

# GOOD PRACTICE BRIEF

## PRIMARY CARE ELECTRONIC PANELS IN CROATIA: An information solution for more proactive primary health care services

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### Summary

In 2014, the Croatian Health Insurance Fund introduced “primary care panels for NCDs”, an innovative instrument that allows systematic recording and management of data on patients with noncommunicable diseases (NCDs). The aim of the panels was to improve model of care for NCDs in primary care by strengthening the role of general practitioners as the primary information holders and care coordinators. Systematic, easy access to important information facilitated both clinical and managerial decision-making. Three years since country-wide introduction of primary care panels, their coverage is now 3.8 million adults. They have resulted in better patient stratification, better management of NCDs in primary care, fewer secondary complications from NCDs and fewer patients who require a consultation with a specialist.

### Strengthening the role of primary care in the management of NCDs

The Croatian National Health Strategy 2012–2020 includes strengthening the role of primary care in the prevention and management of NCDs (1). Poor patient outcomes, which resulted in high rates of premature mortality from major NCDs in 2012 (401 deaths per 100 000 population) and high share of specialist consultations (23% of all ambulatory visits) indicated that patients with and at risk of NCDs should be better managed in primary care (2, 3). As many countries in the eastern part of the WHO European Region face the same problem and are adopting information solutions to better manage patients with and at risk for NCDs, the experience of Croatia might be useful.

### Introducing primary care panels

To address the growing burden of NCDs and associated costs, the Croatian Health Insurance Fund (CHIF) decided to improve the management of NCDs in primary care with an information technology solution known as “primary care panels”. The prototype of primary care panels is a tool used in family group practice in Breznica, where general practitioners decided to record and store patients’ anthropometric and risk factor data in Microsoft Excel tables and update it during patient visits (3). The innovation was recognized by the CHIF as good

### Key Messages

- Local innovations can effectively improve early detection and care of NCDs.
- A demand-driven approach to transformation of service delivery is an important factor for success.
- Introduction of innovations as part of wider national health reform facilitates acceptance by a broad range of stakeholders.
- Innovative information technology in primary care does not require a large investment.
- Alignment of wider health system functions, such as incentives and accountability arrangements, ensures the success of an innovation.
- The functionality and utility of the primary care panels was expanded at marginal cost.

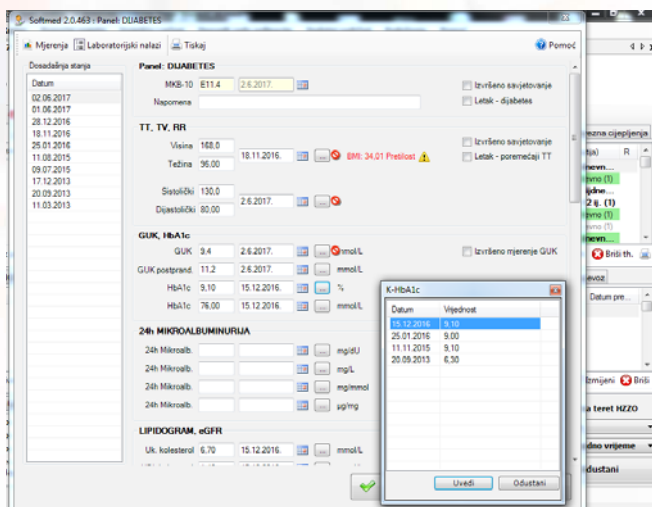
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practice, and several national information technology companies have developed special e-panel software based on this model. Development of the panels was encouraged by financial incentives, with an aligned contract model. Primary care panels were pilot-tested for 8 months during 2012–2013 in selected facilities across Croatia and were shown to improve risk stratification and management of NCDs. After release of the results of the pilot study, country-wide use of primary care panels spread rapidly, with uptake in almost all family practices by the end of 2014.

“Primary care panel” is a common name for a group of software tools used in primary care. There are two types of panel, for prevention and for chronic disease. “Preventive panels” are filled in routinely for the entire population during primary care encounters. They are specific modules that enable general practitioners to record and stratify risk factors for NCDs in the population aged 14 years and older. The basic preventive panel includes personal information, weight and height and in-built formulas that allow calculation of the body-mass index and its position on percentile curves. The age-dependent modules include questions on smoking, alcohol use, blood pressure, waist–hip ratio and plasma glucose values (if indicated by an increased body-mass index). One of the features of the preventive panel is a function for generating leaflets on risk factors and behaviour change, which can be printed during a visit and handed to the patient. The panels are filled in opportunistically at a recommended frequency of 6–12 months, with an automatic pop-up reminder function.

