

A wealth of opportunities: an ethnographic study on learning to deliver high-value, cost-conscious care.

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3

4 **Abstract**

5 Objective: Since physicians' behaviour determines up to 80% of total healthcare expenditures,
6 training residents to deliver high-value, cost-conscious care is essential. Residents acknowledge
7 the importance of high-value, cost-conscious care-delivery, yet perceive training to be
8 insufficient. We designed an observational study to gain insight into how the workplace setting
9 relates to residents' high-value, cost-conscious care-delivery.

10 Design: This ethnographic study builds on 175 hours of non-participant observations including
11 informal interviews, 9 semi-structured interviews and document analysis.

12 Setting: Department of obstetrics and gynaecology in an academic hospital in the Netherlands.

13 Population or sample: 21 gynaecology residents.

14 Methods: Iterative analysis process of fieldnotes, interview transcripts and documents,
15 including open-coding, thematic analysis and axial analysis by a multidisciplinary research
16 team.

17 Results: Residents rarely consider health care costs, and knowledge regarding costs is often
18 absent. Senior consultants guide residents while balancing benefits, risks and costs, with or
19 without explicating their decision-making process. Identified learning opportunities are
20 elaboration on questions raised concerning high-value, cost-conscious care, checking
21 information about costs that are used in discussions about high-value, cost-conscious care, and
22 having a more open and explicit discussion about high-value, cost-conscious care.

23 Conclusion: Our study emphasizes that the opportunities and potential to train residents to
24 deliver high-value, cost-conscious care in the workplace are present. The challenge resides in

1 capitalizing on these opportunities. We suggest departments to consult external experts to
 2 facilitate discussions regarding high-value, cost-conscious care to contribute to informal
 3 learning and to create a workplace setting in which high-value, cost-conscious care-delivery is
 4 prioritized.

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1 Introduction

2 Rising healthcare expenditure significantly impact the sustainability of healthcare systems.¹⁻³
 3 Limiting costs whilst ensuring the quality of care is therefore high on the political and medical
 4 agenda.⁴ Since physicians' behaviour determines up to an estimated 80% of total healthcare
 5 expenditures, shaping the behaviour of future physicians is a potentially valuable intervention
 6 for ensuring delivery of high-value, cost-conscious care (HV3C).⁵⁻⁹ HV3C is defined as 'care
 7 that aims to assess the benefits, harms, and costs of interventions' that leads to 'care that adds
 8 value' for the individual patient and the population in general.¹⁰ HV3C is characterized by
 9 three key principles: 1) it avoids wasteful care that has no added value for the patient,
 10 therewith reducing unnecessary costs; 2) it aligns with the personal preferences and needs of
 11 the patient; and 3) it is based on the latest evidence.^{2,10-12}

12
 13 Campaigns such as *Choosing Wisely*¹³ and *Less is More*¹⁴ have advanced awareness of
 14 unnecessary treatments and procedures and have led to a variety of initiatives, including
 15 educational interventions. High-profile organizations such as the Accreditation Council for
 16 Graduate Medical Education (ACGME), the Canadian Medical Education Directives for
 17 Specialists (CanMEDS), together with American College of Physicians (ACP) and General
 18 Medical Council (GMC) also aim to prepare residents for their future roles in HV3C
 19 delivery.¹⁵⁻¹⁷ A general aim of these organizations is to incorporate HV3C in the training of
 20 physicians, residents and medical students.^{3,16} While initiatives mainly focused on formal
 21 education,^{8,18} residency training takes place in the clinical workplace where training is mostly
 22 informal.¹⁹

23
 24 Workplace based learning in the area of HV3C is increasingly investigated^{9,20} and results
 25 indicate that residents perceive HV3C training to be insufficient.⁹ These findings are worrying,

1 since workplace based learning covers the majority of residency training²¹ and lessons from
2 graduate medical education persist long into practice.²²⁻²⁴ We aimed to build on and expand this
3 research by obtaining a real-life perspective on the workplace setting. Therefore, we designed
4 an observational study to gain insight into how the workplace setting is related to residents'
5 HV3-delivery.

6

7 **Methods**

8 Research design

9 We conducted an ethnographic study to gain insight into how the workplace setting is related
10 to residents' HV3C-delivery. Ethnography is a qualitative research methodology, commonly
11 used to study cultures, by which data is collected through fieldwork.^{25,26} In this case fieldwork
12 consisted of non-participatory observations, informal interviews, semi-structured interviews
13 and document analysis to generate insight into the sample population's views, motives and
14 actions in the real-life setting.^{25,27} For a more elaborate description of ethnography as a
15 methodology and insight in the iterative process of data-collection and data-analysis, we
16 would like to refer to Appendix A.

