

Screening for Chronic Kidney Disease Risk in Belgium, Using the QKidney[®]-2014 Risk Calculator and Facebook[®]

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Background

Chronic Kidney Disease (CKD) affects 10% of adults in the general population and is associated with high cardiovascular morbidity and mortality. Early detection and treatment can improve outcomes. Population-based screening for CKD is not cost-effective. In contrast targeted screening is directed at individuals with an increased risk for CKD and seems cost-effective (1,2). A risk calculator allows to identify individuals at high risk, eligible for screening (3,4).

On World Kidney Day 2015 we launched the **QKidney[®]-2014 risk calculator** (www.qkidney.org) to screen for risk to develop chronic kidney disease (CKD) or end stage renal disease (ESRD) in the general population in Belgium, aged between 35 and 75 years. The QKidney risk score estimates the risk to develop kidney problems within the next 5 years (3).

Methods

A webpage was created (wereldnierdag.zna.be) and launched on WKD 2015 using different campaigns:

- active promotion in the city on March 12th (WKD)
- awareness raising of General Practitioners in the region of Antwerp
- leaflets in pharmacies
- promotional campaigns in big companies

In February 2016 we launched a Facebook[®] advertising campaign targeting users in the desired age group. A second campaign was launched in October 2016 after adapting the lay-out of the calculator to a more 'mobile-friendly' version.

Results

The first week after the launch the risk calculator was used by about 5 000 people. In the following months a steady activity on the website created about 30 000 records. In February 2016 the Facebook[®] campaign was active during 2 weeks and this was repeated in October 2016. We reached about 550 000 unique Facebook[®] users and the risk calculator was used over 40 000 times. In total 70 000 records were created. We noticed that risk scores were inappropriately high in records where systolic blood pressure and BMI were missing. Therefore only complete records (+/- 49 000) were used for the final analysis (25 242 women and 23 584 men) (Table 1).

Most people had no or slightly increased risk for kidney disease. The 5-year risk (mean [95%CI]) for moderate-severe CKD is 1.95% [1.87, 2.04] for women and 4.44% [4.30, 4.58] for men. For ESRD this is 0.72% [0.66, 0.78] for women and 1.70% [1.59, 1.81] for men (Table 2). (scores > 15)

