemented services on health insurance schemes for certain services (such as car accidents).
• Study on the financing of health services (Requirements/Available).
• A study for exploration of community opinion on fulfilling some of the fees service users.
• A study on assessment and evaluation of supervision and follow-up health services systems in central level, governorates, and wilayats.
• A study on the distribution of hospital beds, and managing them in a sound economic way.
• A Study on the costs and benefits regarding outcomes of early detection and treatment of non-communicable diseases.
• Examine various alternatives to improve the means of cost control.
• Compatibility of the cost with the provided health services.
• Appropriating the cost of the provided health services with Quality of life of patients.
• Calculating the cost of patients, especially in chronic diseases to know the right cost of expected cases.
• Study on the effectiveness of the extension of official working hours in health centres, and hospitals.
• Study on the effectiveness of introducing telemedicine service in secondary and referral hospitals, and the areas that lack of fine specialized or emergency services as well as remote areas and ambulances.
• Study on pharmaceutical alternatives that give the same effect at a lower cost.
• Analysis of the actual developments in the field of health care.
• Study the cost of national systems and existing health programs.
• Study on the burden of chronic diseases.
  - The burden of disease on the country.
  - The burden of disease on the individual.
  - The burden of disease on the family.
• Calculating the effort lost due to disability resulting from disease.
• The effectiveness of prevention programs and early detection of diseases
  - The effectiveness of early detection program for cancer.
  - The effectiveness of early detection program for chronic diseases and non-communicable diseases.
• The effectiveness of early detection program for birth defects and genetic disorders.
• Study on bed occupancy rates in terms of governances and departments.
• Study on the cost of non-occupied beds at hospitals.
• Study on the burden of personal behaviour practices on the quality of life and health demands.
  o The burden of alcohol and smoking abuse.
  o The burden of drug abuse.
  o The burden of physical inactivity.
  o The burden of accidents.

6. Leadership and governance

Leadership and governance involves ensuring strategic policy, having frameworks along with effective control, establishing coalition, providing appropriate regulations & incentives, attention to system design, accountability, and transparency.

• How can the government create a better environment for enhancing non-governmental bodies that provide service in achieving the results of health systems?
• Formulation of sectorial strategies, as well as specific technical policies; to determine the objectives, trend, and spending priorities via services and identifying the roles of public and private sectors, voluntary bodies and the role of civil society.

• Evaluation of the decentralization policy in health services’ management.
• Evaluation of hospitals Autonomy policy and management.
• Support competencies in health management field.
• Evaluating the performance of the research system and the development of specific indicators for the periodic evaluation.
• Balanced distribution of various resources.
• Initiating and improving methods of communication within the health system and creating frameworks for the health sector in a manner commensurate with national policies.
• Cooperation and build coalitions in various sectors of the government and with officials outside the government, including civil society, to influence the work on the main determinants of health, and access to health services; in order to generate support for public policies, and to ensure communication between the sectors - the so-called “joined to the Government”.
• Studies to evaluate and develop coordination, and the relationship between the Ministry and the relevant health institutions (environment, media, educational and research institutions, civil status….etc.)
• Ensuring that there is a fit between strategy, structure, reducing duplication and division.
• Creating national capacities, particularly in policy analysis and management field.
• Identifying priorities via knowledge and evidence for policy-making.
• Identifying opportunities and challenges which are facing the health system.
• What are the types of regulations that can improve the results of health systems, and under what circumstances?
Research Priorities of Diseases and Risk Factors
Introduction

One of the basic tenets of economics is that resources are always limited and there can never be enough of it to meet all the perceived needs. The same holds even in the area of Research and Development. Hence prioritizing the domains for research and allocation of resources have to be not only equitable but also economically sound. In the health sector, the benefits of implementing policies derived even from sound evidence based research may often yield desirable outcomes only after long incubation periods. Also the benefits cannot always be evaluated in economic terms. Hence prioritizing domains for research has to be evaluated on several factors including burden of illness, impact on specific population groups especially vulnerable sections of the society, health promotion, disease prevention, rehabilitation, societal impact etc. Based on these and similar parameters, several research domains and specific research topics have been identified after consultations and discussions with experts in these domains. These have been incorporated in the Five Year Plan at the national level. A list of these domains and topics that are currently under consideration are listed below.

