

# Professional Profile of the Medical Microbiologist

Dutch Society for Medical Microbiology

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## **Preface**

The Professional Profile for medical microbiologists describes the responsibilities, conditions and circumstances that are specific to the professional practice of the microbiologist, as adopted by the Dutch Society of Medical Microbiology. It outlines the minimum necessary conditions for the professional practice of the medical microbiologist according to the professional standard.

The medical microbiologist provides good care in the sense of the relevant legislation [Articles 2, 3 and 7 of the Healthcare Quality, Complaints and Disputes Act (Wkkgz) of the Netherlands]. This Professional Profile forms an elaboration of the obligations that apply to the medical microbiologist on the basis of the aforementioned legal provisions.

This Professional Profile finds its application in particular in policy discussions with governing bodies, such as the board of directors, management and medical board of the institution(s) to which the medical microbiologist, whether self-employed or in employment, is connected. It occupies an independent position alongside the professional service agreement, or an employment contract with a code of professional conduct.

## Article 1 Definitions

In this Professional Profile the following definitions apply:

### Department of medical microbiology

The total of spaces, personnel and material facilities of an institution intended for the execution and application of activities that fall under the authority of the medical microbiologist. The medical microbiological laboratory (if present) belongs to the department of medical microbiology. The department of infection prevention (if present) preferably belongs to the department of medical microbiology .

### Antibiotic policy

Established general guidelines for the effective and efficient use of antibiotics.

### Antibiotics Committee

The committee that determines the antibiotic policy of the institution on behalf of the medical staff .

### Antibiotics team (A-team)

The working group that promotes the correct use of antibiotics in the institution on behalf of the medical staff, for example through antibiotic stewardship.

### Antibiotic Stewardship

The set of activities (such as educational outreach, refresher courses, monitoring of antibiotic use and improvement projects) that aim to promote the effective and efficient use of antibiotics.

### Collaboration

The professional group (in case of employed appointment ) or partnership (in case of self-employment) of medical microbiologists who provide medical microbiological services to an institution.

### Colleague

Physician, with or without specialist training, (house officer, registrar/resident, fellow, nursing home physician, general practitioner, medical specialist, etc.).

### Employee

Person working in health care not directly involved in patient care (departmental secretary, technical service personnel, etc.).

### Epidemiology of infectious diseases

Study of the occurrence and spread of infectious diseases and transmissible micro-organisms in the widest sense.

### Healthcare worker

Person working in health care and directly involved in patient care ( nurse, midwife, physiotherapist, etc.) .

### Infection prevention

All activities aimed at preventing (cross-)contamination of patients and employees within

the institution and the prevention of nosocomial infections.

Infection prevention committee

Hospital Committee with representation from all sectors that advises the board of directors on policy relating to infection prevention.

Infectious disease

Infectious disease is here understood to mean both infectious disease *sensu stricto* and infection caused by a non-specific causative agent.

Institution

Hospital, with or without its own medical microbiology laboratory, as well as independent laboratory organizations that perform medical microbiological research for the benefit of third parties (hospitals, nursing homes, general practitioners, etc.) in the context of patient care.

Medical microbiologist

The physician with specialist expertise acquired through specific training, recognized by registration as a medical microbiologist in the register of recognized medical specialists. Where this document refers to 'he', 'him', 'his', etc. one can also read 'she', 'her', etc.

Medical microbiology laboratory

The total of spaces, material and personnel facilities, intended for the conduct and application of activities falling under the authority of the medical microbiologist.

Patient

The person, within or outside the institution, to whom care is directed, and on whose behalf the assistance of the physician microbiologist is called upon.

Peer consultation

Advice of a medical microbiologist to a colleague.

## **Article 2 Basic principles : the integrated task set**

The function of the medical microbiologist is to provide support in the field of infectious diseases to colleagues, healthcare workers and employees working both in and outside healthcare institutions. This functions consists of fulfilling a number of tasks:

1. laboratory diagnostic investigations ;
2. peer consultation ;
3. laboratory management ;
4. Policy making and development of protocols and guidelines ;
5. Infection prevention and epidemiology of infectious diseases ;
6. Antibiotic stewardship ;
7. Public health care ;
8. Educational outreach, teaching and training ;
9. Scientific research .

