

Standardisation to minimise delivery time of personalised analgesia in hospitals

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Background and objective

- Patient-controlled analgesia (PCA) is important in pain management in palliative cancer care.
- Analgesic mixtures for PCA are prepared at the hospital pharmacy for the individual patient.
- Production is time consuming and the shelf life of the product is limited.
- Product with standardized drug content could be manufactured as off-the-shelf product with longer shelf life.

The purpose of the study was to see whether standardized drug contents are a possibility at the Palliative Units at Akershus University Hospital HF (Ahus) and Hospice Lovisenberg in Oslo.

Method

- The project was performed as a quantitative cross-sectional survey.
- A questionnaire with mainly closed questions was distributed among the palliative physicians at the two hospitals.
- The responses were analysed descriptively.
- All orders to the Hospital pharmacy of PCA from these centers were registered.



CADD-Legacy® PCA pump

Results

- Nine of eleven physicians answered the questionnaire, (5 of 7 from Ahus and 4 of 4 from Hospice Lovisenberg).
- Delivery time from the hospital pharmacy to ward is influencing prescribing practice:
 - At a high degree according to the physicians at Ahus
 - At a low degree according to the physicians at Hospice Lovisenberg
- Drugmixtures in a single PCA cassette:
 - Is often chosen by the physicians at Hospice Lovisenberg, to make drug handling easy for the patients.
 - Is seldom chosen by the physicians at Ahus since a single drug in the PCA cassette enable easy dose adjustment.
- Four physicians suggest drug combinations and concentrations interesting for standardising (table 1). For the combination Midazolam-Morphine, 10 combinations were proposed where six were unique.
- All physicians wanted standardized cassettes of:
 - Morphine in PCA at concentrations: 20 mg/ml and 40 mg/ml (figure 1)
 - Oksykodon in PCA at concentration 10 mg/ml, and possibly 20 mg/ml (figure 2)

Figure 2. Most often prescribed concentrations of Oxycodone. Each physician could mark 3 concentrations out of the 8 possible choices.