**Fig. 1. Sample chronic disease panel: intuitive interface enabled rapid scaling-up of use**



Source: Screen shot by Zoran Maravic

“Chronic disease panels” are designed for proactive management of patients with major NCDs, such as diabetes mellitus, arterial hypertension and chronic obstructive pulmonary disease. In addition to the data recorded in preventive panels, these panels allow recording of disease-specific parameters, such as glycated haemoglobin, blood lipids, the results of spirometry and fundoscopy and dates of vaccination (which are important for patients with chronic obstructive pulmonary disease). Built-in formulas allow calculation of indicators such as body-mass index, waist–hip ratio and 10-year risk for occurrence of acute cardiovascular disease. A built-in questionnaire can help providers to check patients’ adherence to treatment. Information is filled in in chronological order, which allows navigation through the data by both date and specific parameters, so that general practitioners can see the dynamics of disease and the effectiveness of treatment at

individual level (Fig. 1). Chronic disease panels also have an automatic reminder function to do or repeat certain diagnostics and follow up patients, pop-up functions for missing information and basic decision support tools based on current clinical guidelines and recommendations.

**The panels can be completed by primary care nurses or general practitioners without additional training, mainly because of its well-designed intuitive interface**

Integrated features of the panel allow all relevant information to be transferred between preventive and chronic panels and from electronic medical records received from hospitals and linked laboratories. Information technology companies provide strong support to software users during workdays. The information collected from primary care panels is synchronized in real time and stored locally; some data are stored centrally at the CHIF server. All the information in the panels can be printed out in numerical and graphic formats.

Use of primary care panels is monitored and reimbursed by the CHIF as part of a blended payment scheme for primary care. The coverage and completeness of preventive panels filled in by primary care providers is monitored and reimbursed as part of an “additional activity indicators package”, while the integrity and quality of chronic disease panels are included in the “quality indicators package”,

and their reimbursement contributes about 3% of the income of providers. The CHIF also has a non-financial reward system for primary care practices that comply with certain standards in chronic disease management, one of which is chronic disease panels.

## Impact of primary care panels

The introduction of primary care panels has improved the delivery of primary care-based services for individuals with NCDs in Croatia. Since their introduction in 2013, the number of preventive and chronic disease panels and the number of patients registered and maintained has increased rapidly by more than 9% in a year.

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**new patients with diabetes mellitus registered and followed 2012-16**

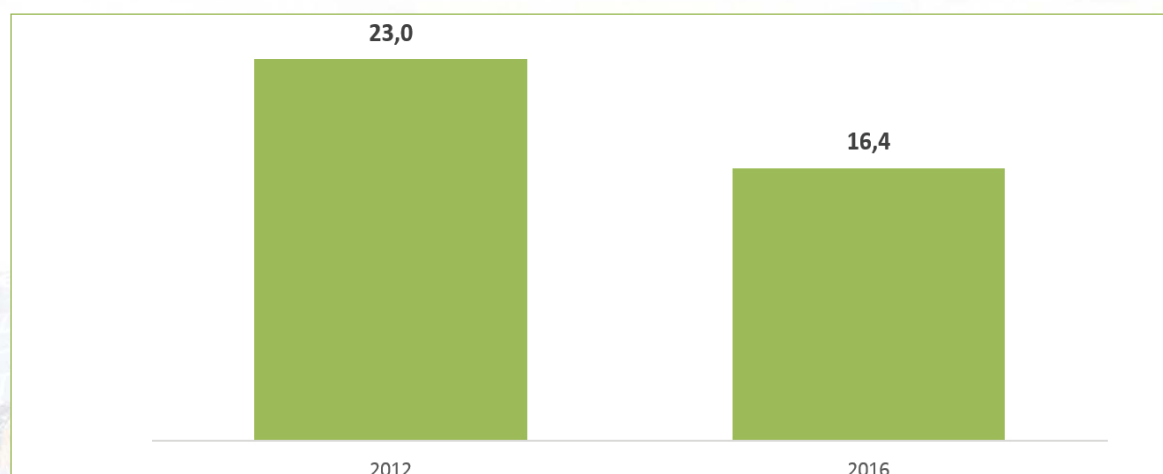
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**new patients with hypertension registered and followed 2012-16**

Croatia, like many other countries, had inadequate registration of people with chronic conditions, which is a problem for continuous disease management. Introduction of the panels has improved the situation. The Public Health Institute of Croatia has estimated that the population prevalence of diabetes mellitus is 9.2%, and that of hypertension is 40%. Before the panels, in 2012, 2% of people with diabetes and 10% of those with hypertension were not registered and thus not followed regularly. By 2016, the registered numbers reached the estimated population prevalence.