These tasks are strongly intertwined and cannot be separated without affecting the quality of the fulfilment of the individual tasks and thus of the fulfilment of the overall function of the medical microbiologist. They constitute a so-called integrated task set. For the proper performance of these tasks, it is necessary that the medical microbiologist maintains a good overview of all medical microbiological diagnostic investigations carried out on a patient.

The enumeration of the abovementioned tasks is laid down in the Integrated Quality Framework (IQF) of the Netherlands' Association for Medical Microbiology (NVMM). The IQF further specifies a number of quality requirements with regard to professional competences, organization and embedding of medical microbiological care. In addition, a number of general and subject-specific rights and obligations follow from the abovementioned tasks of the medical microbiologist, which are elaborated further in the articles in this Professional Profile. The quality requirements that the NVMM sets for the professional competences of a medical microbiologist as laid down in the IQF are of great importance for the professional group. For this reason, the IQF is appended to this Professional Profile and forms an integral part of it.

A medical microbiologist serves as a member of a collaboration of medical microbiologists that collectively ensures that the tasks and responsibilities of the medical microbiologist are completed fully. If desired, one of the members of the collaboration can act as point of contact. Continuity and quality of care is guaranteed by adequate information sharing and feedback within the collaboration.

The institution enables the medical microbiologist to perform his full function according to the current Professional Profile. The medical microbiologist is a member of the institution's medical staff. Staffing of medical microbiologists in relation to the catchment area should be adequate to allow the full implementation of the integrated task set.

The medical microbiologist plays a central role in the infectious disease care chain, also in the context of public health care. To that end the medical microbiologist maintains contacts with and can provide services to all members of that care chain, such as hospitals, nursing and care homes, general practitioners, district nurses and public health institutions. [In the Netherlands: GGD (municipal health departments) and RIVM (national institute for public health and the environment)]

In view of the field of activity of the medical microbiologist and the associated integrated task set, the following applies to patient care both within and outside the institution, unless explicitly stated otherwise.

### **Article 3 Medical microbiological investigation**

- 1 . The medical microbiologist carries out investigations with regard to the diagnosis and treatment of infectious diseases for the benefit of patient care, as well as for epidemiology and infection prevention both in the institution and beyond; where necessary in a team and in collaboration with other colleagues, and other healthcare workers and employees, insofar as the request for investigation(s) is deemed qualified. Medical microbiological laboratory diagnostic investigations represent a form of peer consultation.
- 2 . The aforementioned medical microbiological laboratory investigations include in particular, but not exclusively, the following :

- detection in the broadest sense, of micro-organisms (bacteria, fungi, viruses, parasites , prions, etc.), their components and their products, as well as assessment of their properties (susceptibility to antimicrobial agents, typing, etc.);
  - the detection of antibodies against the above micro-organisms, their components, their products, regardless of the type of antibody, including differentiation in type of antibody;
  - the detection of specific cellular immune responses against the above microorganisms .
- 3 . Responsibility for the implementation and outcome of the investigations outlined in Article 3, paragraph 2, as well as the responsibility for their adequate reporting and interpretation both in a technical and medical sense, rests with the medical microbiologist.
  4. Requests for medical microbiological investigations from within an institution are submitted through the medical microbiological laboratory associated with this institution. The medical microbiological laboratory conducts this research itself for the greatest part. In the case of specialist investigations, the medical microbiologist may decide to outsource the investigation elsewhere, based on considerations of efficiency or because the medical microbiologist cannot reasonably assume the responsibility for the investigation requested.
  - 5 . If the medical microbiologist, in a situation referred to in the preceding paragraph, wishes to forward the requested investigation to another laboratory, he determines, on the basis of qualitative and organizational considerations, to which medical microbiology laboratory it can best be outsourced.