17

18 Setting

19 The fieldwork was conducted in an academic hospital in the Netherlands at a Department of
20 Obstetrics and Gynaecology. At the time of the study, a national government-subsidized
21 project was running aimed at increasing awareness of HV3C during residency training²⁸. This
22 project provided educational material and e-learning opportunities to stimulate residents to
23 voluntarily set up projects to improve HV3C delivery in their department. During our data-
24 collection no formal education was present to teach residents HV3C-delivery.

1

2 Subjects

3 All 21 resident physicians working in the gynaecology department at the time of our study
4 participated. Prior to the study they were informed about the research by letter and attended a
5 short presentation during the morning handover, in which we explained the primary research
6 goal as ‘we want to gain insight into how the workplace setting is related to residents’ HV3C-
7 delivery’. Written informed consent was obtained from all participating residents. The Ethical
8 Review Board of the Netherlands Association for Medical Education approved this study on
9 August 24, 2017, under file number 881.

10

11 Data collection

12 The second author (LMJ) shadowed gynaecology residents in daily practice for 175 hours
13 during the period of three months. LMJ accompanied the residents during patient consultations,
14 surgical procedures, deliveries and medical rounds, and attended meetings, e.g. morning reports,
15 educational activities and (multidisciplinary) seminars, as well as lunch and coffee breaks.
16 These non-participant observations (i.e. the researcher was not involved in care delivery)
17 focused on residents’ behaviour, conversations and situations regarding care delivery.
18 Observations were followed by unstructured and ad hoc informal interviews with the aim of
19 gaining thorough comprehension of the context and rationale of the observed moments.^{29,30}
20 Additionally, semi-structured interviews were held (by LMJ and LAS) with nine purposively
21 selected participants to gain additional information about specific observed situations and the
22 department in general from representatives of the observed population. Participants were
23 sampled based on the level of involvement in discussions and conversations regarding HV3C,
24 both residents and staff-members with high and low levels of involvement were selected. All

1 interviews were audio-recorded and transcribed verbatim. Document analysis of hospital and
2 national protocols and patient charts was executed to see, when residents or supervisors referred
3 to protocols, whether their claims were supported as well as whether the decision-making
4 process was retraceable.

5

6 Observed behaviour and conversations were thickly described, written up in detailed, context-
7 sensitive and locally informed fieldnotes about the observed events^{25,31}. Data collection
8 involved iterative cycles of data collection and analysis, combining observations, interviews
9 and analysis together with the research team (see Appendix B).^{25,30} The iterative process of
10 data collection discontinued when data-saturation was reached, meaning data-analysis did not
11 result in new concepts and an adequate understanding of key concepts was gained.²⁶ Data
12 saturation was reached after approximately 175 hours of observation and 9 semi-structured
13 interviews.

14

15 Data-analysis

16 As is common in ethnography, the data were analysed iteratively (see Appendix B) starting
17 with line-by-line open coding by LMJ, LAS and GB.^{25,32} The next steps were thematic and
18 axial analyses, in which we identified central themes and relationships between the various
19 themes. As a result of team discussions, we gradually adapted the focus of the observational
20 themes and conducted semi-structured interviews in order to deepen our understanding of the
21 data. Additionally, FS checked if the observations represented national care delivery and not a
22 specific regional setting. We are aware of the influence of the researchers' background on the
23 process of data-collection and data-analysis, to increase transparency we included a
24 reflexivity-paragraph in Appendix A.

25

1 Results

2 The consideration of benefits, risks and health care costs in daily practice

3 When protocols, guidelines or regional agreements failed to provide clear direction towards
 4 care delivery, or when new scientific information became accessible, health care professionals
 5 needed to decide which care delivery was considered ‘*appropriate*’. Health care professionals
 6 then considered pros and cons, including concerns for patients, consequences of a missed
 7 diagnosis, respect for autonomy of patients, burden of testing or treatment, influence of
 8 quality of life and long-term health benefits. We rarely observed attention for health care
 9 costs, or conversations regarding who would eventually pay for those costs. In cases in which
 10 costs were included in the process of balancing pros and cons of health care services, the
 11 absence of knowledge regarding costs became apparent. Questions regarding financial costs
 12 arose when residents and senior consultants discussed a scientific article, reviewed the
 13 protocol, or discussed the necessity of structural testing. Observations demonstrated that
 14 financial reasoning did not influence the process of decision making. We did not observe
 15 occasions in which health care costs were checked as a result of such discussions.