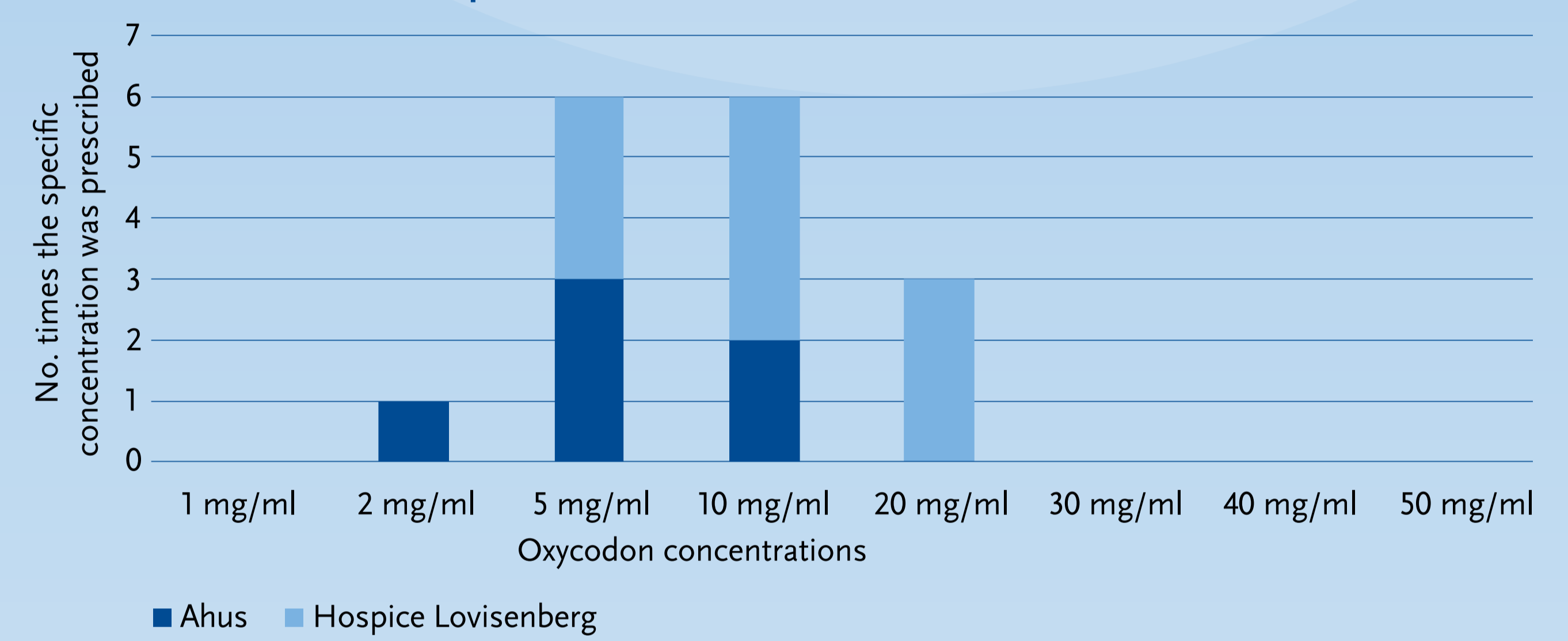
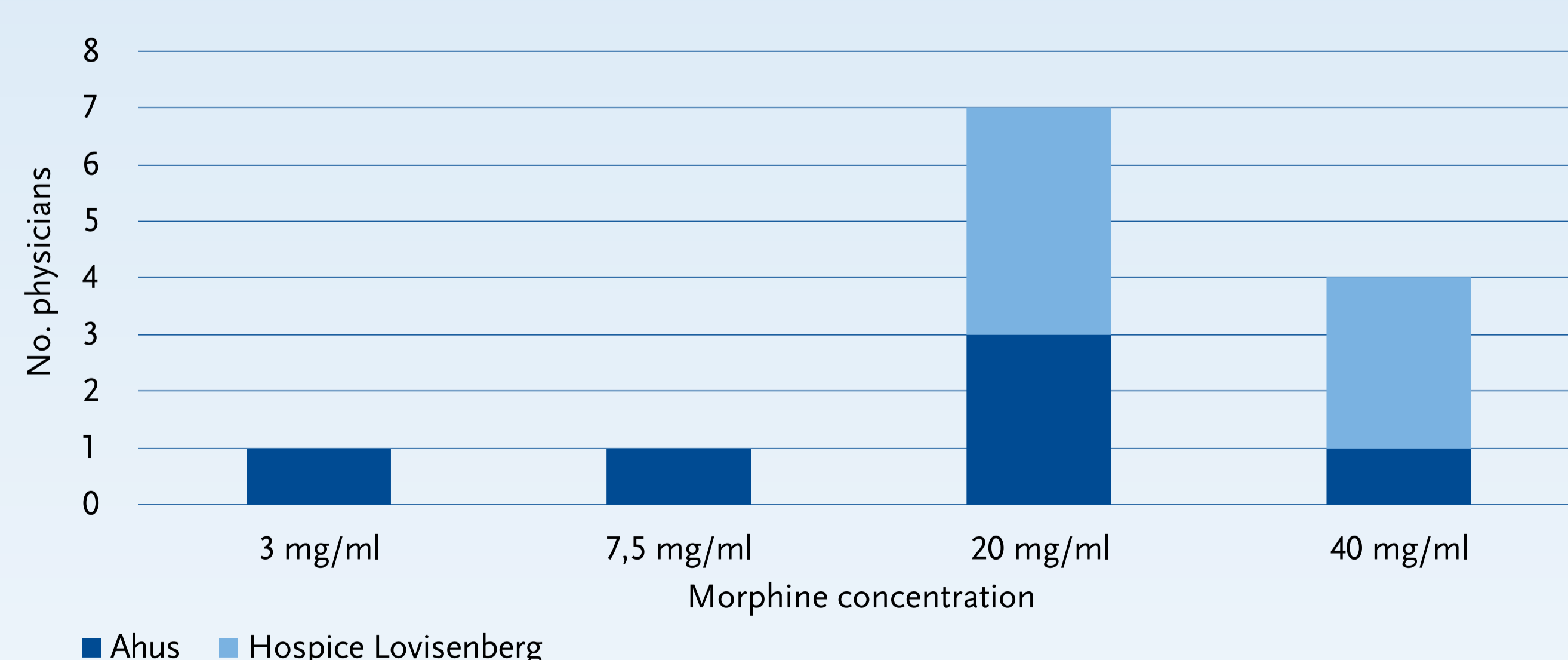


Table 1. Proposed drug mixtures from physicians at Ahus and Hospice Lovisenberg

Drug mixtures	Proposed concentrations (mg/ml)									
	Dr no. 1		Dr no. 2		Dr no. 3			Dr no. 4		
Morphine	10	10	2	5	10	2	5	10	10	20
Midazolam	2	5	0,1	0,2	0,2	0,1	0,2	0,2	0,5	0,5
Morphine			2	5	10	2	5	10	10	20
Metoclopramide			2	2	2	2	2	2	5	5
Morphine						2	5	10	10	20
Midazolam						0,1	0,2	0,2	0,5	0,5
Haloperidol						0,1	0,1	0,1	0,5	0,5
Morphine	10		2	5	10					
Butylscopolamine	5		4	4	4					

Figure 1. Morphine concentrations the physicians would like to have as standardized PCA cassettes.



Conclusions

- This study indicates that it is possible to standardize certain active substances such as morphine and oxycodone as off-the-shelf products.
- For the more complex drug mixtures, the prescribing traditions are different and it may be difficult to agree on standard concentrations.
- Thus, further standardization to reduce delivery time, may involve adjustment of prescribing traditions.