#### **Article 4 Department of medical microbiology and medical microbiological laboratory**

1. The institution shall ensure at all times that the medical microbiologists have a microbiological laboratory available, in the institution or elsewhere, at the disposal of the medical microbiologists working there, enabling them to carry out their work in accordance with the applicable professional standards, including this Professional Profile. This laboratory should be in a condition such that the requirements relating to technical needs, safety, operational reliability and scientific rigor are met. The institution guarantees at all times that the medical microbiologist has access to information relevant to his professional practice.

Should the medical microbiologist notice that the aforementioned conditions are not met, and work cannot be carried out in accordance with applicable professional standards, he shall notify the institution as soon as possible, and indicate the degree of urgency and, if possible, present a proposal for improvement.

The medical microbiology laboratory is accredited in accordance with the quality standard supported by the Netherlands' Society for Medical Microbiology (NVMM) .

- 2
  - a. The medical microbiologist is personally responsible for his medical work.
  - b. The medical microbiologist bears the medical responsibility for the department of medical microbiology. The medical microbiologist will make every effort to ensure that the institution makes available all the resources and materials that are necessary for proper performance of the tasks of the medical microbiologist, so that the medical microbiologist may bear responsibility appropriately and in accordance with professional standards. If the medical

microbiologist cannot adequately assume medical responsibility in the aforementioned sense, the medical microbiologist will notify the (board of) his institution thereof.

- c. The medical microbiologist is at least co-responsible for the organization and the budget of the department of medical microbiology and should - where he considers it necessary to provide good care - be able to consult directly with the board of the institution with which the medical microbiology department is affiliated. The medical microbiologist will make every effort, but within the limits of what is reasonably possible, to ensure that decisions are taken within the institution that are in the interest of good care provision and that measures are taken to ensure patient safety.
  - d. In the case of a collaboration of medical microbiologists, its members determine, preferably of their own accord, which of them, and for which part, acts as the internal and / or external point of contact, or is responsible for the management of the medical microbiological laboratory.
  - e. The collaboration of medical microbiologists preferably takes decisions on the basis of consensus. If consensus cannot be reached, the medical microbiologist will always act in accordance with his professional standards and decision-making will focus on providing responsible care.
- 3 a. The medical microbiologist is responsible for
- providing instructions related to the sampling of patient materials, the tools and receptacles to be used, and logistics related to patient materials intended for medical microbiological investigation for patient care both inside and outside the institution;
  - Maintaining an insightful administrative system for the recording and reporting of the results of laboratory diagnostics for the purpose of patient care, epidemiology and infection prevention, as well as relating to the administrative aspects of the laboratory, such as finances, flow of goods and the like;
  - drawing up and maintaining, in accordance with the usual standards of the profession, guidelines for investigations carried out under his responsibility, as referred to in Article 3 (2);
  - participating in activities of one or more external organizations that target quality control and quality improvement of medical microbiology in the broadest sense;
  - monitoring safety in the laboratory, of both employees and third parties, with regard to contamination risks associated with different categories of micro-organisms and taking into account the legally determined physical containment levels based thereupon ;
  - being sufficiently connected with and physically present at the medical microbiological laboratory where he is appointed
- b. The medical microbiologist is at least co- responsible for good personnel policy covering the employees entrusted to his care, with regard to working conditions, conditions of employment, and workload, in accordance with the guidelines in force in the institution. The medical microbiologist endeavours to achieve a safe culture for colleagues and employees
- c. Based on his professional expertise, the medical microbiologist shares responsibility for the choice of procurement and acquisition of laboratory equipment, other equipment, media, reagents and other auxiliary materials, as well as their responsible use and maintenance.

## **Article 5 Peer consultation**

The medical microbiologist assists his colleagues with advice in the form of peer consultations regarding infectious diseases and the prevention of infectious diseases for the patients entrusted to them. This patient-related advice can be incidental or structured, as is e.g. usual in departments for patients at an increased risk of infectious diseases, and is not necessarily linked to medical microbiology laboratory diagnostics. Consultations are recorded in writing. At least consultations for second-line (hospital) care should be accessible in the electronic patient record of his institution.

## **Article 6 policymaking, guidelines and protocols**

The medical microbiologist initiates and/or participates in policy making and drawing up of guidelines and protocols regarding the prevention, diagnosis and treatment of infectious diseases (e.g. antibiotic policy), based on the standards accepted in the profession and often in collaboration with other colleagues, and other care workers and employees. He ensures that guidelines approved by the profession are implemented within the institution. He is a member of the hospital and medical staff committees with an assignment in line with his professional domain.

