TEACHER'S GUIDE Bachelor LEVEL

Course title:	Healthcare Logistics Bachelor level 10 ECTS
Course code:	To be decided
Contact hours:	See planning on page 14
E-Learning hours:	
Prerequisites:	The pre- assignment is sufficiently completed
Course unit leader:	RUAS

Contents

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1. Introduction, aims and objectives

The module aims at developing competences on a bachelor level in healthcare logistics. The definition of Healthcare Logistics is: the control of treatment/care/support activities and the related staff planning, information and flow of goods in such a way that the preferences of clients/patients will be met cost effectively (Moeke & Verkooijen,2010). The preferences are related to quality, patient safety as an aspect of quality, and sustainability. To define Healthcare logistics furthermore a distinction between 'Goods Logistics' and 'Patient logistics' can be made. However, both process flows are linked. No cure or care without goods, and no goods if no cure or care is needed, as shown in figure 1.

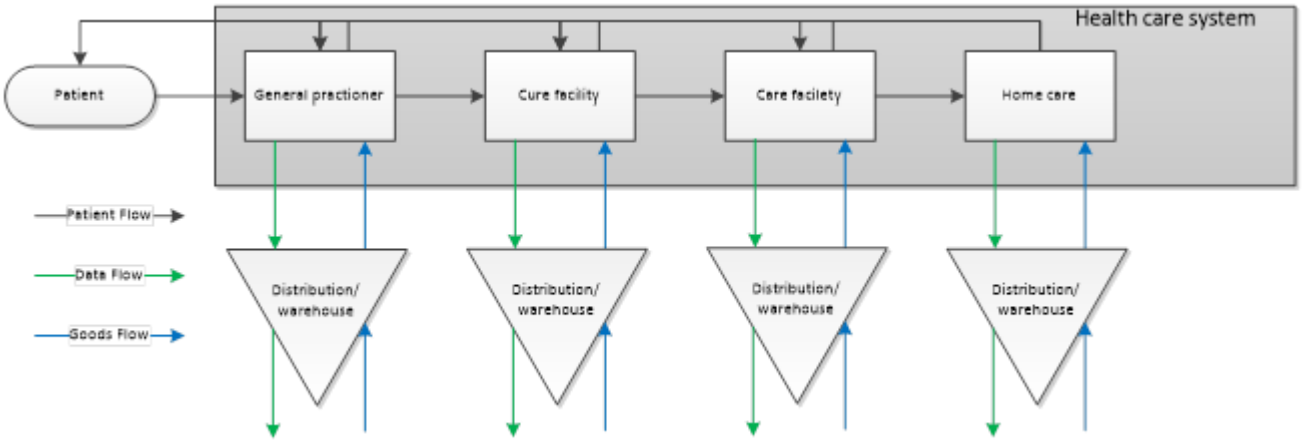

Figure 1: General overview of health care logistics (Oomen, 2016)

In Figure 1, the patient flow is the main flow and the role of the material logistics is to support it as effectively as possible.

This module is meant for professionals and students with either a logistics background or a healthcare background. Working on these competences is on basis of learning objectives related to main topics in healthcare logistics, such as processes and efficiency, capacity management and procurement

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This teacher's guide is part of the Bachelor's level education.
Target groups: Students / healthcare professionals with a need for an overview on bachelors of Patient/Clients and Goods Logistics in Healthcare
Basic knowledge: None
This course consists of:
- 5 full days.
- The course will be given in 2 parts of the day for each topic
- The desired group size of the course is 15-20 people.

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2. Entry criteria and evaluation methods

All students should prepare to the course by means of a pre-assignment. The pre-assignment is mandatory in order to be admitted to this module.