Basic support for decision-making and automated output in chronic disease panels has resulted in better compliance with current clinical guidelines and improved the overall efficiency of general practitioner consultations, allowing more time to provide advice on lifestyle and ensure compliance with treatment. This, in turn, has resulted in fewer referrals to specialists. (Figure 1) The accessibility of chronological patient information in primary care has resulted in improvements in the continuity of care and less duplication of diagnostic tests both in primary care and at successive levels of care.

**Figure 1. Reduction in the proportion of diabetics with specialist referral signals increased confidence of family doctors to manage conditions**



Source: Authors' calculation based on data of the Year Book Croatian Public Health Institute and CHIF. Note 2016 figures include extrapolation of 2015 specialist visits.

## Next steps

As an extension of primary care panels, the CHIF introduced two additional panels in 2014: an anticoagulant therapy panel and a rational therapy panel. The first allows rapid referral, transfer of laboratory results and adjustment of anticoagulant therapy for patients. The second is used to manage polypharmacy among patients aged > 65 years. The data collected in the panels are planned to be used in registers in order to make the most up-to-date data available for use in policy and service planning.

## Lessons learned

- **Local innovations can effectively improve early detection and care of NCDs.** A prototype of the primary care panels was a small-scale innovation used in family group practices in Breznica, which was later recognized by the CHIF and scaled up for use nationally, after a few modifications. As local innovations better account for the specifics of a health system of a country, they tend to be more successful and acceptable when scaled up.
- **A demand-driven approach to transformation of service delivery is an important factor for success.** The low resistance to and the strong uptake of panels by providers may be due the fact that their practical needs were taken into account at the outset of the design of the panels. Intuitive software and testing in pilot facilities across the country demonstrated their clear advantages in improving clinical processes and contributed to their rapid uptake nationally.
- **Introduction of innovations as part of wider national health reform facilitates acceptance by a broad range of stakeholders.** Primary care panels were introduced as part of the Croatian National Health Strategy 2012–2020 and its specific call to strengthen the role of primary care in the prevention and management of NCDs. This provided better leverage for investment and acceptance by all stakeholders.
- **Innovative information technology in primary care does not require a large investment.** According to the CHIF, the development and introduction of the primary care panels did not require a large investment. The intuitive software design allows physicians and nurses to use the panels without additional training. It is important to note, however, that the primary care panels were introduced in a country in which practices were already equipped with personal computers.
- **Alignment of wider health system functions, such as incentives and accountability arrangements, ensures the success of an innovation.** At the same time as it introduced primary care panels, CHIF redesigned its primary care payment scheme to include indicators of use of the panels, including the completeness and integrity of entries, which are reimbursed monthly. To encourage use of the chronic disease panels, the CHIF also introduced a non-financial award system for primary care practices that comply with certain standards in chronic disease management, by awarding them the label “five-star practice”.
- **The functionality and utility of the primary care panels was expanded at marginal cost.** Since the introduction of primary care panels in 2013, several additional modules have been added, to assist in titration of anticoagulant therapy and to manage polypharmacy in elderly patients. These were added at marginal cost, by building them into the existing software. The latest plans are to extend use of the information collected in the panels, by aggregating the data with those of specific disease and risk factor registries, and to add a tool for real-time monitoring of NCD risk factors.

## Further sources

1. National health care strategy 2012–2020. Zagreb: Ministry of Health; 2012 (<https://zdravlje.gov.hr/UserDocsImages/dokumenti/Programi,%20projekti%20i%20strategije/Nacionalna%20strategija%20zdravstva%20-%20za%20web.pdf>, accessed 31 July 2017).
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3. European health for all database. Copenhagen: WHO Regional Office for Europe; 2017.

## Contact us

This brief is part of our work programme on strengthening the health system response to noncommunicable diseases. For the full report on Croatia and other information, check out our website at <http://www.euro.who.int/en/health-systems-response-to-NCDs>