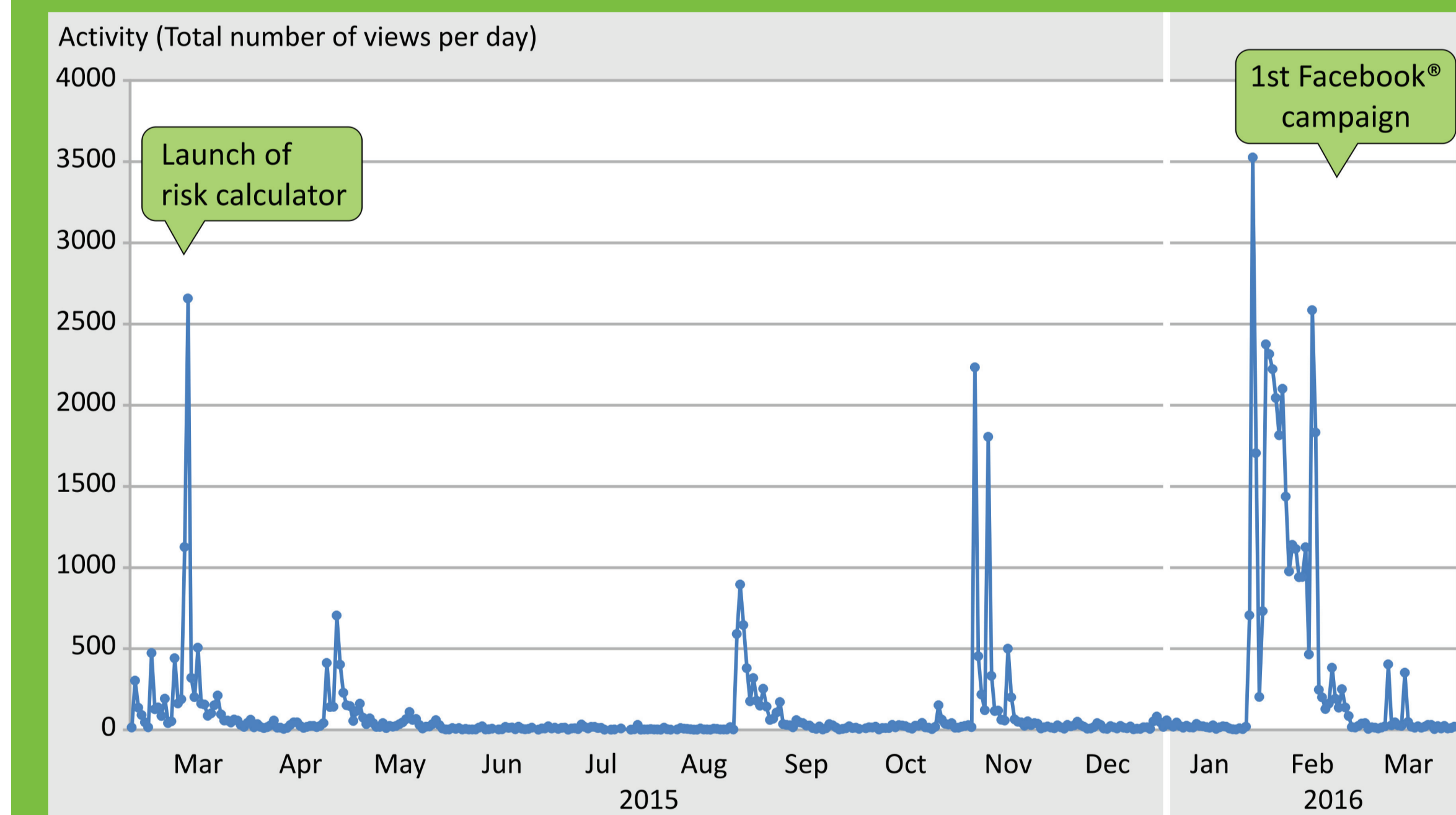


Figure 1. Activity on the risk calculator over time and the effect of the first Facebook[®] campaign.

Table 1. Characteristics of the population.

	Female		Male	
n =	36505		33520	
Median age [IQR], years	53 [45-61]		56 [46-64]	
Body mass index				
Mean (SD)	26 4.67		27 4.67	
Not recorded, n(%)	1758 4.82%		1515 4.52%	
Ethnic group, n(%)				
White/NotRecorded	35590 97.49%		32543 97.09%	
Indian	88 0.24%		69 0.21%	
Pakistani	30 0.08%		70 0.21%	
Bangladeshi	22 0.06%		34 0.10%	
OtherAsian	189 0.52%		169 0.50%	
Caribbean	59 0.16%		65 0.19%	
BlackAfrican	110 0.30%		170 0.51%	
Chinese	41 0.11%		95 0.28%	
OtherEthnicGroup	376 1.03%		305 0.91%	
Smoking status, n(%)				
ExSmoker	1719 4.71%		2211 6.60%	
HeavySmoker	1348 3.69%		2119 6.32%	
LightSmoker	1815 4.97%		1511 4.51%	
ModerateSmoker	3437 9.42%		2258 6.74%	
NonSmoker	28186 77.21%		25421 75.84%	
Clinical conditions, n(%)				
Type 1 diabetes	380 1.04%		854 2.55%	
Type 2 diabetes	1408 3.86%		2065 6.16%	
Cardiovascular disease	1608 4.40%		2810 8.38%	
Congestive heart failure	1366 3.74%		1993 5.95%	
Peripheral vascular disease	1671 4.58%		1753 5.23%	
Treated hypertension	8421 23.07%		9429 28.13%	
Systolic BP not recorded	9085 24.89%		8186 24.42%	
Rheumatoid arthritis	3348 9.17%		2304 6.87%	
Systemic Lupus erythematosus	782 2.14%		663 1.98%	
Kidney stones	3962 10.85%		4826 14.40%	
Family history of kidney disease	6182 16.93%		4290 12.80%	

Table 2. Risk scores for complete records.

	Female	Male
n for period = 5 year (excl Syst BP, BMI = NULL)	25242	23584
5-year risk of moderate-severe kidney disease (mean [95%CI])	1.95 [1.87, 2.04]	4.44 [4.3, 4.58]
5-year risk of end-stage kidney failure (mean [95%CI])	0.72 [0.66, 0.78]	1.70 [1.59, 1.81]

People with a high risk for developing CKD or ESRD were advised to visit their general practitioner and have a proper CKD screening test (eGFR and ACR).

There was a need to monitor the Facebook[®] page on a daily basis, since many messages were posted and discussions ensued that needed to be moderated. The atmosphere on the page was very positive and very few negative reactions were posted.

References

- Galbraith L et al. The See Kidney Disease (SeeKD) Targeted Screening Program for CKD. Clin J Am Soc Nephrol 11 :964,2016.
- Yarnoff B et al. The cost-effectiveness of using CKD scores to screen for early stage CKD. BMC Nephrology 18 :85,2017.
- Hippisley-Cox J et al. Predicting the risk of CKD in men and women in England and Wales : prospective derivation and external validation of the QKidney scores. BMC Fam Pract 11 :49,2010.
- Fraccaro P et al. An external validation of models to predict the onset of CKD using population-based electronic health records. BMC Med 14 :104,2016.

Risk calculators

- www.qkidney.org
- www.missingmillion.co.uk
- www.kidney.ca/risk-assessment
- www.kidney.org.au

Conclusions

- The risk of developing CKD or ESRD is very low in the general population.
- The use of the QKidney risk calculator allows detection of high risk persons, eligible for screening.
- The use of Facebook[®] in order to reach a specific target population was highly effective.