No further entry criteria are asked. Affinity with healthcare is a requested. Class interventions could be adjusted to background of students→ pre assignment will give info about this

3. Learning outcomes, competencies

Through the successful participation in the course the following competencies and related learning objectives can be acquired:

Study module	Goals and objectives in terms of competences and skills
Part 1: Orientation to Healthcare Logistics landscape (1 ECTS)	1. Has basic knowledge of terms, acts, degrees, regulations and guidelines governing the healthcare landscape 2. Understands the changing environment of Healthcare (logistics) systems 3. Is able to understand basics ethics in Healthcare 4. Is able to know and understand the main objectives of Healthcare
Part 2: Critical environment (2 ECTS)	1. Is able to plan and develop patient safety with regard to process improvements methods used in healthcare 2. Is able to carry out infection prevention measures in accordance with the best practices in process design and re-design
Part 3: Logistics Improvement methods and tools in healthcare (3 ECTS)	1. Is able to develop inventory management guidelines based on ABC-analysis, XYZ, Consignment stock, inventory turnover, etc. 2. Is able to know when and how to apply Lean management, Six Sigma and ToC in Healthcare

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	3. Is able to know how the use of Lean Six Sigma and Theory of Constraints methodology can improve waiting times, lead times, accessibility times, nr of visits, utilization rate of resources like Operating Rooms) 4. Is able to monitor AND improve patient/material logistical performance by using the Lean Six Sigma and Theory of Constrains methodology 5. Is able to formulate policy on processes of healthcare logistic processes (patients / materials)
Part 4: Capacity management (3 ECTS)	1. Is able to formulate policy on planning, capacity management of healthcare logistics 2. Is able to organize, manage and improve the patient/material logistics related to planning, capacity and process management 3. Is able to demonstrate how to improve the utilization rate of resources, resource planning (e.g facilities, Operating rooms, etc) 4. Is able to reproduce relevant product knowledge in relation to resources common in Healthcare
Part 5: ICT in healthcare logistics (1 ECTS)	(1) Is able to understand the role of information management and ICT in Healthcare Logistics (2) is able to know what kind of technologies can add value to logistical performance in Healthcare

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All learning materials are available via the following website: https://help-project.eu/page/bachelor-level-education/

Class assignments are group assignments and can therefore not be made individually. The assignments however, also available via above mentioned website, should be handed in individually via a learning management system (LMS). Criteria and judging matrix related to the learning diary available project's website.

4. Course description

The module consists of 5 thematic logically consistent units, adding up to 10 ECTS

Methodology:
In order to achieve the goals presented above blended learning methods are applied. The course is based on the combination of face-to-face training sessions and e-learning methods.
The face-to-face training is an action-oriented and problem-focused event, which ensures the possibility of experience-based learning. Case studies, group work, and various forms of training exercises constitute skill development activities. All these face-to-face exercises are accompanied by e-learning materials with the aim at providing an insight into the theoretical foundations of the training material and leaving space for reflection.

5. Introduction to pilot schedule

The student is asked to complete the pre-assignment prior to the pilot week in Lahti. For this, the material is made available digitally. The material is made available approximately 2 months prior to the pilot week.

5.1 Schedule individual learning (preparation before start pilot week)

Study module	*Learning objective*	*Topic/ working method*
Part 1:	1. Introduction to the course 2. Getting familiar with the basics and context of healthcare logistics	Introduction to healthcare logistics (and objectives)

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	3. Understanding the changing environment of Healthcare (logistics) systems	An assignment covering the following questions to be answered by the students: (1) Basics of healthcare logistics – part 1 (healthcare systems, logistics systems) (2) How can terms within the field of healthcare logistics be defined and described? (3) Which international and national trends do contribute to a changing environment of healthcare (logistics systems)?
Part 2:	Critical environment	An assignment covering the following questions to be answered by the students:
Part 3:	To be able to know and understand the basics of part 3 (Logistics Improvement methods and tools in healthcare)	An assignment covering the following questions to be answered by the students:
Part 4:	To be able to know and understand the basics of part 4 (Capacity management)	Students will use educational material provided via e-mail for part 4 in a class room setting. An assignment covering the following questions to be answered by the students:
Part 5:	Being able to understand the role of information management and ICT and how value could be added to healthcare processes	Students will use educational material provided via (----) for part 5 in a class room setting. An assignment covering the following questions to be answered by the students:

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5.2 Pilot week 10 to 14 February 2020, Lahti.

