

# Validating checklists for OSCEs at the Vetsuisse-faculty University of Bern

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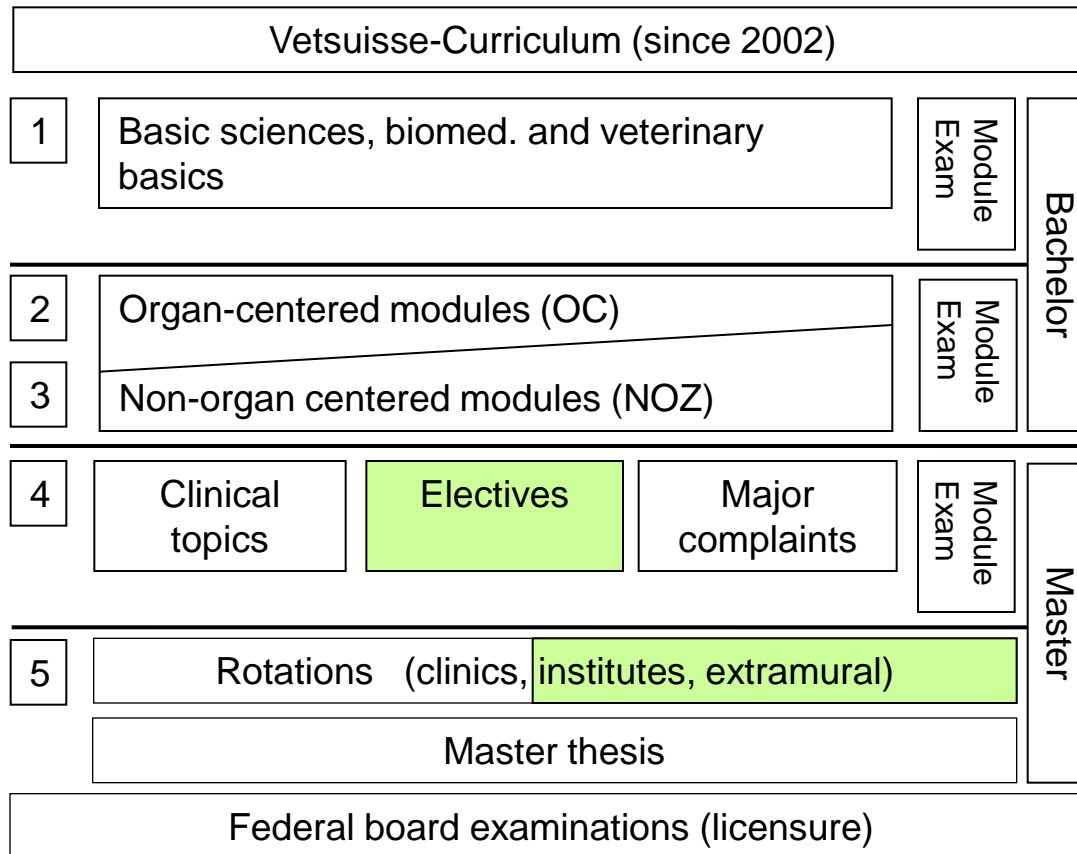


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## Validating checklists for OSCEs

1. Vetsuisse-Curriculum and skills-lab
2. Pilot skills-station scrubbing / gloving / gowning
3. Validation of Checklist of pilot station
4. Lessons learned for pilot-OSCE 2016

# Vetsuisse curriculum



Core

Elective

## Skills lab: Objective

### Objective of the Skills-Lab

Learning / practicing of „day-one skills“ on model

- Students are better prepared for practice and clinical rotations of year 5
- ↓ Stress
- ↑ Motivation



## Integration into the Curriculum

Years:

- 2 - 4

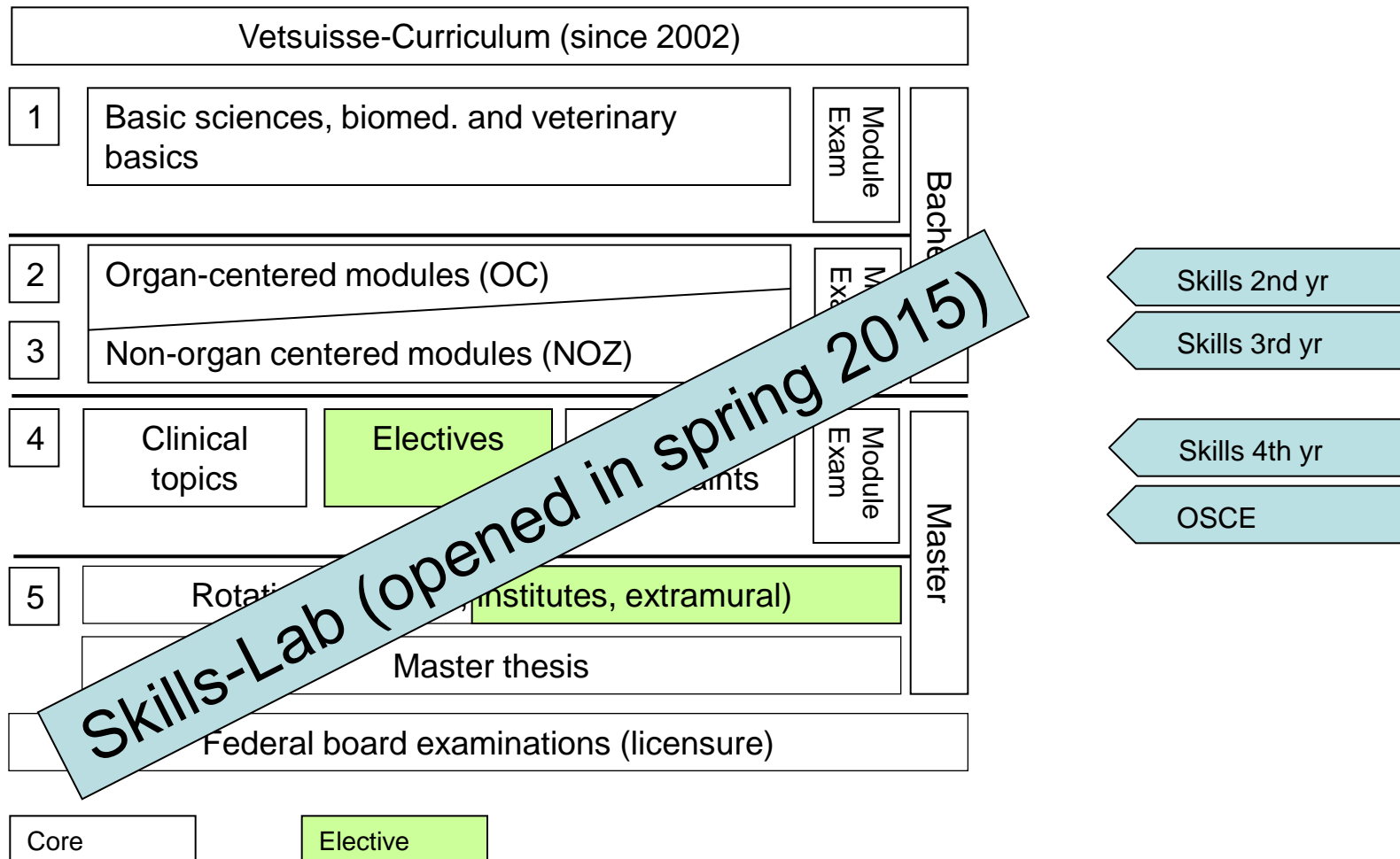
Topics:

- Companion animals
- Ruminants
- Horses
- General Surgery
- Clinical Lab
- Anaesthesia

## Examples of Stations



# Integration of Skills in Curriculum





## Past, present and future

2011 – 2013

Mastertheses establishing pilot-station  
scrubbing/gloving/gowning

- Skills station designed by master students (written instructions and videos) in collaboration with teaching staff
- authoring of checklist
- Preliminary test of checklist on 3 students: review and improvement of instructions for stations
- Validation of checklist with 22 student-volunteers and 2 examiners in a mock-exam

## Past, present and future

February 2015: Opening of skills-lab with 12 stations

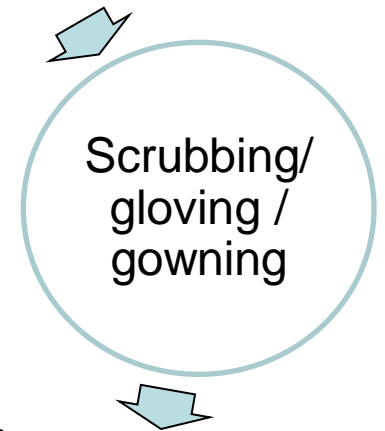
June 2016

pilot-OSCE with 4th-year students

- Detect organizational pitfalls
- Checking quality of items (improvement of instructions for skills-stations)
- Final decision on passing OSCE (standard-setting and compensation between stations)