As we move towards 2050, these domains have to be reviewed and updated periodically in the light of the changing spectrum of health problems. In Oman between 1970 and 1990, communicable diseases were a major health problem. Through active intervention under wise leadership, significant progress has been achieved and most preventable communicable diseases have been almost completely eliminated. By the turn of this century, the burden of disease has shifted to Non Communicable Diseases and a few of the newer communicable diseases. It is easy to see why this dynamic process of periodic recasting of the priority in research has to be practiced so that the focus remains on the important issues that can produce the most beneficial effects in health care and health delivery. What will be the health issues that require research by 2050 may be difficult to predict now. But through a dynamic process of prioritizing health research, we can be on track at all times and in changing situations.
Research priorities of diseases and risk factors

1. Chronic non-communicable diseases

The 57th report on 2002 by International Health Assembly has clarified that mortality rate in the world due to non-communicable diseases is 60% and possess alone approximately 47% of the Universal burden of disease, and these rates expected to rise to 73% and 60% respectively by 2020. It is noted that 66% of the above mentioned mortality worldwide occurs in developing countries and among people of working age.

According to the report submitted by the World Health Organization 2011, it has been clarified that non-communicable diseases cause 83% of all mortality in the Sultanate of Oman. These non-communicable diseases include: cardiovascular disease (49%), cancers (11%), diabetes (7%), respiratory diseases (3%) and other diseases (13%).

Such diseases drain around 52% of the expenditure of health and therapeutic burden, in addition to its massive and serious impact on the type and level of daily life, causing an endless negative effect to society, as limiting the activity of millions of citizens within the Sultanate and cost the Ministry of Health a great payment from its annual budget. They also affect the effectiveness of health systems levels, because they require attention and intensive follow-up as a result of the growing burden of complications associated with these diseases.

Among the priorities of research on chronic non-communicable diseases are:

- Studies to determine the prevalence rate and trend of common chronic non-communicable diseases and the risk factors associated with them (evaluation of interventions and programs)
  - Cardio-vascular disease
  - High-prevalent malignant diseases and the effectiveness of early screening
  - Diabetes mellitus
  - Hypertension
- Obesity and overweight
- Cholesterol imbalance
- Chronic renal disease and failure
- Chronic respiratory disease: the number of episodes, risk factors, sensitivity to irritants and control measures.
- Eye Diseases, Glaucoma and cataract.
- Depression and anxiety rates and predisposing factors; and effectiveness of the health system, patient satisfaction, community and family awareness for psychosocial support and quality of life of the patient
- Hearing impairment (Prevalence rate, causes and prevention)
- Studies on cerebral stroke:
  - Prevalence rate and associated risk factors.
  - Identify the complications of stroke, and its impact on the quality of patients' life
  - The impact of early interference, to reducing the consequences of stroke.
  - Study on qualifying the medical staff in emergency departments, as well as primary health care institutions for early diagnosis and referral.
- Studies on the early detection of non-communicable diseases (screening); the response of the citizens and health institutions, obstacles and difficulties.
- Study on the efficiency of the health system in dealing with chronic diseases, risk factors, and methods of prevention (in terms of health promotion, early detection, treatment coverage, control of the disease, reducing complications, case fatality ratio, community and patients’ awareness, quality of life, the satisfaction of patients)
- Studies to compare people with controlled diabetes, hypertension and cholesterol with people who are uncontrolled
- Studies to determine the compliance of patients with diabetes, hypertension, cholesterol imbalance in the therapeutic regimen, healthy lifestyle and its relationship to control the disease, the incidence of complications, and the quality of life.
- Studies to evaluate plans and programs implemented to reduce the spread of the tobacco smoking in all its forms (including the electronic cigarette)
• Evaluating models of Healthy Cities and Healthy Villages (Nizwa, Sur, Sohar and Salalah especially in terms of chronic diseases and lifestyles…etc).
• Community-based interventions for cardiovascular disease (CVD) risk reduction at the population level (multifactorial interventions to evaluate feasibility and cost-effectiveness).
• Studies on the burden of chronic non-communicable diseases on the patient, family and health institutions.
• Studies on the quality of life for patients with chronic non-communicable diseases, especially chronic renal failure, and cancer.
• Study on the quality of life for patients with asthma, and chronic obstructive pulmonary disease.
• Study of the prevalence of drug addiction and management by the parents and the community, rehabilitation, and their relevance to find treatment centres.
• Study of how to include data regarding lifestyles and demographics within the electronic information system of community health centres.
• Study to compare the cost of treatment of non-communicable chronic diseases in the various levels of health care (primary, secondary and tertiary).

