

## Siemens eHealth Solutions Diabetic Retinopathy Management

Implementation of Soarian Integrated Care for  
the screening program with NHS, Scotland

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## Framework: Health System UK and Agenda

Incidence of chronic disease is on the rise worldwide and requires restructuring of healthcare systems. Creating new population based services is a trend seen in many countries.

In 1999, the tax-financed National Health Service (NHS) in the United Kingdom launched the diabetes National Service Framework (NSF) to substantially reduce the suffering and healthcare costs caused by diabetes. The framework outlines core elements of care of a high-quality diabetes service (see figure 1).

## Motivation for Scottish Diabetic Retinopathy Management

In 2006, there were an estimated 200,000 diabetics in Scotland (an estimated 4% of the 5.1 million inhabitants), and the number is predicted to double by 2015.<sup>1</sup>

Diabetic retinopathy is the leading cause of blindness of patients of working age and represents a significant workload for the health services.<sup>2</sup> Currently, at least 10-13% of the patients with diabetes have sight-threatening diabetic retinopathy.<sup>3</sup> With appropriate medical and ophthalmologic intervention, it has been estimated that blindness can be prevented in 60-70% of cases.<sup>4</sup>

A cost-benefit study assigned to the University of Keele demonstrated that a Diabetic Retinopathy Screening program could save more than 15,000 patients from blindness per year and reduce costs by 43%.<sup>5</sup>

<sup>1</sup> <<http://www.diabetesinscotland.org/diabetes/Index.asp>>, April 4th, 2007.

<sup>2</sup> Evans J. Causes of blindness and partial sight in England and Wales 1990-1991. HMSO 1995.

<sup>3</sup> McLeod BK, Thompson JR, Rosenthal AR. The prevalence of retinopathy in the insulin-requiring diabetic patients of an English country town. Eye 1988; 2: 424-430.

<sup>4</sup> Early Treatment Diabetic Retinopathy Study Research Group. Photocoagulation for Diabetic Macular Edema. ETDRS Report Number 1. Arch Ophthalmol 1985; 103: 1796-1806.

<sup>5</sup> James M, Turner DA, Vora J. Cost effectiveness analysis of screening for sight threatening diabetic eye disease. BMJ 2000;320:1627-1631 (17 June).

