



**Karolinska  
Institutet**

# **The Effects of Lean Introduction on Health Care Employees' job stress in a Hospital Setting**

Waqar Ulhassan  
Hugo Westerlund

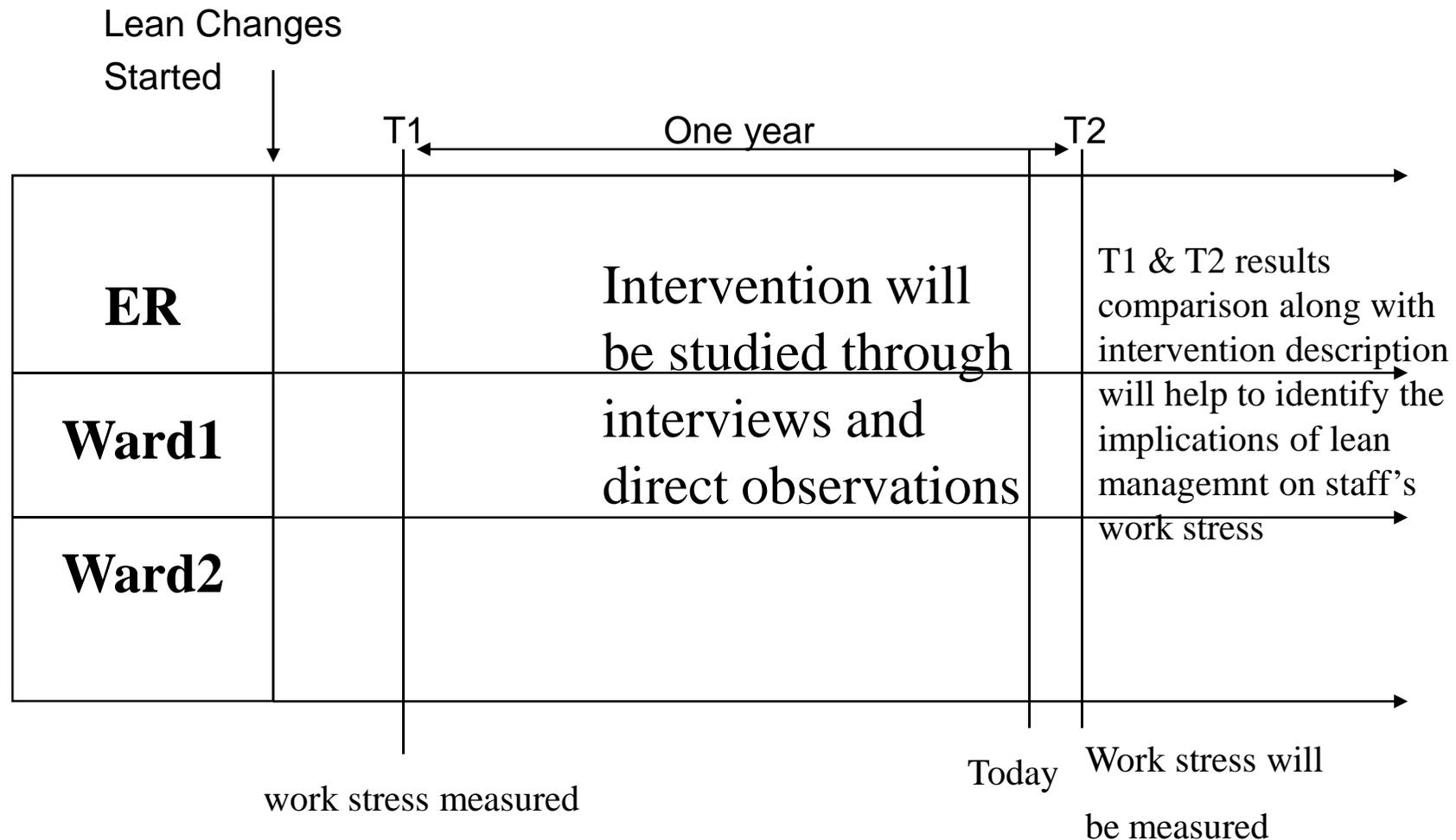
# Background

- Healthcare sector is facing several challenges
- Different strategies are being tried to cope with these
- Lean thinking is becoming popular
- Most studies focus on outcome in terms of patient care process improvement through Lean implementation
- Little is known about how lean affects staff e.g. work stress and well being

# Research Question

*How does the implementation of lean methods in healthcare settings affect work stress and the well being of the staff?*

# Study Design



# Data Collection

- Subjects in the studies are the staff working at ER and two inpatient cardiac wards
- Copenhagen Psychosocial Questionnaire (COPSOQ) is used for work stress measurement
- T1 measurements were performed last year.
- The study was presented to subjects at each setting twice with a short description of how to fill out the questionnaire, why it is important to study work stress, and how it can be beneficial for the staff.
- Response rates were
  - ER (n=132) = 60%
  - Ward1 (n=25) = 70%
  - Ward2 (n=44) = 74%
- T2 measurements will be performed soon.