## **Article 7 Infection prevention and epidemiology of infectious diseases**

The medical microbiologist

- has at least medical supervision of the infection prevention experts working in the institution or the infection prevention department;
- provides solicited and unsolicited advice to colleagues, healthcare workers and employees, and to the institution, which aims to prevent or reduce infections or the spread of pathogenic and resistant microorganisms;
- is a member of the Infection Prevention Committee and preferably is its chair
- reports problems with respect to infection prevention to the board of directors of the institution (whether solicited or unsolicited) and is the first person in line to be delegated responsibility regarding infection prevention by the board of directors;
- is responsible for the microbiological surveillance and monitoring of antibiotic resistance in the institution, and the catchment area of his laboratory.

## **Article 8 Antibiotic Policy and antibiotic stewardship**

1. The medical microbiologist is a member of the antibiotics committee.
2. The medical microbiologist participates in the antibiotics team (A-team) of the institution and takes a leading role. As a member of the A-team, the medical microbiologist also aims to ensure that the following A-team tasks are carried out:
  - Monitoring and promoting the correct prescription of antibiotics within the institution and adhering to existing local, national or international guidelines on the treatment of patients. To this end, the A-team monitors use of antibiotics and prescribing behaviour, and initiates, where necessary, interventions aimed at improving certain aspects of the prescribing behaviour.
  - Tracking local antibiotic utilization rates and resistance issues and national trends with regard to emerging pathogens and resistant microorganisms.
  - Reporting on the quality of local antibiotic use, as described above, to the board.

### **Article 9 Public health care**

The medical microbiologist, in collaboration with local, regional and / or national government institutions, contributes to the control of infectious diseases amongst the population, in accordance with legal regulations.

### **Article 10 Information, education and training**

The medical microbiologist provides (or supports the provision of) information, education, and training in the field of medical microbiology and infectious diseases, to colleagues, healthcare workers and employees working both within and outside the institution.

### **Article 11 Scientific research**

The medical microbiologist makes every effort to conduct or to participate in scientific research in the field of medical microbiology and / or infectious diseases within the bounds of his institution.

## **Integrated Quality Framework NVMM**

NVMM board, February 2019

### **Preface**

This integrated quality framework (IQF) indicates which quality requirements must be met according to the NVMM with regard to professional competences, and the organization and embedding of the medical microbiological laboratory (MML) for the provision of good medical microbiological care. For the time being, the IQF remains an internal working document that can be used as a source document for one or more well-integrated external NVMM quality documents. These external quality documents will preferably represent updated versions of the NVMM's existing quality documents.

### **Principles of the IQF**

The NVMM is convinced that high-quality and well-organized medical microbiological services are essential for good health care and public health in the Netherlands. It is of great importance that the medical microbiologist (MM) and his department of medical microbiology (MMD) are perceived by other chain partners as an expert, present and active party with a leading role in the organization of the infectious disease care chain. With its quality policy, the NVMM aims to maximize the added value of medical microbiology services to the infectious disease care chain. The NVMM therefore takes the position that a cost-benefit analysis of these services must be carried out at the level of the integrated infectious disease care chain, and must not be limited to merely the infrastructure and management of the MML.

### **Input for the IQF**

For this IQF, use has been made of existing NVMM quality documents. These are listed in the memorandum "Towards a quality standard for Medical Microbiology," discussed at the NVMM spring meeting in 2018. In addition, the results of a survey among NVMM members (spring 2018) on subjects that were not yet clearly laid down in these quality documents were included, as well as input from the invitational conference on the IQF during the NVMM board's 2018 policy day.

### **IQF components**

The components of the IQF are listed in order below.