2. Congenital anomalies and Genetic disorders

In addition to the above-mentioned diseases, it is important to focus on congenital anomalies and genetic diseases that leave people unable to rely on themselves in the performance of the activities of their daily living which increases the burden on individuals, community and government to provide them more health services. It is noteworthy that there is a need of more information and appropriate studies in this regard which reflects the extent of genetic diseases and congenital anomalies (since it reached 5.6% of the mortality of young age in 2010, according to WHO report on the global burden of disease, issued in 2011)

The lack of appropriate information on these diseases in the Sultanate resulting from lack of high quality studies and research in this field, which reflect the urgent need to focus on congenital anomalies and genetic diseases to evaluate the current status of this category, monitor their needs, develop awareness and educational programs to reduce these diseases, and rehabilitation of patients.
Congenital anomalies and Genetic disorders require the following research priorities:

- Community based study on the causes of birth defects, genetic disorders, how to prevent them, social acceptability to reduce consanguineous marriages, and implementing premarital genetic screening/counselling or even before pregnancies.
- Study on the problem of the magnitude of birth defects and genetic diseases, and pointing out the best way for families to deal with the patient.
- Pilot intervention study on the importance of medical counselling, and testing before marriage in the various segments of society.
- Study on the early detection of genetic diseases and birth defects
  - Sensitivity and specificity of the used tests.
  - Cost & Benefit
  - Availability of trained personnel for the early detection especially during antenatal and postnatal care in urban and rural areas.
- Studies (cross-sectional and cohort) on genetic diseases, especially genetic blood diseases and identifying risk factors, quality of life, and life expectancy.
- Study of the effective preventive measures in the field of genetic diseases, quality of health services and patients’ and family satisfaction toward these services.

3. Road accidents and Injuries

Road accidents are one of the biggest problems in the Sultanate which require solidarity efforts of many parties to reduce them. The report of World Health Organization (WHO) for Global Burden of Disease, issued in 2011 indicated that 21% of total mortality in the Sultanate in 2010 was due to road accidents. The injuries resulting from road accidents form enormous social and economic health burden on the Sultanate, and represent injuries due to road accidents around 10% out of the total patients attending health institutions according to the Annual Health Report for the year 2011.
Road accidents and injuries include the following research priorities:

- Study the rate and trend of injuries, disabilities and mortality resulting from accident (injury spectrum), characteristics of injured persons, injury natures, place of accidents/ injuries to draw geographic map for accident/ injuries and place of nearest medical services.
- Study on community awareness of traffic safety.
- Study on health system's response to emergencies at the scene of the accident, the transport of the injured, and reception at emergency of health institutions.
- Study on life quality of people who injured from accidents.
- Study on the extent of qualified health centers, and medical staff in receiving injuries resulting from road accidents.
- Study on the extent of knowledge and commitment of physicians, pharmacists and health educator’s workers towards the importance of awareness they provide to the patients regarding the side effects of drugs which can affect driving.
- Study on the implementation of a medical check, and raising awareness in this regard before extracting a driver's license.

4. Age-related diseases

It is well known that old people often encounter multiple health problems which need monitoring and follow up accurately in order to provide early interference, and thus contributing to the advancement of the quality of their life. Ministry of Health is concerned because the percentage of old people in 2010 represents 5.2% out of the total population, and expected to reach 13.1% by 2050. This means that the Ministry must be prepared now onwards to prepare research studies that allow them to identify the best ways to interfere for the purpose of improvement for the health of old people from the early stages of the disease.

Age-related diseases: Field includes the following research priorities:

- Study on the health status of old people (physical, psychological, behavioural, social and environmental status, activities of daily living, unmet needs and quality of life)
• A study on old people and their pre-aging period (40-59 years), concerning changes with elderly, associated diseases and health problems among them.

• Cohort study on adult aged 40-45year followed till elderly to monitor physical psychological, behavioural and social changes and associated health problems.

• Study on the nutritional status of aging people, knowledge and practice for elderly and home care providers for healthy food in aging people.

• Study on the lifestyles of aging people, in terms of physical activity and proper nutrition, smoking and social relationships.

• Study to identify the best methods for health education and communication for old people, especially those with difficulties (illiteracy, impaired vision or hearing, memory problems, or living alone)

• Study on the difficulties of old people in terms of, the activities of daily life; the role of families, government and voluntary private institutions and NGOs.