16
 17 *It is the end of the morning round and medical students, supervised by the resident-in-training*
 18 *are critically appraising a procedure. The resident noticed differences between the value and*
 19 *use of repetitive PCR-ratio (protein-to-creatinine) determined in single voided urine versus ACR-*
 20 *ratio in 24-hour-collected urine for diagnosing pre-eclampsia (PE) in their training region.*

21
 22 *O13: Actually, this article shows that there is little difference between PCR (protein-to-creatinine*
 23 *ratio) and ACR (24-hour albumin-to-creatinine ratio).*

24 *S3: And what about the cost?*

25 *A26: That’s a good one, we should actually check that in the lab.*

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Document analysis demonstrated that costs were not checked nor was the protocol adapted as a result of the discussion. (Fieldnotes, February 21, 2018)

The influence of the senior consultant on the process of balancing benefits, risks and costs.

HV3C-delivery by residents was guided by senior consultants’ preference. In some cases, the senior consultant extensively ‘walked residents through’ the process of balancing all relevant stakes that led to their proposed diagnostic or treatment plan. In other situations, the senior consultant stated their opinion of what they considered to be appropriate care without further explanation. Although residents not always understood nor agreed with the senior consultant, in general they did not request insight in the senior consultant’ considerations regarding what was deemed appropriate. Residents tended to execute the advice of the senior consultant with little countering of the consultants’ judgment.

Variation between senior consultants was prominent and recognizable for residents and was sometimes considered confusing especially in the eyes of junior residents. Senior residents used these differences to get agreement on their own proposed plan by being deliberate in whose senior consultant’s advice they sought in certain cases, as mentioned by resident R17 in an informal interview.

R17: ‘There are pretty big differences between the senior consultants. As a resident you have to get to know the bosses, so you know how they work. At some point you know the preferences of every senior physician, and if you have a certain plan in mind, you just call the senior consultant that you think is likely to agree with your plan... Sometimes you think it is nonsense to do something and then you just need a senior consultant who agrees with you.’

1 (Fieldnotes, February 22, 2018)

2

3 Three observed learning opportunities regarding the process of balancing benefits, risks and
4 health care costs.

5 Based on the analysis of our observations, informal and formal interviews, it became apparent
6 that there were three main areas for learning which could be improved. First, although residents
7 and staff-members raised questions regarding what constitutes high-value, cost-conscious care,
8 we observed that questions regularly remained unanswered or undeliberated. In these situations,
9 conversations were discontinued (for example by raising a different question) or paused ('we
10 should check that'), without revisiting raised questions or checking/changing the course of
11 action. Our observations also demonstrated questions followed by (collective) discussions,
12 explicating the process of balancing benefits, risks and costs of care delivery. We asked both
13 residents and supervisors how questions related to care delivery could be enhanced to facilitate
14 residents' learning. Residents shared that they were in need of a more structural review of
15 patient cases, followed by an organized overview of benefits, risks and costs of the case at hand.
16 This could be done for example during the morning handover when discussing a patient case.
17 Secondly, decision making often was based on assumptions about costs without efforts to check
18 them. This was observed for example when costs were considered 'high' yet actual amounts
19 were not known or the meaning of commonly used terminology (for example what do we mean
20 by 'bedrest') was not understood or defined. Thirdly, face-to-face conversations about care
21 delivery were absent in instances where the line of reasoning was not clear for either staff or
22 residents. Although senior consultants were sometimes openly critical to residents about how
23 colleagues balanced benefits, risks and costs of care delivery, this did not result in a face-to-face
24 conversation about the delivered care and consequently did not result in a take-home message
25 for residents. For example, critiques often ended with comments such as; "*they probably had a*

1 *good think about it” or “let’s continue with the next case”*. Supervisors confirmed that
 2 especially formal meetings created interesting teaching opportunities but were hesitant to
 3 deepen the discussion in those meetings. Supervisors motivated this by describing how they
 4 aimed to maintain a safe learning environment (do not give the resident the impression their
 5 decision was ‘false’) while also exposing residents to the uncertainty that is present in care
 6 delivery (modelling that there is more than one ‘correct’ treatment decision).

9 **Discussion**

10 *Summarising*

11 Training residents to provide HV3C is essential for the sustainability of healthcare
 12 systems.^{2,5,9,10} This study explored how the workplace setting is related to the residents’ HV3C-
 13 delivery. Our results demonstrated that costs are not structurally considered in the process of
 14 care delivery. Another finding was the strong influence of the senior consultants’ opinion
 15 regarding what is considered high-value, cost-conscious care on the resident. Furthermore,
 16 learning opportunities regarding HV3C were identified; elaboration on questions raised
 17 concerning HV3C, checking information about costs that are used in discussions about HV3C,
 18 and having a more open and explicit discussion about HV3C.