#### **1. General**

- a. The MM plays a central role in the infectious disease care chain. For that purpose, he maintains contact with and can provide services to all participants in that care chain, such as hospitals, nursing and care homes, general practitioners, district nurses, and regional and national public health institutions. The care chain is preferably organized regionally and inlinw with existing patient flows.
- b. The tasks of the MM have the following components: laboratory diagnostics, peer

consultation, laboratory management, policy-making and development of protocols and guidelines, epidemiology of infectious diseases and hospital hygiene, public health care, educational outreach, teaching and training, and scientific research.

- c. The tasks of a MM form an integrated task set: they are intertwined in such a way that they cannot be performed properly separately from each other
- d. In order to properly perform his tasks, the MM must have a good overview of all medical microbiological diagnostic investigations conducted on a patient.
- e. A MM acts as a member of a collaboration of MM that collectively guarantees that the tasks of the MM are fully implemented. Where desirable, this collective responsibility can be assigned to one or more members of that collaboration.
- f. Continuity and quality of care is guaranteed by adequate sharing of information within the collaboration
- g. The medical molecular microbiologist (MMM) is a medical support specialist responsible for the molecular diagnostics section within the MML, under the final medical responsibility of the MM
- h. The function of the MMM consists of conducting, coordinating and implementing molecular diagnostic and molecular epidemiological research in the broadest sense. The MMM fulfils tasks for scientific research, management, policy-making, teaching and / or educational outreach. These tasks are closely intertwined.

## **2. Laboratory diagnostics**

- a. Medical microbiological diagnostics can only be performed according up-to-date requirements under the responsibility of a MM.
- b. Medical microbiological diagnostics is performed in a MML that is accredited according to the quality standard supported by the NVMM
- c. A request for MM investigations represents a form of peer consultation
- d. The MM will not grant requested investigations if these diagnostics are not deemed appropriate. The MM can suggest additional investigations to the requesting party where this would be useful. Where necessary, the MM will consult with the requesting party on this matter
- e. Requests for medical microbiological investigations from within a health care institution are submitted through the MML associated with this healthcare institution. The MML performs most of these investigations itself. Specialist research that the MML cannot perform is outsourced to an MML that is equipped for this
- f. The MM is responsible for referring research to other MML
- g. The MM initiates, if necessary in consultation with the requesting party, targeted follow-up investigations based on the clinical context and his professional insight
- h. The MM has direct access to the diagnostic tools and sources of information from the MML that are relevant to his position and is responsible for the correct conduct of investigations
- i. The MML is open for regular diagnostics at least during office hours and a number of hours per day at weekends and on public holidays
- j. Urgent laboratory investigations can be performed 24/7 under the responsibility of the MM
- k. The MML accepts applications from professionals as referred to in relevant legislation

[Netherlands: Article 3 of the Act (on) Professions in Individual Healthcare (BIG)], unless they are not considered qualified and competent to assess the result based on their field of expertise and training requirements. An exception to this is formed by STD diagnostics. In this case, an MML can also process diagnostics directly requested by patients.

- l. Results of investigations are not shared directly with the patient but reported to the qualified health professional who requested the investigation. The requester of the diagnostics forms the contact person for the MM for communication regarding results. Results of STD diagnostics can only be reported directly to patients if it is ensured that the patient can consult a qualified health professional for counselling.
- m. An MML does not offer components of its diagnostic package to requesting parties outside its catchment area with whom it does not maintain a relationship in the sense of the integrated task set. This does not include specialist investigations that are carried out for other MML.

### **3. Consultative tasks**

- a. In principle, an MM only provides consultations in relation to medical microbiological investigations that were carried out under his (co-) responsibility
- b. An MM is personally responsible for adequate consultation regarding these investigations
- c. The MM consultation function spans the entire spectrum of infectious diseases
- d. The MM is available for consultation 24/7
- e. The MM actively strives to participate in structural and incidental multidisciplinary consultation.

### **4 Professional policy**

- a. The MM section regularly consults with requesting parties regarding effective policy on investigations
- b. The MM section maintains an unambiguous policy with regard to advice on diagnostics, antimicrobial therapy and infection prevention
- c. The MM section works according to common guidelines within the field of medical microbiology
- d. One or more members of the MM section are members of the antimicrobial therapy committee
- e. The MM section actively participates in antibiotic stewardship policy and is a member of the A - (antibiotic stewardship) team.