• Study on the psychological and mental difficulties (especially cognitive abilities and depression) and family management

• Study on family cohesion pattern among different generations, and social variables with the evolution of life and its relation to lifestyle and elderly care.

Are we on the way to establish a home for the elderly?

• Study on accidents and falls of older persons, and its relationship to the home environment and surroundings, marital status (living alone) and health status.

• Study to identify the unmet needs of older persons, and arrange them according to priorities as follows:
  - Social, economic needs and shelter.
  - Their needs for prosthetic and/or assistive devices.
  - The required and the provided health services for older persons.

• Study on the awareness of community and families of the elderly (especially caregivers), and the elderly needs of older persons, besides the importance of the elderly care program, and the extent of its benefit and utilization for older persons.

• Study to evaluate elderly care services into primary health care for older people who are capable and incapable of accessing health institutions (i.e. outreach services, formal and informal home care).
• Study on the readiness of the current health system (for trained human, material, administrative and regulatory resources) to face the expected increase in the numbers and percentage of older people, and deal with their diverse multiple needs.

• Study on the elderly people's satisfaction with the services provided by health institutions, outreach services, and home care.

• Pilot study on elderly vaccination with chronic cardiopulmonary disease patients (especially against influenza etc.)

• Cohort study in elderly measurement and quality of life (QOL).

5. Disability, Handicap and Rehabilitation

• Study of the prevalence of disability and handicap, types, causes and the affected age groups.

• Study of the difficulties faced by people with disability and handicaps status in practicing the activities of daily life and the quality of life; and the role of the family, government, private and voluntary institutions to face these difficulties and improving quality of life.

• Study on the importance of effective communication between the health sector and other sectors to enhance the health of people with disability status

• The extent of the capacity and efficiency of the provided health services.

• Study on the average waiting time for the various groups in getting prosthetic devices, treatment and follow-up.
  • Patients' satisfaction with providing prosthetic devices, and access to treatment.
  • Study on the psychological and social status and support of handicapped persons

6. Health Promotion

Health promotion strategies are not limited to a particular health problem, or to a specific set of behaviours. World Health Organization (WHO) as a whole apply principles and strategies to enhance health as a whole, and targeted them to a
various segments of population, the risk factors and diseases, in different circumstances.

The health promotion and associated efforts have developed in curricula, education activities, community development, policies, legislation and regulations. It is valid also for the prevention of communicable diseases, accidents, injuries, violence, nutrition, environment, hygiene, and psychological problems, as they are also for the prevention of chronic non-communicable diseases.

**Health promotion includes the following research priorities:**

- Implementation of studies on important health issues, healthy lifestyles, social determinants of health, and equity in access to get quality service between all segments of society.
- Implementation of intervention studies to raise the level of health awareness and changing lifestyles among community members.
- Study the importance of effective communication and coordination between the health sector and other sectors to promote health.
- The impact of health education on the information and health behaviours of society especially vulnerable categories (children, students of schools, adolescents, pregnant mothers, the elderly, patients with chronic diseases...).
- Study of traditional practices for the treatment of psychological diseases (the reasons for peoples ‘reluctance to medical treatment, and their choice of traditional therapy).
- Study on concepts and harmful habits, and their impact on health.
- Study on the way community can participate in the implementation of health programs, and promote the community.
- Study on the prevalence of drug abuse by citizens, as well as the misuse of drugs by medical staff.
- Study on reviewing and evaluation of curriculums, activities in public and private schools, and colleges in order to update and add information and practices related to public health and healthy lifestyles, and linked them with the significant health problems in the Sultanate.
- Study on the effect of providing a healthy work environment on career performance.

### 7. Communicable Diseases

- Study on HIV/AIDS (Acquired Human Immunodeficiency Syndrome):
  - Estimation of Incidence, prevalence and risk factors in the Omani population
  - Sources and transmission pattern of infection.
  - The impact of health education on reducing the incidence of infection.
  - Impact on psychological and social factors of patients who are infected by HIV.
  - Morbidity and mortality rates associated with HIV/AIDS and associated complications.
  - Efficacy of therapeutic intervention.
  - Impact of the National Programme on HIV AIDS
  - Burden of illness - National point of view

- Studies on Viral Hepatitis:
  - Incidence, Prevalence of Viral Hepatitis and its consequences on the liver.
  - Risk factors including characteristics of people who are most vulnerable to infection.
  - Sources and methods of transmission
  - Identifying the genetic composition of the virus hepatitis B, and its relationship to respond to vaccination (genetic, sero-epidemiological studies). Sero surveys of the population and vaccination strategies

- Study on the epidemiology of human papilloma virus (HPV) with particular reference to carcinogenic strains and potential cost-benefits of vaccination and or screening for the early detection and prevention of cervical carcinoma.

