



Reorientation for health and care systems: are new skills needed?

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Prof. Jan De Maeseneer, MD,PhD

**Chair Expert Panel on Effective Ways of Investing in Health
(EXPH)**

DEPARTMENT OF PUBLIC HEALTH
AND PRIMARY CARE



WHO Collaborating Centre
Family Medicine and Primary Health Care



GHENT
UNIVERSITY



Expert Panel on Investing in Health

The Expert Panel on effective ways of investing in health is an **interdisciplinary and independent group established by the European Commission to provide non-binding independent advice** on matters related to effective, accessible and resilient health systems. The Expert Panel aims to support DG Health and Food Safety in its efforts towards **evidence-based policy-making**, to inform national policy making in improving the quality and sustainability of health systems and to foster EU level cooperation to improve information, expertise and the exchange of best practices.

Expert Panel members (2019-2022)

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Dr Anna GARCIA-ALTES (Vice-Chair)

Prof. Damien GRUSON

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Prof. Christos LIONIS

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Dr Heather ROGERS

Prof. Luigi SICILIANI

Dr Dorothea STAHL

Prof. Katarzyna WIECZOROWSKA-TOBIS

Dr Sergej ZACHAROV

Dr Jelka ZALETEL



Picture taken
in pre-
corona times



Reorientation for health and care systems: are new skills needed?

- Improved resilience requires the ability and skills of health and public health professionals to prepare for, manage and learn from crises like Covid-19.
- Health promoting systems offer the opportunity to prevent illness and reduce costs, leaving more capacity to respond to crises.
- A 'health in all policies' approach is more crucial than ever, particularly between the health sector, the long-term care sector, education and other social actors
- Reorientation of health systems can make a major contribution to achieving improving health and wellbeing, as well as wider public goals
- Ensure that the relevant workers, including health care professionals, health promotion experts, and other social actors have the necessary skills to support this change.



THE ORGANISATION OF RESILIENT HEALTH AND SOCIAL CARE FOLLOWING THE COVID-19 PANDEMIC

Opinion of the
**Expert Panel on effective ways
of investing in Health (EXPH)**

Operational Definition of “Resilience”

*“The capacity of a health system to (a) proactively **foresee**, (b) **absorb**, and (c) **adapt** to shocks and structural changes in a way that allows it to (i) **sustain** required operations, (ii) **resume** optimal performance as quickly as possible, (iii) **transform** its structure and functions to strengthen the system, and (possibly) (iv) **reduce its vulnerability** to similar shocks and structural changes in the future.”*

Source: The Expert Group on Health System Performance Assessment (HPSA), Opinion, to be published at https://ec.europa.eu/health/systems_performance_assessment/priority_areas_en



Conditions for capacity building of resilient health and social care

Anticipating, coping with uncertainties/unplanned events

- Capacity and ability to **anticipate and cope** with uncertainties and unplanned events is part of the adaptive resilience of the system
- Determined by the degree system has **necessary resources** and can organize itself both prior to and during times of need
- Strong **primary care** systems form the foundation of any emergency response
- **Strategic planning**, maintaining a degree of redundancy of key resources in the public health response chain, ability to deploy resources and staff rapidly, and effective coordination of responses



Managing interdependence and cooperation of actors

- Response to an emergency requires a **wide range of actors** to undertake a complex mix of functions, working in a coordinated manner: soft systems approach
- Each sub-system (within a system) should be connected by **clear lines of communication and accountability**, as well as data flows
- **Close working** with those who must deliver within the different subsystems, drawing on principles of:
 - coproduction
 - scenario analyses
 - tracing critical pathways



Protecting mental health of population and health workers

- Emergency response measures may profoundly impact mental health
- Public health priority requiring behavioural strategies
- Health workers affected are at significant risk of long-term mental illness, especially if they are unable to obtain appropriate support
- (personalised) Recovery plans:
 - written and verbal thanks with psychological support info
 - supervisors speaking about mental health
 - monitoring those exposed, proactive case finding at risk for mental illness
 - mechanisms for mutual support (E.g. group discussions)

