nederlandse vereniging voor Medische Microbiologie

# NEDERLANDS TIJDSCHRIFT VOOR MEDISCHE MICROBIOLOGIE

Supplement bij vierentwintigste jaargang, maart 2016

Voorjaarsvergadering van de Nederlandse Vereniging voor Medische Microbiologie (NVMM) en de Koninklijke Nederlandse Vereniging voor Microbiologie (KNVM)

**Papendal, 22 & 23 maart 2016**
**Programma-overzicht**
**Abstracts**
**Auteursindex**

24e jaargang . maart 2016 . Supplement

The University of Applied Sciences in our domain have to take measures to anticipate for the decrease in job positions. These measures have to be taken in close collaboration with the professional field.
So how do we prepare our students Microbiology for the future? What kind of competences, knowledge and skills is required?

### O081

**General discussion onderwijsvernieuwing: Kiest u maar!**

MW Reij[1], E. Hilhorst[2]
[1]*Wageningen University, Laboratory of Food Microbiology, Wageningen,* [2]*Hogeschool Utrecht, Institute for Life Sciences & Chemistry, Utrecht*

Hoe gaan we de toekomstige generaties microbiologen in Nederland opleiden? Nu veel microbiologisch werk geautomatiseerd is en deelonderzoeken uitbesteed worden aan gespecialiseerde laboratoria, zullen de taken van microbiologen over paar jaar anders zijn dan voorheen. Waarschijnlijk zullen zij veel minder klassieke technieken toepassen en meer tijd doorbrengen achter de computer om moleculaire data te analyseren. En hoe bereiden we onze collega's microbiologen van de toekomst voor op de snelle technische ontwikkelingen op het gebied van big data?
Onderwijsinstellingen volgen de arbeidsmarkt, maar zij moeten nog verder vooruitkijken dan de markt. En dat willen we vandaag doen samen met u, de specialisten in het werkveld. Wat verwacht u van uw toekomstige collega arts-microbioloog? Of, welke eisen stelt u over een paar jaar aan een sollicitant die uw onderzoeksteam wil komen versterken?
Aan de hand van een aantal stellingen willen we met u bediscussiëren welke competenties en vaardigheden prioriteit hebben en welke niet meer in de opleiding van de aanstaande microbioloog hoeven voor te komen. Kiest u maar!

### O082

**Team-based learning in a medical microbiology course**

S.A.J. Zaat, Y. Pannekoek, A. van der Ende
*AMC, Department of Medical Microbiology, Amsterdam*

Team-based learning is a novel approach to teaching, designed to enhance active participation and motivation of students in their learning process, make them more accountable for their performance (and presence), make them learn how to effectively work together as a team, learn from each other in the process, and have fun in doing so!
The basic steps in team-based learning are (i) individually study materials (book chapters, articles) selected by the teacher to provide the student with basic knowledge on a particular subject. This knowledge is tested in a socalled iRAT, the individual Readiness Assessment Test, consisting of 10-20 multiple choice questions. The students make the test but do not yet get the answers. (ii) They then immediately do the same test as a team, the tRAT, and are subsequently provided with the answers. In case they have objections to particular questions or answers they can file written, argumented appeals which are discussed with the entire group. This can lead to question retraction or change in scoring. (iii) The third step is a much more elaborate exercise, the 'Application'. The student groups all receive the same assignment and need to find answers to a number of questions. By studying and discussing the provided documents they need to reach one answer to each question which the entire Group agrees upon. In a plenary session, the groups then need to defend to the other groups why they have chosen a particular answer. The teachers will provide different viewpoints to deepen the discussion and to help reach a final well-argumented conclusion.
We have designed and performed a short team-based learning module in the 2015 course 'Advanced Medical Microbiology' of the Master Biomedical Sciences of the University of Amsterdam. The subject of this module was 'Vaccination against Group B meningoccal disease'. The outline of the module and the experience in running the program will be presented. The experience of both the students and the teachers, all novices to team-based learning, was absolutely positive.