# Copenhagen Psychosocial Questionnaire

- A shortened version of COPSOQ II Long version was used
- 26 out of 41 scales were included - hypothesized to be most affected by lean application
- 9 full scales and 17 partial scales
- Comparison of the results from two measurements will show changes in work stress
- Interview and observation data will be used to predict which aspects of work stress will be affected, and in what direction. Predictions will then be compared with the actual changes in the COPSOQ results of T1 & T2.

# COPSOQ Results Time 1

		Emergency		Ward 1		Ward 2		p-value significant			One way Anova	
		Mean	SD	Mean	SD	Mean	SD	ER vs W1	W1 vs W2	W2 vs ER	F	p
<b>Work environment factors</b>												
	Quantitative demands	44,9	15,8	38,2	15,0	45,6	21,3				1,191	,307
	<b>Work pace</b>	<b>75,2</b>	13,4	<b>59,6</b>	13,6	<b>70,6</b>	19,0	Y	Y	Y	7,718	<b>,001</b>
	Emotional demands	52,4	21,4	55,1	23,0	50,0	19,1				,344	,709
	<b>Demands for hiding motions</b>	<b>74,5</b>	13,0	<b>71,3</b>	13,6	<b>66,9</b>	12,8	N	N	Y	3,778	<b>,026</b>
	<b>Cognitive demands</b>	<b>78,3</b>	12,4	<b>66,6</b>	16,4	<b>70,8</b>	13,4	Y	N	Y	7,287	<b>,001</b>
	Influence at work	39,6	18,7	40,4	13,6	33,6	16,3				1,475	,233
	Possibilities for development	72,9	22,9	65,4	15,6	69,1	14,5				1,133	,325
	Meaning of work	86,9	15,2	79,4	13,2	81,3	13,5				2,868	,061
	<b>Commitment to work place</b>	<b>69,5</b>	20,2	<b>60,2</b>	22,0	<b>51,6</b>	19,5	N	N	Y	9,190	<b>,000</b>
	<b>Predictability</b>	<b>57,0</b>	15,7	<b>53,7</b>	9,6	<b>49,2</b>	13,8	N	N	Y	3,234	<b>,043</b>
	Rewards at work	62,2	18,7	58,8	20,6	60,0	19,5				,294	,746
	<b>Role Clarity</b>	<b>75,0</b>	14,7	<b>64,0</b>	9,8	<b>62,5</b>	15,9	Y	N	Y	10,423	<b>,000</b>
	Role conflicts	48,7	13,6	42,9	9,8	48,7	12,4				1,270	,285
	Quality of leadership	53,6	20,5	59,2	19,2	61,3	20,9				1,691	,189
	Social support from supervisors	56,3	30,1	64,8	23,4	60,5	21,3				,765	,468
	<b>Social support from colleagues</b>	<b>80,6</b>	10,5	<b>73,1</b>	11,4	<b>76,5</b>	12,0	Y	N	N	3,911	<b>,023</b>
	<b>Social community at work</b>	<b>69,5</b>	20,2	<b>60,2</b>	22,0	<b>51,6</b>	19,5	N	N	Y	9,190	<b>,000</b>
<b>Person work interface factors</b>												
	Horizontal Trust	42,2	13,8	40,5	8,8	38,0	12,5				1,104	,335
	<b>Vertical Trust</b>	<b>66,0</b>	17,1	<b>68,8</b>	12,9	<b>56,0</b>	20,6	N	N	Y	4,267	<b>,016</b>
	<b>Justice and Respect</b>	<b>55,4</b>	15,7	<b>63,3</b>	11,0	<b>51,3</b>	15,9	N	Y	N	3,137	<b>,047</b>
<b>Personal factors</b>												
	Sleeping troubles	37,9	18,5	34,9	18,9	38,7	20,5				,228	,797
	Stress	42,9	19,2	39,0	10,7	47,3	18,2				1,278	,282
	Cognitive stress	25,6	17,0	27,2	13,6	29,1	16,8				,531	,589

## Expected Findings

- Work stress reduced if lean methods were applied properly
- The COPSOQ scale averages' analysis may show better values of different aspects of work stress among the staff
- Plans to translate COPSOQ into Urdu, for use in research