Retain, prepare, distribute and flexibly increase staff capacity

- **Invest** in adequate (level and distribution), locally trained, motivated and well-supported health and care work force
- **Strong primary care** is central in addressing a population crisis
- Needed to respond to sudden events while buying time to increase capacity and providing the necessary flexibility, and **to avoid disruptions** in access to and continuity of regular care
- Short-term and long-term strategies to **increase workforce capacity** that require a supporting legal framework



Resilience Testing of Health Care Systems

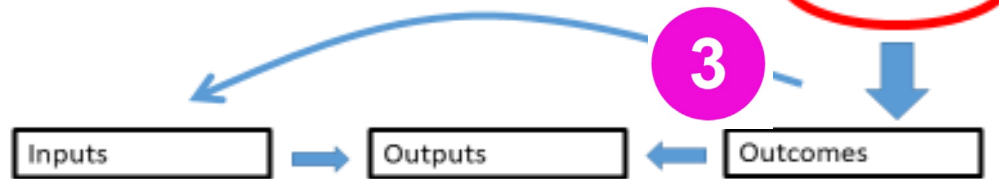
Operational Definition of “Resilience”

2

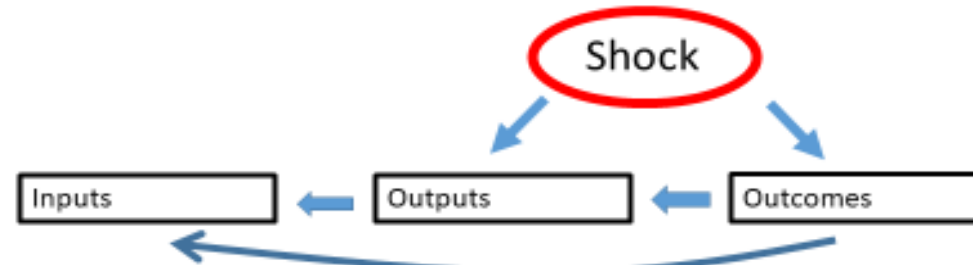
Response of a Health System to Shocks or Structural Change