### O083

**How to stimulate students to design their own microbiological experiment?**

I. Jongenburger, W.C. Hazeleger
*WUR, Laboratory of Food Microbiology, Wageningen*

In the course Advanced Food Microbiology at Wageningen University, Master students design their own experiments from scratch based on their prior knowledge gained in previous courses. This group of students has diverse backgrounds, levels, and nationalities (25 different nationalities in group of 93 students). The number of students has increased from 57 (2010) to 93 (2015) and is expected to increase even further in the future. During the practical course of two weeks, the students (groups of 3) design two experiments. One experiment is the preservation experiment, in which the students apply a preservation technique on a chosen fresh product. The development of spoilage microorganisms in the preserved product is investigated during a specific storage time and temperature. After the preservation they observe the structural characteristics of the food product. The students have one

afternoon to work on the design. In the current set up, we experienced the following issues:

- Students have difficulties in designing the experiments.
- Students need approval by staff for the experiments they need to perform, which is time consuming.
- Students have to hand in a list of media and confirmation test for their experiments.

To solve these issues we developed an e-learning case using the online LabBuddy™-tool (http://www.labbuddy.net). During this case, students designed their preservation experiment in the experiment designer (ExperD). In the laboratory, they were supported by the web laboratory manual (webLM). Both ExperD and webLM are part of LabBuddy™.The aim of the tool is to design an experimental set-up for the determination of certain groups of spoilage microorganisms. The design tool has the following features:

- to assist student to choose a combination: product, preservation technique, storage conditions, relevant spoilage microorganisms to investigate.
- to assist student to order the correct number of media
- output is a shopping list of media, which can be used to order the media (Excel file).

The outline of preservation case in LabBuddy™ is as follows. To brush up prior knowledge, the linear case starts with an introduction containing the topics: microbial spoilage, shelf life, growth rate and its influencing factors, spoilage associations, characteristics of specific spoilage organisms, including 5 questions. Then, the experiment is discussed: explanation of the preservation experiment, demonstration of ExperD in a clip. Subsequently, the students use ExperD to design their experiment by choosing a fresh product, preservation technique(s), storage temperature(s) and microbiological tests. The microbiological tests are linked to an online manual with protocols. The output is a shopping list with correct number of media. Although not obligatory, the students can discuss their design or shopping list with the supervisors.

In January 2016, the new set-up of the practical course was introduced. The design tool reduced an overload of information, and provided just in time (JIT) feedback, and a link between design and protocols. The students asked less questions and after filling in the shopping list correctly, they did not need approval by the staff to order media. Furthermore, the media for all groups could easily be ordered and distributed by using a clear and coherent digital shopping list. The experiences of supervisors and students have been evaluated, as well as a survey among 80 students. These results will be presented. Our first impression was very positive, and this innovation is promising for other courses.

**O084**

**Gamification in laboratory education**

E.M. van Hove
*ROC Midden Nederland, Laboratoriumonderwijs, Amsterdam*

Reimagine education with gamification! Gamification, the use of online game elements, is not yet adopted in education. The tool 'Achievements' recently became available in the virtual learning environment of Blackboard. With this new tool a digital badge system can be designed within Blackboard, in which students are challenged to learn more. Students can 'win' digital badges by completing assignments and tests. In classes microbiology every week my students make a formative test in Blackboard. They do the test as many times as they want. Blackboard generates everytime different questions and provides immediate feedback. If the test is completed, students earn a digital badge on one of the three levels: *novice, intermediate* or *expert*. Making progress tests is one of the most effective learning strategies. Using digital badges is an extra incentive by which the progress tests are made even better. In this presentation the use of digital badges in classes microbiology is demonstrated.

**O087**

**West Nile and Usutu viruses: high chance of transmission by north-western European mosquitoes**

G.P. Pijlman
*Wageningen University, Laboratory of Virology, Wageningen*

**Background:** West Nile virus (WNV) is a highly pathogenic flavivirus (family *Flaviviridae*). The introduction of lineage 1 WNV into North America caused the largest outbreak of neuroinvasive disease to date. In southern Europe, a highly pathogenic lineage 2 strain has recently established itself, causing annual outbreaks. Additionally, the related flavivirus Usutu virus (USUV), has also recently emerged in Europe. Both WNV and USUV are transmitted between avian amplifying hosts by *Culex* species mosquitoes and infect humans and horses incidentally. USUV and WNV co-circulate in parts of southern Europe, but the distribution of USUV extends into central and north-western Europe. To estimate if WNV can also expand its distribution it is key to know if mosquitoes from WNV-free areas can support further spread.

**Methods:** We determined the vector competence of north-western European and American *Culex pipiens* mosquitoes for both WNV lineages and compared it to that of USUV. We orally infected mosquitoes with lineage 1 or 2 WNV or USUV and determined the infection and transmission rates. We explored reasons for vector competence differences by comparing intrathoracic injections versus