Consultations	*Learning objective*	*Topic/ working method*
Contact day 1 All together RUAS	To know and understand basics ethics in Healthcare Part 1: Orientation to healthcare logistics landscape, ethics	Action-oriented and problem-focused event: 1. Getting to know each other 2. Discussion based on concrete ethical issues and how these issues influence decision making for healthcare professionals
Contact day 2 LAB	Part 2: Is able to understand patient safety and carry out infection protection Part 3: Is able to develop inventory management guidelines based on ABC-analysis, XYZ, Consignment stock, inventory turnover, etc.	Shall be decided by LAB
Contact day 3 RUAS	*Morning hours:* Part 3: to know how the use of Lean Six Sigma and Theory of Constraints methodology can improve	Action-oriented and problem-focused event: Integrated case / project.

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	waiting times, lead times, accessibility times, nr of visits, utilization rate of resources like Operating Rooms, cost, benefits and efficiency of material flows *Afternoon hours:* Part 4: Is able to organize, manage and improve the healthcare logistics related to planning and capacity management	This will be group work improvement /Lean Six Sigma/ ToC Guiding tutors (= teachers) will act as problem owner to the case Students are asked to present their case results Playing a physical simulation
Contact day 4 LAB	Part 5: To know and understand value add of ICT systems in healthcare logistics	Hospital visit: students should reflect on this lesson by mentioning lessons learned in their learning diary. Action-oriented and problem-focused event:
Contact day 5 All together	Part 1/part 2/part 3/ part 4/ part 5	Final closure of the pilot. Students are asked to present and discuss their lessons learned AND general feedback related to the pilot week.

Above mentioned programmed gives a picture of what the most important for each day. The planning also show how certain topics can be communicated most effectively to a certain target group. This planning is meant as a support. It is up to the teacher how he/she actually implements the course. A hospital visit is highly recommended. It is incredibly valuable to combine the theory from this course with practice. Such a visit also adds a lot of value to the learning diary.

Every contact day is preverbally build up as follows:

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1. preparation to this course by means of a pre-assignment. As mentioned before, this pre-assignment is mandatory to this course. Please take in mind that students can only be admitted of done this pre-assignment

2. Plenary lecture, in which the teacher explains the teaching material to the group of students. The lecturer should describe the focus of the lecture. It is important that as much connection as possible is sought with the students. This is sometimes made explicit in the lesson by asking the students for practical examples

3. Plenary discussion, in which the teacher interactively discusses with the group of students. The discussion questions in the powerpoint slides serve as a guideline.

4. Group work, in which the students work in groups on an assignment.

5. Individual, in which the students work individually on an assignment.

6. Opening / Closing, in which the teacher starts or finishes the course.

6. Assessment and grading criteria

Evaluation is part of the training process. The evaluation tools intent to measure personal development through the training process as a whole. In order to do so, the following means are applied.

6.1 Learning diary

In the end of contact day 5 students are asked to present and discuss their learning diary. The learning diary must contain a collection of notes, observations, thoughts and other relevant materials built-up over a period of time and maybe a result of a period of study. Its purpose is to enhance the participants' learning through the process of writing and thinking about their learning experiences. The learning diary is personal to the individual participants and reflects their personality, preferences and experiences.

Annotation:

Learning Diary instructions can be found on the project's website together with the learning diaries' assessment criteria. Learning diary is assessed according the Finish assessment method but can be adjusted to own judgement scale.

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6.2 Summative Assessment

The goal of summative assessment is to evaluate student learning at the end of each topic covered within this bachelor module.

Examples of summative assessments include:
1. a short paper based on a given assignment
2. peer evaluation during the contact days
3. learning diary evaluation

Grading of Learning Diary:

5 Excellent
4 Good
3 Pass/ Sufficient
2 Fail/ Insufficient.
1 Fail/ Insufficient.

6.3. Student and Teacher Feedback

Forms can be found from project's website.

