

Dat ruikt naar minder schildklierchirurgie!

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Disclosures





geen

Doel




Geen onnodige schildklierchirurgie

Thyroidectomy: Side Effects and Complications

Common Post-Surgery Side Effects

- 
Neck tension and tenderness
- 
Voice problems
- 
Swallowing problems
- 
Irritated windpipe

Less Common Post-Surgery Complications

- 
Hematoma
- 
Decreased parathyroid hormone activity
- 
Recurrent laryngeal nerve injury

verywell

Probleem

Preoperatieve determinatie van maligniteit suboptimaal

Bethesda classificatie	Risico op maligniteit
1. Niet diagnostisch	1-4%
2. Benigne	0-3%
3. Atypie of folliculaire laesie van onzekere betekenis	5-15%
4. (Verdacht voor) folliculaire neoplasie	15-30%
5. Verdacht voor maligniteit	60-75%
6. Maligne	97-99%

Mogelijke oplossing

- Use of exhaled breath analysis (VOC's)

Research

JAMA Oncology | [Original Investigation](#)

Accuracy and Methodologic Challenges of Volatile Organic Compound–Based Exhaled Breath Tests for Cancer Diagnosis A Systematic Review and Meta-analysis

George B. Hanna, FRCS, PhD; Piers R. Boshier, MRCS, PhD; Sheraz R. Markar, MRCS, PhD; Andrea Romano, PhD

IMPORTANCE The detection and quantification of volatile organic compounds (VOCs) within exhaled breath have evolved gradually for the diagnosis of cancer. The overall diagnostic accuracy of proposed tests remains unknown.

OBJECTIVES To determine the diagnostic accuracy of VOC breath tests for the detection of cancer and to review sources of methodologic variability.

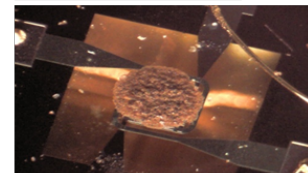
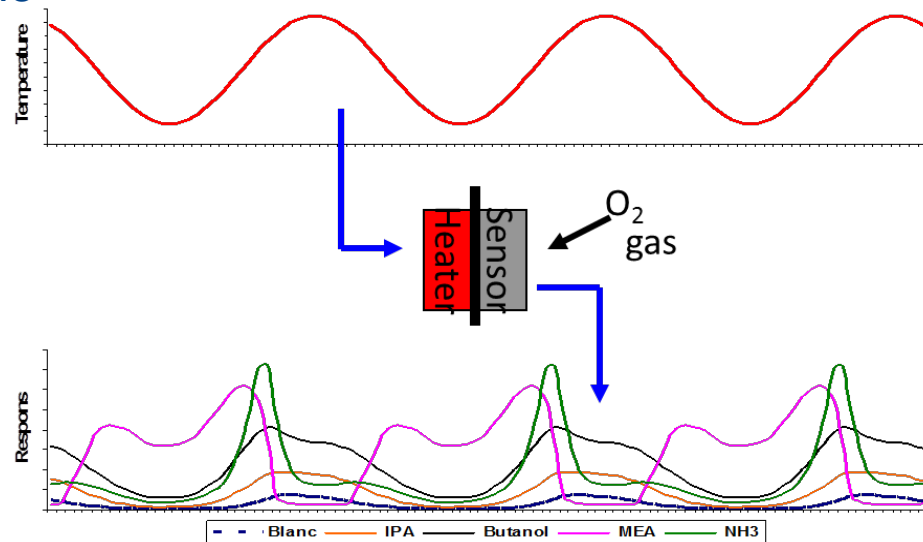
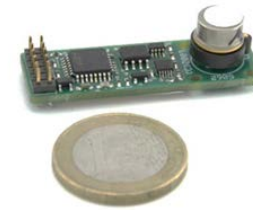
[+](#) [Supplemental content](#)



Hoe werkt het?

Samples exhaled breath

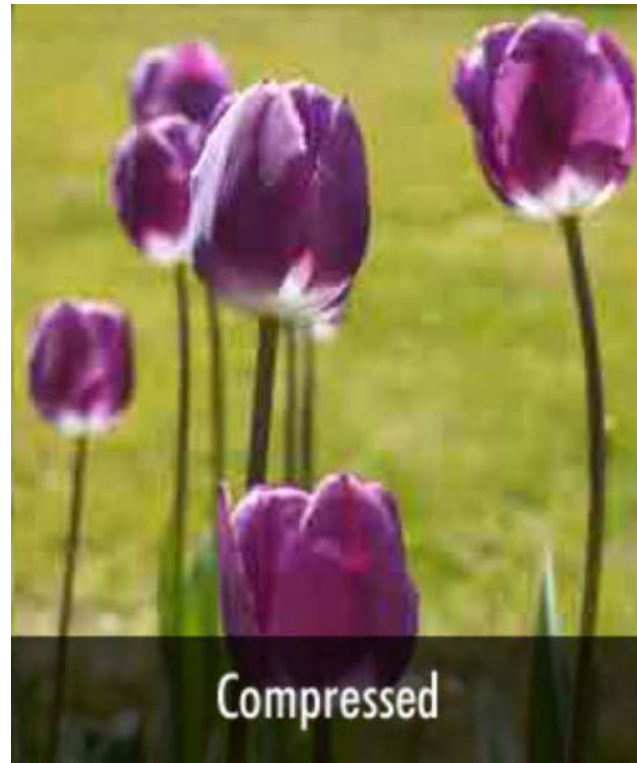
- Three metal oxide sensors
- Does not identify specific biomarkers, but changes in conductivity
- Analyzes breath profile
- Pattern recognition using algorithms



