

Decentralizing the Holter service through improved primary-secondary care collaboration

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Introduction

A major challenge in modern health care is the soaring costs of the specialist care services. A measure to counteract this trend is to strengthen the primary care services' competence and ability to act as "gate keeper" towards the costly specialist services. In Norway, a health care reform, "The Coordination Reform" was recently passed (April 2010) with the vision to strengthen the coordination and collaboration between the levels of care, and increase the competence in primary care(1). In alignment with this vision, the feasibility study "Decentralized Holter" seeks to investigate the possibility of "moving" the Holter-service *from* the hospital, which is offering this service today, *to* the primary care doctors office. A Holter monitor is an ambulatory electrocardiography device for continuous monitoring of ECG for (in most Norwegian practice) 24 hours. The purpose of the Holter-measurement is to detect and diagnose heart beat arrhythmias. Early detection and interventions related to arrhythmias, for example Atrial Fibrillation (AF), has a potential huge health profit, as incidents of AF are strongly correlated with stroke (2).

The overarching principle of the study is that patient *data* should be sent between the levels of care; not the patient. We hypothesize that a prerequisite for a successful change of workflow will be improved collaboration processes between levels of care, more effective use of ICT and a sound economic framework. This paper will report (preliminary) results from the study, which is still in progress at the hospital Sørlandet Hospital in Arendal (SSHF), Norway.

Methods

A series of interviews have been carried out with:

- i) Clinical personnel involved in the Holter examination workflow at SSHF (7 persons) and at Ullevål Hospital, Oslo (1 person)
- ii) Primary care general practitioners (GPs) (6 persons) that "belongs to" the hospital.

A focus group meeting has also been carried out with representatives from both levels of care. In addition, analysis of patient administrative data of 101 Holter examinations at the hospital SSHF (in the period October 2008 to March 2009) has been carried out to determine volume of examination and time-factors, and to enable a better understanding of the "bottlenecks" of today's workflow.

Results

All GPs interviewed were positive to a potential change of workflow and responsibility. A positive effect highlighted was that it provides the GP access to a good diagnostic tool. The overall viewpoint was that there is probably an under-usage of Holter as tool in primary care. However it was stressed that diagnosing arrhythmias requires specialist competence. Close collaboration with specialist services was stressed. The analysis of the Holter examination process at the hospital SSHF revealed that the administrative burden on the hospital related to the current workflow is high compared to the actual required specialist services resources spent on interpreting the Holter data.

The process also requires patience from GP and patient: It takes on average 54 days (with a standard deviation of 22 days) from the referral is received at the hospital till the examination result is sent from the hospital to the GP. The time a specialist spends on interpreting each sets of Holter measurements is, in comparison, 10-15 minutes, se shown in Fig. 1.

The detailed procedures within the hospital SSHF were visualized in a flow chart diagram, as can be seen in Fig.2. There are in total 28 different steps performed by at least three different categories of personnel (not all are shown in the figure). By detailed analyzes of each manual steps performed, it was as an average anticipated that all procedures could be done within 90 minutes. However, the patients would normally need to carry the Holter recorder for 1-3 days, which will be timed in-between those procedures. In addition, there will be a waiting time for the patient to get an appointment at the outpatient's clinic, which on average was 33 days.