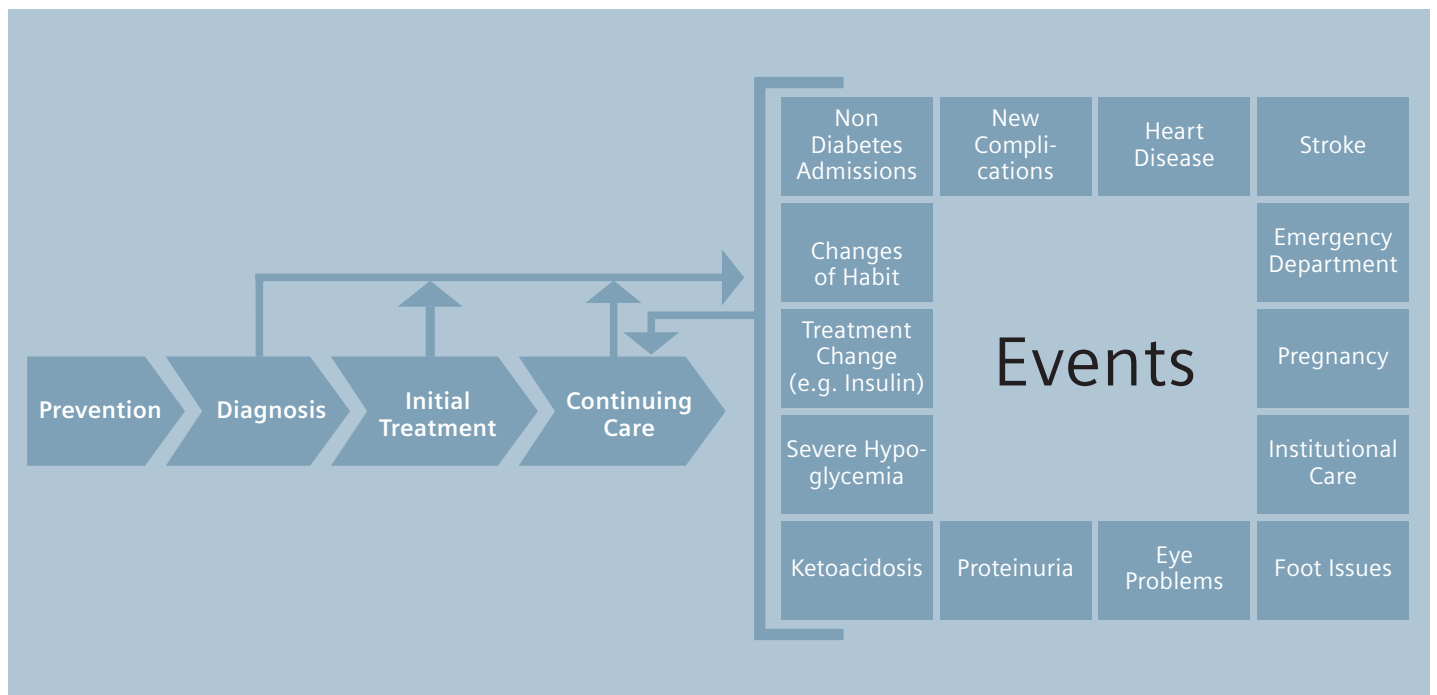


Figure 1: Core elements of diabetes care

## The NHS Scotland Approach

To address the burden of diabetic retinopathy, the Scottish Minister for Health announced that all patients with diabetes aged twelve and over in Scotland would be offered diabetic retinopathy screening using digital photography from 2006 on.

This program involved setting up a whole new administrative framework, training staff, defining processes and a quality program that can be applied to geographical areas with different resource levels. The new function of 'grader' was created to review the images obtained from the ophthalmologic cameras and categorize them for further treatment steps.

There was a complete screening process defined covering:

- Organization
- Call – recall and fail safe
- Screening process
- Proficiency testing
- Referral

## Implementation of the Scottish Diabetic Retinopathy Management Service

Lothian and Borders Region of Scotland (City of Edinburgh and the surrounding area) was the pilot region to test the Siemens software Soarian® Integrated Care for Diabetic Retinopathy Screening.

The software supports call and recall, appointment booking, examination, image capture, grading, results reporting, quality management and specific user roles to restrict access to the appropriate data and functionalities. Data is transferred from the local staging servers to a central storage server; patient and provider data are synchronized with national registers hosted both by Atos Origin, an international IT services provider.

The success of a diabetic screening service principally depends on the application, a reliable IT infrastructure and the relationship with other systems, e.g. the "Scottish Clinical Information – Diabetes Care".