20 *Insight in relevant health care costs*

21 The importance of knowledge-transmission for the training of high-value, cost-conscious care
 22 delivery has been emphasized in previous research.^{7,9} We observed that physicians aim to
 23 make health care costs part of the discussion, yet lack information to do so highlighting the
 24 importance of knowledge of health care costs in particular. Besides the lack of formal

1 education, another known hurdle for knowledge transmission is the complexity of health care
2 economics and the lack of transparency of costs in health care systems.³³

3

4 *The consultant as leading role model*

5 The leading role of the senior consultant in health care delivery in general,^{9,19,20} and HV3C
6 specifically^{9,33} has been previously identified. Through observing role models' care delivery
7 residents learn professional behaviours, particularly from those senior consultants that match
8 their personal views.³⁴ Data-analysis demonstrates that senior residents intentionally seek
9 advice from senior consultants who are likely to share their views on HV3C-delivery.

10 Training opportunities lie in pursuing a workplace setting where senior consultants
11 deliberately assist residents in explicating their reasoning regarding HV3C, with or without
12 sharing the same view. This can be achieved by inviting residents to discuss, assess and
13 reflect on future and past care delivery. Practice variations between consultants and
14 departments could function as a starting point for these discussions and reflections,^{35,36}
15 especially when residents express that they doubt if care delivery meets HV3C standards.

16

17 *Workplace culture*

18 Our results point to the absence of a culture that allows to openly question the line of
19 reasoning of colleagues. Residents' and staff's tendency to favour agreement over critical
20 discussions could explain this finding. Research findings indeed indicate that striving for
21 harmony may interfere with the quality of post-graduate medical education and quality of
22 care.³⁷ Specifically, engaging in constructive discussions with senior consultants may be
23 challenging in a workplace setting that is considered to be hierarchical.³⁸ It is not surprising
24 that the current workplace setting is not familiar with discussing care delivery from a HV3C

1 perspective since issues of accessibility and affordability of health care are recent. Nevertheless,
 2 current budgetary crises in most health care systems urge for brisk culture change. To initiate
 3 a culture change, we suggest focussing interventions on senior consultants and other staff
 4 members. Changing the overarching culture and stimulating residents to actively engage in
 5 HV3C is desirable. Therefore, future research should investigate how departments can be
 6 supported in developing a critical attitude towards care delivery in light of HV3C. Action
 7 research³⁹ can be a suitable strategy to challenge conventional thinking about HV3C in the
 8 clinical setting. In such design, integrating an independent external expert to regularly
 9 question care delivery, and guide group discussions in an open and tolerant manner, may
 10 speed up consciousness of value for patients, costs and the urge for bottom up system change.
 11 This ‘devils’ advocate’ could help to fill in the opportunities detected in this study;
 12 elaboration on questions raised concerning HV3C, checking information about costs that is
 13 used in discussions about HV3C, and having a more open and explicit discussion about
 14 HV3C. The ultimate achievement would be that staff members and residents would take over
 15 this role and challenge each other to underpin their decision-making process in HV3C or
 16 structurally reflect on HV3C-delivery via group-discussions.

17

18 Strengths & limitations

19 The main strength of this study is the use of ethnography to gain insight in how the workplace
 20 setting is related to residents’ HV3C-delivery. A major strength of ethnography is the ability to
 21 observe things that those who are routinely involved may not see as well as collecting data that
 22 participant might not be willing to share with researchers.²⁶ Another strength is the rigorous
 23 performance of our data collection and analysis, in compliance with quality criteria of
 24 qualitative research. Our study has several limitations. Participating residents might have been
 25 more favourable towards HV3C-delivery, as they were aware of the researchers’ presence and

the research goal, and observations might be an overestimation of the role of HV3C in residency training. A second limitation is the restricted scope of our ethnographic research, since the observations solely took place within one single specialty in one single hospital. We aimed to mitigate this limitation by providing a description of the setting in which the research was performed. Additionally, our findings were assessed by a member of our research team who is familiar with the context but not a member of it. Nevertheless, extrapolation to other residency programs or departments must be done prudently.

Conclusions

Our study emphasizes that the opportunities and potential to train residents to deliver high-value, cost-conscious care in the workplace are present. The challenge resides in capitalizing on these opportunities. We suggest departments to consult external experts to facilitate discussions regarding high-value, cost-conscious care to contribute to informal learning and to create a workplace setting in which high-value, cost-conscious care-delivery is prioritized.

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19 Table/Figure Caption List

20 Appendix A

21 Appendix B