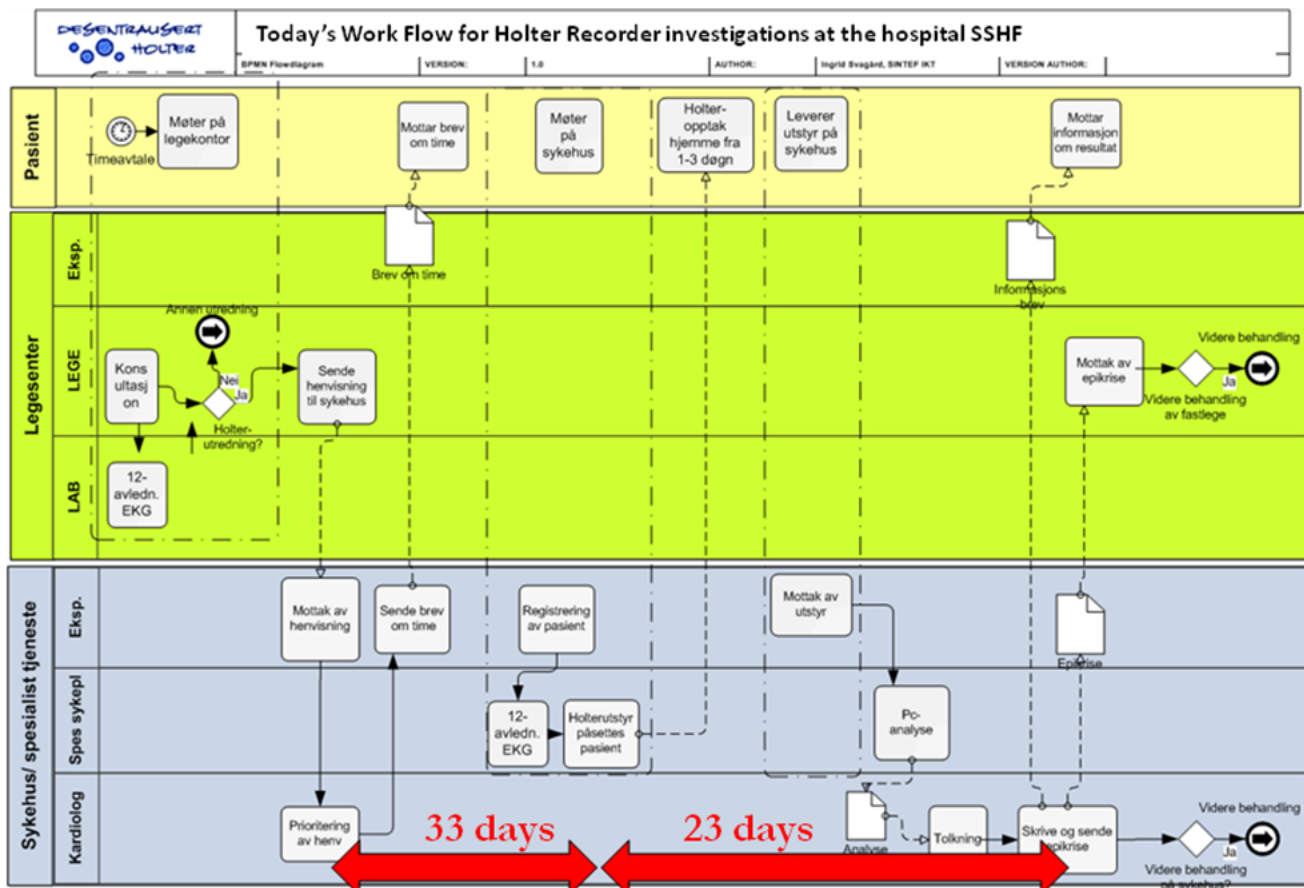


Figure 2. Flow-chart diagram of the detailed procedure within the hospital SSHF performing the actual Holter recording investigation.

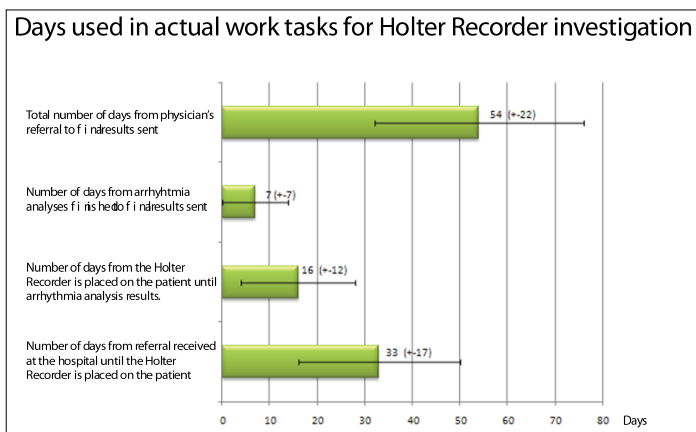


Figure 1. Average time in days for the different tasks at the hospital SSHF, during a normal Holter Recording procedure.

Discussion

Only about 50% of the about 500 Holter examinations carried out at SSHF each year are “positive” in the sense of findings of arrhythmias that lead to some kind of patient follow-up. If the GPs, through (available) automatic ECG analysis software, can filter out “healthy” patients that are not in need for specialist intervention, this can reduce the (unnecessary) involvement of specialist services. New Holter technology wire-

lessly and real-time transmits detected arrhythmias to a server and has the potential of increasing overall service efficiency. Both waiting time and travel time for the patient can be reduced. The study team is now in process of clarifying the details of an alternative workflow and planning for a pilot study.

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