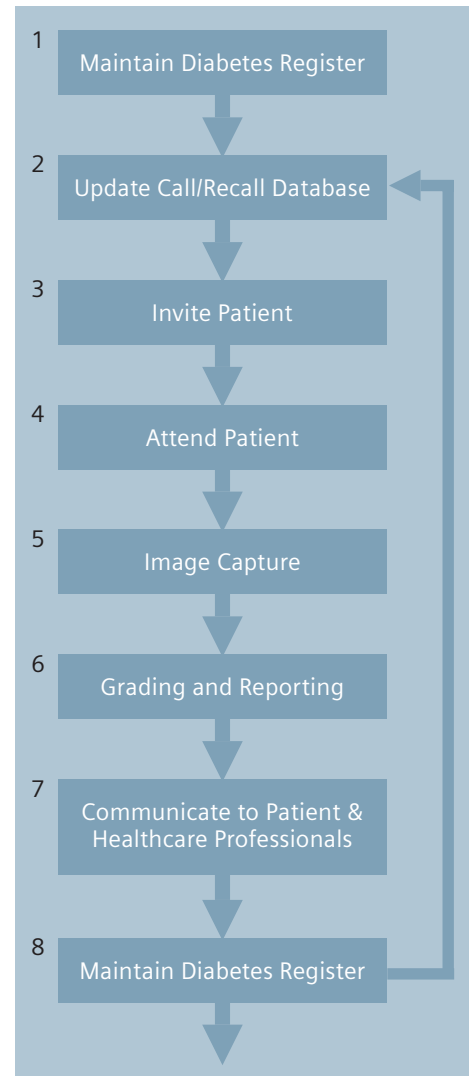
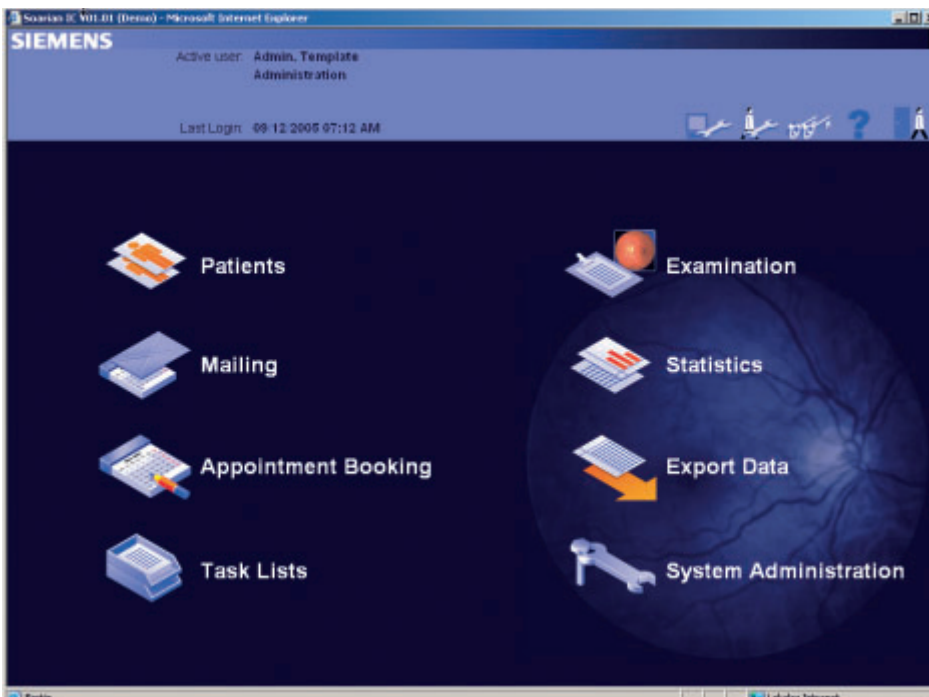


Figure 2: Overview of the diabetic retinopathy screening process



## Outlook

The national roll-out in March 2006 has been started due to excellent results in the pilot. From March to August the connectivity to all healthcare providers was implemented and 116,000 patients were enrolled into the service – 8,8% of them have been screened by the 3rd quarter of 2006.

# Siemens as Partner for National Healthcare IT Infrastructure

## Siemens view:

“Setting up a Diabetic Retinopathy Screening Service is a very efficient first step to implement a national IT infrastructure. Solving a current problem in health care delivery with the implementation of a new medical service helps to gain acceptance from the whole professional community.”

(Dr. Volker Schmidt, Siemens AG, Medical Solutions, Manager Medical Applications MED GS)

# Siemens as Partner for National Healthcare IT Infrastructure

## Customers view:

“NHS Scotland chose Siemens because Siemens demonstrated a commitment to delivering an IT solution that met the healthcare needs identified, and had already implemented an effective working solution in Europe.”

(Mrs. Deirdre Evans,  
Director of the  
National Services  
Division, NHS Scotland)

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Order No. A91GS-00008-2C1-7600  
Printed in Germany  
CC GS 00000-01-06 WS 04071.

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