

Robotic surgery

For medical specialists

*Basic proficiency requirements for
the safe use of robotic surgery*



These proficiency requirements have been determined as a result of the work of the expert group comprising:

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The following were involved on behalf of the NIVEL

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Dear reader,

The proficiency requirements you are looking at have been developed by the NIVEL in collaboration with a number of experts in context of the project “Proficiency of users of medical technology”. The aim of this project is to work for and with the sector in the development of a practical and feasible generic road map to ensure that the users of medical technologies have the required knowledge and skills. An element of this is the development of proficiency requirements for three specific technologies, that is to say robotic surgery, infusion technology and electrosurgery. The proficiency requirements for the use of robotic surgery have been developed for the medical specialist and the theatre nurse, but comparable proficiency requirements also could be developed for other members of the operation team in the future. The version you are reading here is the version for medical specialists.

The proficiency requirements have been developed during two meetings with an expert group, consisting of a surgeon, a urologist, a gynaecologist, a theatre nurse, a clinical physicist and test developers. These proficiency requirements are the minimum proficiency requirements in order to make use of robotic surgery safely. In other words, what someone must be able to do as a minimum in order to be able to work with robotic surgery. The total proficiency of a person or team is more than that which is described by these proficiency requirements but these requirements form the essential basis. In addition, teamwork is an important element in the use of robotic surgery, and this is something which is not specifically included in the proficiency requirements.

These proficiency requirements can be used in the training of medical specialist and also for more advanced medical specialists in order to assess whether their proficiencies are still sufficient. The proficiency requirements can be used as part of a training schedule or as part of a test to be taken. These requirements have been produced generically so that they can be adjusted to a local context.

The research team

Robot functionalities	
1.1	The medical specialist can name the advantages and limitations of the use of the operating robot
1.2	The medical specialist can demonstrate how the arms are brought into position
1.3	The medical specialist can demonstrate how the trocars can be connected to the arms
1.4	The medical specialist can name what the options and degrees of freedom are of the arms
1.5	The medical specialist can describe the functionalities of the tower
1.6	The medical specialist can describe the functionalities of the robot
1.7	The medical specialist can describe the functionalities of the console
1.8	The medical specialist can demonstrate how collisions between the arms of the robot can be dealt with
1.9	The medical specialist can name how the arms of the robot can be fixated
1.10	The medical specialist can name how control of the arms can be taken over from the console
1.11	The medical specialist can describe what to do if the instruments do not move/react well
Image	
2.1	The medical specialist can name how the laparoscopic instruments are brought in under view correctly
2.2	The medical specialist can name why the instruments outside the image have to be sought with the camera
2.3	The medical specialist can explain what the various on-screen icons mean
Preparation	
3.1	The medical specialist can demonstrate how the robot can be moved around safely
3.2	The medical specialist can demonstrate how the robot can be connected safely
3.3	The medical specialist can demonstrate how the robot is positioned
3.4	The medical specialist can demonstrate how the robot is docked
3.5	The medical specialist can demonstrate how instruments are put into place and how they are exchanged
3.6	The medical specialist can explain and demonstrate how the service lives of the instruments can be checked
3.7	The medical specialist can describe how they take into account beforehand that the table can no longer move after docking
3.8	The medical specialist can demonstrate how the patient can be brought into position safely
3.9	The medical specialist can demonstrate how the patient is fixated in place
3.10	The medical specialist can demonstrate how patients' faces are protected during the procedure
Console functionalities	
4.1	The medical specialist can demonstrate how the console can be set in an ergonomical manner
4.2	The medical specialist can demonstrate how the camera can be operated from the console
4.3	The medical specialist can demonstrate how the camera is moved and zoomed in and out
4.4	The medical specialist can demonstrate how the instruments can be moved

4.5	The medical specialist can demonstrate how there can be changed between arms
4.6	The medical specialist can demonstrate how monopolar and bipolar coagulation can be activated
Communication	
5.1	The medical specialist can name what has to be discussed with the an aesthetist beforehand specifically in the area of robot operations
5.2	The medical specialist can demonstrate that he / she can give good instructions in line with the closed loop principle due to the lack of eye contact and view of the medical specialist on the patient
Emergency situations	
6.1	The medical specialist can demonstrate how to convert in an emergency situation
6.2	The medical specialist can demonstrate how the robot can be disconnected with the help of an Allen key
6.3	The medical specialist can name where the sterile Allen key is kept
6.4	The medical specialist can describe where the robot's emergency stop is located
6.5	The medical specialist can describe how the pressing of the emergency stop can be reversed
Power supply	
7.1	The medical specialist can name how to handle a cut in the power supply