June 2017

summative OSCE for 4th-year students

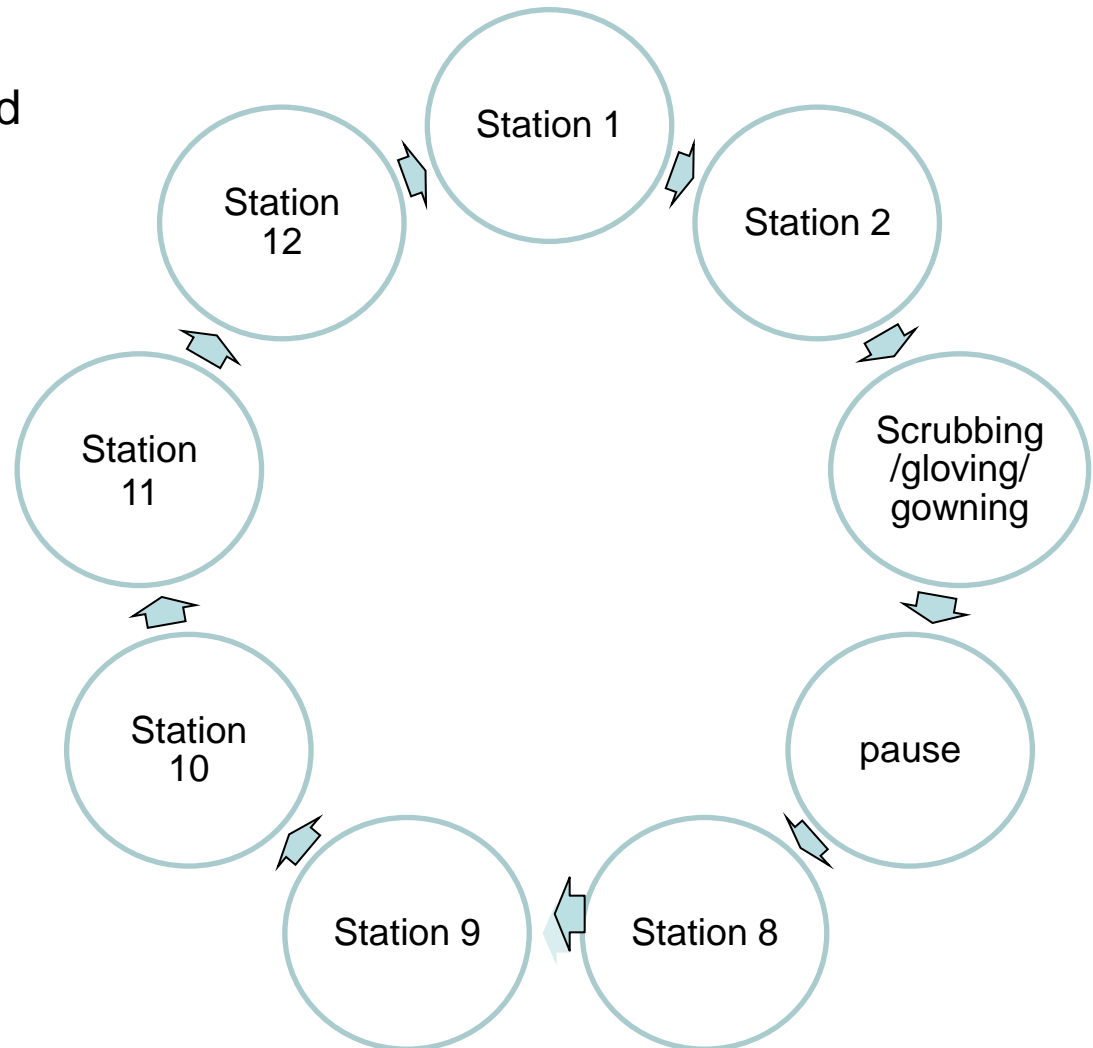


## OSCE pilot in July 2016

OSCE (objective structured clinical examination)

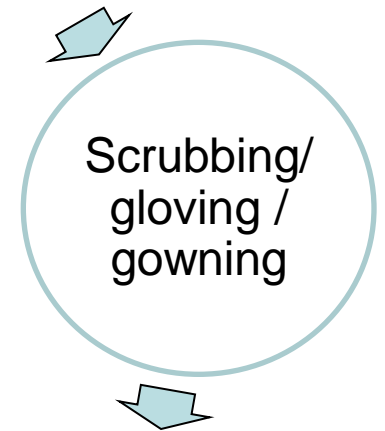
Pilot exam in June 2016

- cohorte of 40 students
- 12 stations



## Checklists: course of action in pilot 2013

1. Checklist-authoring by master student and responsible member of teaching staff
2. Apply checklist in OSCE-setting (mock-exam)
  - Interrater reliability
  - Standard setting
  - Quality of items