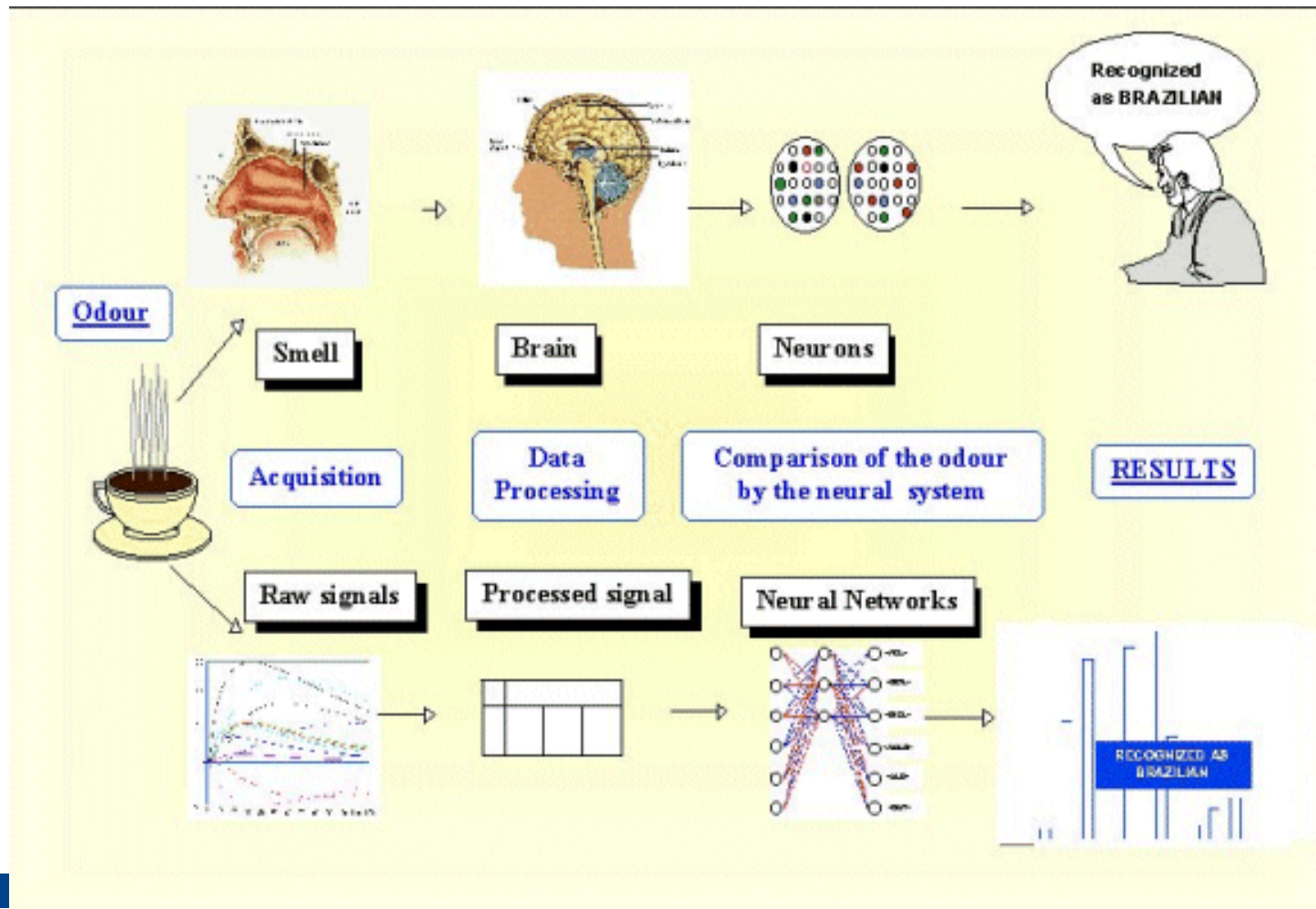
Hoe werkt het?