7. Literature

7.1 Compulsory reading

Part 1:

Experiences from Healthcare Logistician Education
U.Kotonen; U.Tuominen; A-N.Maksimainen; M.Kuusisto
Journal of Modern Education Review, Academic Star Publishing Company

Identifying logistical parameters in hospitals: Does literature reflect integration in hospitals? A scoping study
A. Ham; H.Boersma;A.Raak; D.Ruwaard; F.van Merode
Health Services Management Research, 2018

Part 2: Assessing Patients' Perceptions of Safety Culture in the Hospital Setting: Development and Initial Evaluation of the Patients' Perceptions of Safety Culture Scale
Monaca, Clara RN, BA, MSc∗; Bestmann, Beate MA, PhD†; Kattein, Martina Dipl.-Soz∗; Langner, Daria BA, MSc†; Müller, Hardy MA†; Manser, Tanja MSc, PhD∗Author Information
Journal of Patient Safety: March 2020 - Volume 16 - Issue 1 - p 90-97

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The Relationship Between Patient Safety Culture and Patient Outcomes
A Systematic Review
DiCuccio, Margaret Hardt RN, MSNAuthor Information
Journal of Patient Safety: September 2015 - Volume 11 - Issue 3 - p 135-142

Barriers to Speaking Up About Patient Safety Concerns
Etchegaray, Jason M. PhD*; Ottosen, Madelene J. PhD, RN†; Dancsak, Theresa MSN, RN‡; Thomas, Eric J. MD, MPH†Author Information
Journal of Patient Safety: December 2020 - Volume 16 - Issue 4 - p e230-e234

Finnish Institute for Health and Welfare, patient safety publications

http://www.who.int/patientsafety/en/

http://ec.europa.eu/health/patient_safety/policy/index_en.htm

Part 3: Logistics Improvement methods and tools in healthcare
- Mast et al, Lean Six Sigma for services and healthcare; Beaumont
Arthur, J, Lean Six Sigma for Hospitals; Mcgraw-Hill

The Logistics and Supply Chain Toolkit
G. Richards;S.Grinsted, 2016

Part 4: Capacity management (3 ECTS)

Sharifi, Shahnaz (2014). CAPACITY PLANNING IN HOSPITAL MANAGEMENT: AN OVERVIEW. Indian Journal of Fundamental and Applied Life Sciences

Cardoen B, Demeulemeester E and Beliën J (2010). Operating room planning and scheduling: A
literature review. European Journal of Operational Research 201 921-932.

Part 5:

Logistics Trend Radar
https://www.dhl.com/kr-en/home/insights-and-innovation/insights/logistics-trend-radar.html

7.2 Recommended readings

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Green LV (2004). Capacity planning and management in hospitals. Operations Research and Health
Care (Springer).

Hans EW, Van Houdenhoven M and Hulshof PJ (2012). A framework for healthcare planning and
control. Handbook of Healthcare System Scheduling (Springer).

Harper P and Shahani A (2002). Modelling for the planning and management of bed capacities in
hospitals. Journal of the Operational Research Society 53 11-18.

Li L and Benton W (2003). Hospital capacity management decisions: Emphasis on cost control and
quality enhancement. European Journal of Operational Research 146 596-614.

Indian Journal of Fundamental and Applied Life Sciences ISSN: 2231-6345 (Online)
An Open Access, Online International Journal Available at http://www.cibtech.org/jls.htm
2014 Vol. 4 (2) April-June, pp.515-521/Sharifi and Saberi

7.3 Useful links and websites

www.leanhospitals.com

https://www.youtube.com/watch?v=Ne0L0Ixp3_E

https://www.healthcaredenmark.dk/news/brand-new-white-paper-about-hospital-logistics.aspx

https://algolprod.blob.core.windows.net/image-container/docs/librariesprovider2/english-solutions/at_hospital_en_201710_net.pdf?sfvrsn=99ba4193_2

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Appendix: Training plan / Student workload (pilot week and preparation)

Training plan - Topics							
Training elements	Face-to-face		E-learning		Other		Total time
Days / Weeks		time		time	Extra	time	(hours)
Pre- assignment					Questionnaire and motivation of starting level	8	8
Assignment (E-learning)	Individual learning before pilot week starts		Part 1, part 2, part 3, part 4 and part 5	40	Reading material and assignments	120	160
Contact day 1	Introduction and action oriented Part 1	4			Preparation next day	4	12
Contact day 2	Action oriented learning part 2	8			Hospital visit Preparation next day	2	10
Contact day 3	Action oriented learning part 3 and 4	8			Preparation next day	2	10
Contact day 4	Action oriented part 5	8			Guest lecture Preparation next day	4	12
Contact day 5	Closing / evaluation	4					4
Post – assignment and assessment					Preparation for the digital written exam		
Total time		32		40		140	216

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