### **5 Infection Prevention and Public Health**

- a. The MM provides solicited and unsolicited advice in the field of infection control
- b. The MM is at least medically responsible for the infection control department
- c. The Medical Microbiology and Infection Prevention departments are preferably integrated
- d. There is a clear division of labour between MM and infection prevention specialist
- e. The MM has an active role in drawing up infection prevention policy
- f. The MM takes on leadership in outbreak management
- g. The MM preferably is the chairperson of his institution's infection control committee
- h. The MM contributes to the prevention of infectious diseases amongst the (wider) population

- i. The MM is actively involved in infectious disease surveillance
- j. The head of the MML is responsible for reporting notifiable diseases to the municipal health department
- k. The MM is jointly responsible and medically responsible for the management of the diagnostic data of the MML and the conditions under which these are made available to third parties.

## **6. Organization**

- a. The MM has final medical responsibility for the MMD
- b. Adequate organization of the internal infectious disease care chain is important for patient safety throughout the care institution. Therefore, the MM must at least be jointly responsible for the organization and budget management of the MMD and - where the MM deems this necessary for the provision of good care - must be able to consult directly with the Board of Directors of the care institution to which the MMD is connected
- c. The MML is set up in such a way that, on the basis of clinical information, relevant data can be reported (provisionally) as quickly as possible
- d. There is a clear division of tasks between MM and MMM, with the MMM being responsible within his area of expertise for conducting and reporting investigations under the ultimate medical responsibility of the MM
- e. The MMM is also responsible for organizational, personnel and budgetary matters within his area of expertise, under the ultimate responsibility of the organizational leadership of the MMD
- f. Collaboration with other laboratory disciplines is possible if the professional responsibility of each discipline is respected by all parties and the other requirements mentioned in this IQF are met.

## **7 Professional development , education and scientific research**

- a. The MM section ensures that it, as a whole, remains informed of developments in the field of medical microbiology
- b. The MM meets the requirements for periodic re-registration
- c. The MM provides teaching and continuing medical education to members of the medical staff and junior doctors
- d. The MM actively offers continuing medical education to general practitioners and nursing home doctors in his catchment area, for example through participation in multidisciplinary consultations
- e. Within the bounds provided by his institution, the MM initiates or participates in scientific research in the field of medical microbiology and infectious diseases.

## **8. Local and regional embedding**

- a. At least one of the MM is affiliated as an ordinary staff member to each hospital to which his MML provides services; the other MM involved are affiliated at least as extraordinary staff members
- b. It is undesirable for an MM to be associated with more than two hospitals, except for duties outside office hours and in the context of short-term replacements

- c. The MM is familiar with the hospital's staff and employees, culture and working practices, and has good contacts with relevant parties within the hospital
- d. The MM ensures that, in addition to the activities listed under 3e, 4d,e, and 5f,g, he participates fully in administrative activities of the medical staff.
- e. Implementation of the integrated task set in the hospital benefits from having an in-house MML. When the MML is housed outside the hospital, the MM ensures sufficient physical presence within the hospital, notwithstanding his direct responsibility for the correct performance of laboratory diagnostics. In that case, there is at least a small urgent / satellite laboratory located inside the hospital.
- f. The distance between the hospital and the MML is such that the MM can credibly fulfil his integrated task set, and that the execution of urgent investigations in particular is not hindered by this distance. Indicatively, a maximum travel time of 20 minutes can be assumed for academic and teaching hospitals, and 60 minutes for other hospitals
- g. The MM has good contacts with the municipal health department and other relevant parties in the region to be able to fulfil his public health tasks and to act effectively in the event of outbreaks
- h. The MM actively participates in regional antibiotic stewardship programs [Netherlands: antibiotic resistance (ABR) networks]
- i. The MM contributes to the regional coordination of infection prevention policy of healthcare institutions and general practitioners
- j. The MMD strives for regional cooperation and regional availability of diagnostic data (anonymised where necessary). Responsible regional sharing of medical microbiological diagnostic data requires structural alignment of both protocols and interpretation of primary diagnostic data between participating parties, and agreements on management of and control over the provided data.