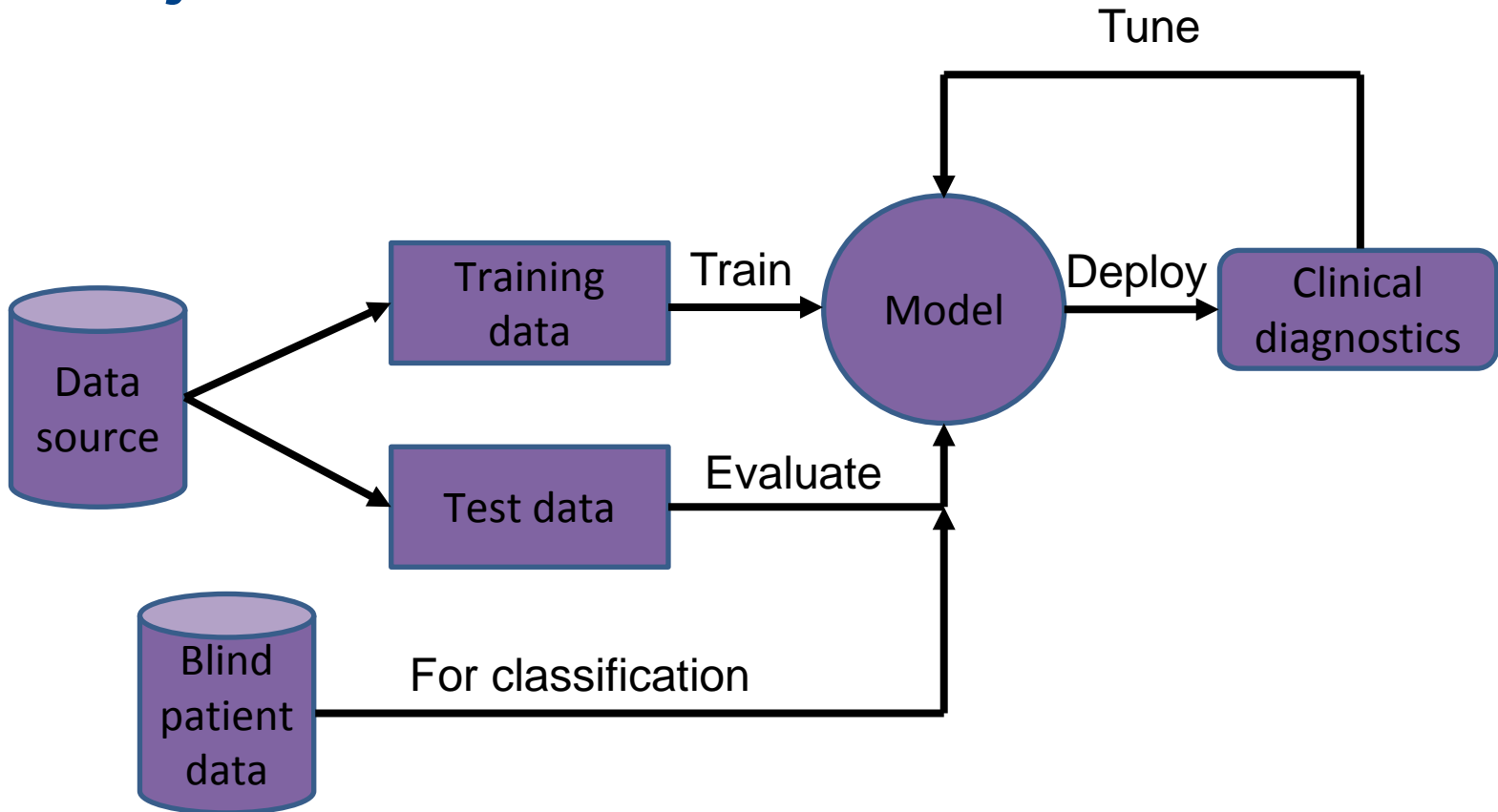
Data compressie



Bouw van artificiele neurale netwerken



Zo train je de machine



Andere aandoeningen - Longca



Contents lists available at [ScienceDirect](#)

Sensors and Actuators B: Chemical

journal homepage: www.elsevier.com/locate/snb

Analysis of volatile organic compounds in exhaled breath for lung cancer diagnosis using a sensor system

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NSCLC vs gezonde vrijwilligers

Sens 92.2% NPV 84.3% AUC 0.85

Andere aandoeningen – KNO tumoren

Eur Arch Otorhinolaryngol (2017) 274:1053–1060
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HEAD AND NECK

Feasibility of electronic nose technology for discriminating between head and neck, bladder, and colon carcinomas

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Accuracy 81-84% in differentiation

Andere aandoeningen

- Multicenter validatie colon en longca
- IBD
- Astma
- CF
- H. pylori
- Longembolieën
-

Eerste data schildkliercarcinoom

Okt 2016 – ongoing (158 pt)

Accuracy	0.77
Sensitivity	0.94
Specificity	0.70
PPV	0.57
NPV	0.96

Vervolgstappen

- Multicenter validatiestudie met blinde patientdata (Bethesda III en hoger)
- Implementatie van de Enose in clinical decision making
- Testen Enose in follow up schildkliercarcinoom: aanwijzingen voor recidief?

Take home message

- Enose excludeert SKC met NPV van 0.96 (pilot)
- Als multicenter validatiestudie deze data kan bevestigen, kunnen we onnodige schildklierchirurgie voorkomen!



This work has been done by....

- Lottie van Kooten
- Valerie Schuermans
- Anne Wintjens
- Marielle Coolsen
- Tim Lubbers
- Bastiaan Havekes
- Nicole Bouvy