- Studies on the reasons for the re-emergence of some infectious diseases which are listed in vaccinations schedule despite vaccination: sero-epidemiological and operational studies (such as Hepatitis B, Mumps, Chickenpox, etc.).

- A study to assess the ability to detect infectious diseases especially emerging infectious diseases and assess the required response by achieving surveillance
and monitoring system, in addition to an effective epidemic response, in accordance with the requirements of international regulations.

- Investigate coordination and cooperation with relevant ministries to monitor and survey animals’, rodents, and transmitted infections to humans (zoonotic diseases such as brucellosis, and tuberculosis), as well as vector-borne diseases (such as insects, and snails especially schistosomiasis).
- Identification and monitoring the antibiotic drug resistance and its impact on health outcome and cost.
- Incidence, prevalence, aetiology and prevention of Hospital Acquired Infections (health care providers and Patients) and its impact on health outcome and burden of disease
- Exploratory study on vaccination coverage on patients with chronic cardiac and respiratory diseases (especially against some bacterial and viral infections... etc.).
- Study two weeks period Prevalence rates of diarrheal and acute respiratory diseases amongst children;
  - Risk factors and aetiology (causative organism)
  - Management options (particularly rehydration and feeding practices during illness...) and preventive measures
  - Contribution to malnutrition (frequent illness and inadequate nutritional rehabilitation)
  - Health service utilization by those affected and evaluation of diseases burden on health services and their families.
  - Comparing the number of cases identified in the study with the recorded cases in health institutes in the same period and place (to identify the under-reporting and home and self-management)
  - Role of Rota Virus in the prevalence of child hood diarrhoeas and role of potential vaccines.
- Studies are needed to prevent the phenomena of roll back in Oman:
  - Tuberculosis: Studies to identify the causes of stationary or slightly on the rise during the last few years in order to improve the impact of the control program.
• Malaria: Studies to determine the reasons for the increasing incidence of malaria cases in the last few years in order to identify measures to enhance the programme.

• Utilization of Private Health sector by patients with notifiable infectious disease and evaluation of reliability of the infectious disease notification by the Private Health Sector.

• Study to identify the trend and personal characteristics among expatriates who contract infectious disease - Especially AIDS, viral hepatitis, tuberculosis and malaria.

• Impact of episodic epidemics (H1N1, SARS virus, Corona Virus etc) on the health system and the preparedness of the health delivery system to meet the challenges posed by them.

• Expanded Programme of Immunization (EPI):
  o Evaluating the impact of the National EPI and evolve evidence based strategies for introducing newer vaccines.
  o Evaluating and determining strategies to maintain the achievements of Vaccine Preventable Diseases (VPD).
  o Impact of decentralizing EPI programme to the Regions and Wilayats.
  o Economic evaluation and re-evaluation of material requirement (human resource and finances) for enhancing EPI.
  o Impact of Influenza vaccine and economic analysis of their use
  o Study the potential impact and cost-benefit of vaccination strategies that are meant to cover adolescents, adults and elderly.

• Evaluation of Community awareness and involvement in health care delivery and identifying measures to enhance the control of communicable diseases.

8. Malnutrition

• Identifying the dietary habits, trends, and the extent of its achievement to balanced food for family members.

• Study how to change unhealthy dietary habits according to age groups, and type of disease.
• Study on the rate, trend and causes of malnutrition on children in particular “protein and energy malnutrition”.
• Identifying the prevalence rate, and risk factors for overweight and obesity in adults.
• Study on the types and prevalence rates of anaemia in different age groups, in terms of gender, and geographical distribution.
• Evaluation of interventions to control anaemia at the level of health institutions, and community interventions.
• A study to find out the prevalence rate of micronutrient deficiencies and its causes and its relationship to food practices.
• Study on rehydration practices, proper feeding, and nutritional rehabilitation during the common childhood illnesses, such as diarrhoea, and acute respiratory infections
• Nutritional behaviour and practices of the family, when there is a person with a chronic disease related to nutrition (such as hypertension, diabetes, obesity, Hypercholesterolemia and iodine deficiency)
• A study on developing and improving food control procedures to ensure safe, healthy food to the community
• A study on the utilization rates of iodized salt in the family, and estimating the proportion of iodine inside salt and the body fluids, also food and water intake rich in iodine antagonists.