## Checklist: application in mock-exam 2013

several examiners observe several students

Recruiting of examiners

Teaching staff responsible for skills station

collaborators (peers) of responsible staff member

Potential examiners at OSCE 2016



## Checklist: application in mock-exam 2013

several examiners observe several students

Instruction of examiners

- Relate items of checklist to instruction for skills-station
- explain meaning of holistic global rating scale:

Rater`s judgment on performance of candidate on scale from 1 to 5 (inferior, borderline, satisfactory, good, excellent)



## Checklist: application in mock-exam 2013

several examiners observe several students



Recruiting students

Students highly motivated to experience OSCE

Present themselves prepared for task



## Checklist: application in mock-exam 2013

- cohorte of 22 students
- 2 examiners (surgeons of small animal and ruminant clinics)
- Time limit for scrubbing/gloving/gowning: 8 minutes



All over examination time: 3.5 hrs



## Checklist: application in mock-exam

### Observations:

- same mistakes by many students:  
instruction to skills-station not sufficiently clear
- Examiners must agree on details of judgment:  
procedural details determine about achieved / not achieved



## Checklist: application in mock-exam

Number of checklist items: 572

Missings : 8%

Remedy: e-OSCE (tablets)

- confirmation of end of exam only if all items marked



## Checklist: standard setting method

### Standard setting method

#### 1. Angoff (test-centered)

Expert judgement on performance of borderline-candidates  
to define cut-off value: 9 items passed out of 13 (69.2%)

#### 2. Mean number of correctly achieved items and global rating score (candidate-centered)

Correlation between number of correctly achieved items and global rating:  
0.73 (>0.7 regarded as high)

Cutoff value: 8.9 items passed out of 13 (68.5%)



## Checklist: standard setting method

Standard setting method:

Same values by both methods

Decision for 2016

Standard-setting candidate-centered, because

- based on values produced by each exam
- easily computed for each checklist



## Checklist: interrater reliability



Calculation of concordance of examiners (interrater reliability)

concordance between the two examiners in mock exam = 0.69

corresponding to mean to good reliability (0.7)

## Checklist: analysis of items

Analysis of total of 13 items of checklist

Discrimination index:  $r$

only 2 items sufficient ( $r > 0.2$ )

- not suitable as an index for the quality of the items with this small number of candidates (22) and
- Candidates knowing precisely the task required

Degree of difficulty  $p$ : mean of 78%

- 78% of items were achieved: easy exam



## Lessons learned from mock exam with one station

Lessons learned from pilot with scrubbing/gloving/gowning



Importance of training of examiners

- relate items of checklist to instruction for skills-station
- identify possible ambiguities of items of checklist
- explain standard-setting with candidate-centered method and use of global rating

Standard-setting with candidate-centered method

Consider quality of items of checklist (discrimination index) only based on performance of sufficient number of students

## Validation of checklists for pilot-OSCE 2016

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Checklists of 10 skills-stations reviewed with

- 2 examiners (responsible teaching staff for skills-station)
- 4 students

Objective

- Instruction of examiners
- Review of items
- Limiting number of items to 14 per checklist



## Validation of checklists for pilot-OSCE 2016



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**vetsuisse-fakultät**

## Checklist: authoring

Checklist-authoring by responsible member of teaching staff

- Objective: concise, clearly worded items
- maximum of 14
- review of checklist by colleagues

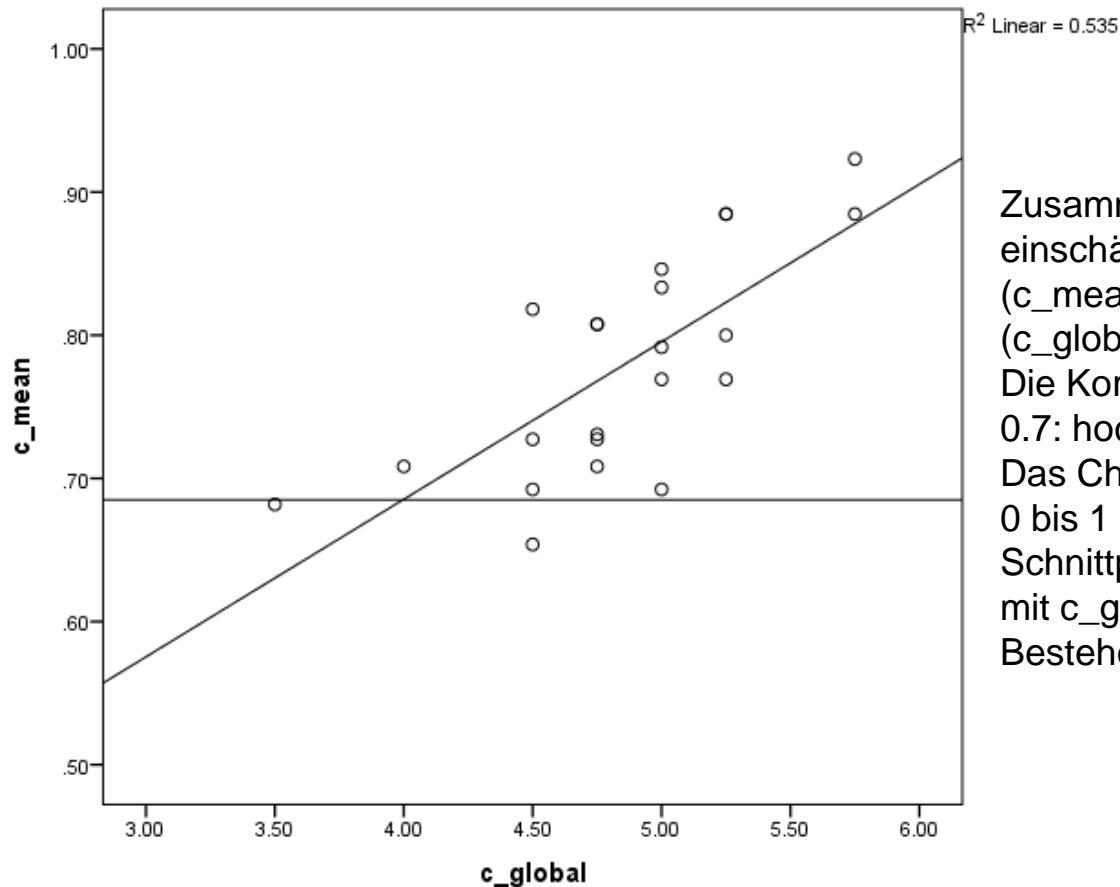


Schritt	Was	Nicht oder unkorrekt ausgeführt	Korrekt ausgeführt
<b>Einkleiden</b>	Haube und Mundschutz korrekt anziehen	<input type="checkbox"/>	<input type="checkbox"/>
<b>Vorbereiten</b>	Kittel-Pack auspacken, vorbereiten	<input type="checkbox"/>	<input type="checkbox"/>
	Handschuh-Pack öffnen, Inhalt auf sterilen Bereich fallen lassen		
<b>Reinigung</b>	Hände mit Seife waschen	<input type="checkbox"/>	<input type="checkbox"/>
	Korrekte Verwendung der Nagelbürste	<input type="checkbox"/>	<input type="checkbox"/>
	Hände mit Papiertuch trocknen	<input type="checkbox"/>	<input type="checkbox"/>

## Integration into the Curriculum

<b>Year</b>	<b>Course / Module</b>	<b>Station</b>
2	Blood	Infusion set
	Propedeutics	Haltering a cow
	General Surgery	Gloving and gowning
	General Surgery	Suturing (silicone pad)
	Blood	Clinical lab
	Locomotion	Wound dressing (horses)
	GIT	Nasogastric tube (horses)
3	Reproduction and mammary gland	California mastitis test, milk sampling (cows)
	Reproduction and mammary gland	Transrectal palpation (cows)
4	Anaesthesia	Leak test, induction of anaesthesia
	Anaesthesia	Peripheral venous catheter

## Calculation of cut-off value



Zusammenhang von Leistungseinschätzung in der Checkliste (c\_mean) und Globalbeurteilung (c\_global).

Die Korrelation liegt bei  $R^2 = 0.73$  ( $R > 0.7$ : hoch).

Das Checklistenresultat kann Werte von 0 bis 1 annehmen. Der Schnittpunkt der Regressionsgeraden mit  $c_{\text{global}} = 4$  ergibt eine Bestehensgrenze von 0.685.