9. **Eye Health**

• Study on the prevalence rate, and causes of low vision, blindness and other vision problems (such as birth defects, refractive error, complications of infectious, non-communicable diseases, injuries, and aging). Identifying age groups and the governorates which are most vulnerable to vision problems according to the causative reasons.
• Study of complications resulting from diabetes, hypertension on eye health.
• Implementation of a study to determine the extent of patient's commitment in following-up and controlling NCDs in order to reduce the complications of chronic diseases on the eye.
• Evaluation of the performance of the health system in terms of prevention process and improving the eye health via distribution of preventive and curative health personnel.

• Study on community awareness regarding the prevention of infectious eye diseases, and the complications of chronic non-communicable diseases on eye health.

10. **Women and Child Health**

• Study on rates and determinants of early marriage, early and late pregnancy, short birth spacing, and methods of birth spacing, unmet needs, and lost pregnancies.

• Prevalence and causes of infertility and its social and psychological consequences.

• Study of hypertension, diabetes, urinary tract infection, toxaemia, obesity and anaemia among pregnant women, and relation to perinatal morbidity and mortality (also maternal morbidity and mortality)

• Study on the quality and adequacy of maternity care services, counselling before marriage/pregnancy, during pregnancy, childbirth and after birth and relation to the outcome of pregnancies and labour (comparison between rural and urban and governorates)

• Prevalence, determinants and outcomes of intrauterine growth retardation (IUGR)

• Identifying the signs of pregnancy complications, health education/ counselling, and advice provided from the viewpoint of a pregnant woman, and the communication between service providers and pregnant.

• Study to determine the rates of dystocia and caesarean delivery (voluntary and mandatory), and its impact on the health of the newborn and mother.

• Study to determine the ability of those who are responsible for obstetrics (doctor or nurse / midwife) to identify, referral, registration of different birth defects and the genetic disorders of newborns.

• Comparison between doctors and nurses/midwives regarding the outcomes of pregnancies and deliveries of women (antenatal and natal care) in primary health care institutions particularly in urban and rural areas.
• Study of the health status of women after menopause (in terms of psychological state, osteoporosis, female hormones, early screening for cancer etc.)

• Study the maternal mortality, physical and psychological health status (particularly depression) and health service utilization of mothers in the post-partum period (6 weeks) and policy implication.

• Study on the prevalence rate of low birth weight (causes and prevention methods) and follow up their growth until they reach the weight of normal children, what are the times required to reach normal weight?

• Study on perinatal, neonatal and infant mortality and children under five of mortality rates of delivery (causes and control measures).

• Study on breastfeeding patterns and weaning, and its relation with the growth of children.

• Follow-up study on new-born (normal, LBW and congenital anomalies& genetic disorders) till adolescent period for grow and development, survival and quality of life.

11. School and University students / teenagers

• Study on the prevalence and risk factors for obesity among children and teens.

• Epidemiological study and combating oral and dental diseases among school students./ (Assessing the impact of the program).

• Assessment of the school health program, satisfaction of school health beneficiaries, the medical reasons for the absence of students, prioritizes health problems and methods to deal with it).

• Assessment of the periodic comprehensive medical examination program of students (referral system of health institutions, follow-up, and rehabilitation).

• Cohort study using school health program including periodic examination to fellow up spurt of growth & development, behavioural and puberty changes.

• A study to identify information on behaviors ‘practices of school and university students in different lifestyles such as (smoking, nutrition, physical activity, personal hygiene, driving a car, modes of transmission of infectious and sexual diseases, violence and fights).
• A study to identify the epidemiology of eye diseases, and refractive errors among students.

• Study on IQ (intelligence quotient) for the pupils of basic and tertiary education, and the factors affecting it in terms of (nutrition, parasites, socio-economic level, learning achievements etc.).

12. **Environmental and Occupational Health**

• Study on air pollution and its relationship to public health (in terms of factories and spaces around them, areas of high-intensity traffic, crowded places).

• Study of occupational and home injuries in the Sultanate of Oman (concerning types of injuries, sites of injury, the relationship of injury with the type of work, occupational and home safety)

• Study on noisiness of traffic in crowded areas (at home and around airports)

• Study on the prevalence and the risks of food contaminants insecticides, adverse substances, and other poisonous which are used in agriculture, storage and home.