1

a) Outbreak



b) Superbug



c) Shortage of workers

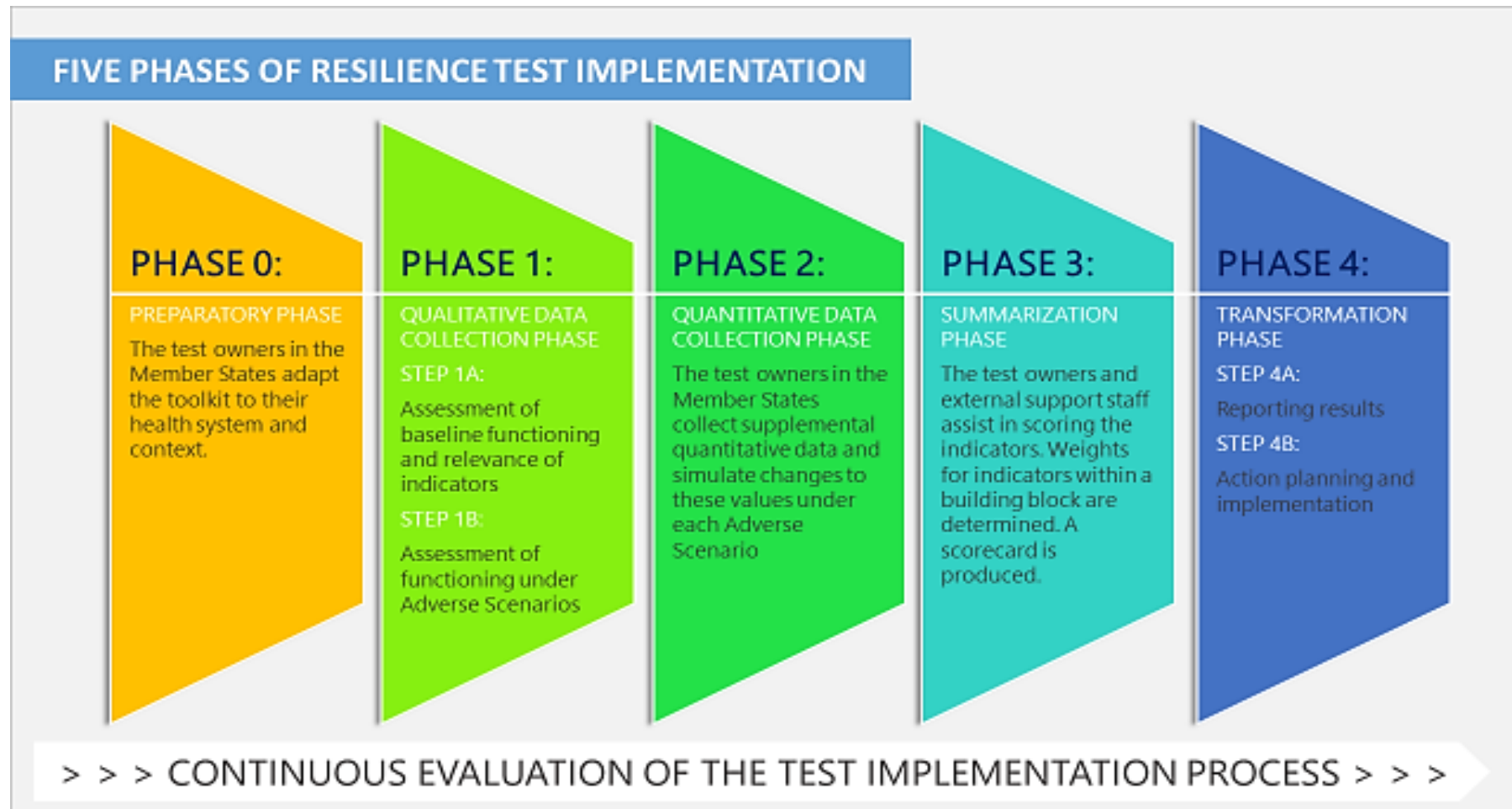


An Example Outcome of the Resilience Test

Sample Scorecard for a Resilience Test of a Health System

Health Workforce	Community Carers	Medicines	Infrastructure	Information Systems	Governance	Financing	Health Services	Health Promotion
CONDITION: Normal								
CONDITION: Scenario 1 – Super-bug								
CONDITION: Scenario 2 – Budget cut resulting from financial crisis								

Overview of the Resilience Test Process





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- A 'health in all policies' approach is more crucial than ever, particularly between the health sector, the long-term care sector, education and other social actors
- Reorientation of health systems can make a major contribution to achieving improving health and wellbeing, as well as wider public goals
- Ensure that the relevant workers, including health care professionals, health promotion experts, and other social actors have the necessary skills to support this change.



OPTIONS TO FOSTER HEALTH PROMOTING HEALTH SYSTEMS

Report of the
**Expert Panel on effective ways of
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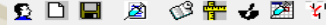
Reorientation: Need for new organisational and financing models:

- Increased investment in PHC: from 14 % of Total Health Expenditure(THE) to 30 % of THE
- Integration of Primary Care and Public Health services in 'Primary Care Zones'/Districts
- (GDPR-proof) Integration of EHR in Primary Care and Public Health enabling a 'Community Diagnosis'

Shared Electronic Patient Record

FICTIVO, Denisa (V); Dos. N°01FICTIEF; 01/01/1964 - 50 Jaar 2 Maand(en) 17 Dag(en)

Bestand Bewerken Beeld Vensters Help



Medisch overzicht

Roker : 20 [s/dag] (05/03/2013)

Belangrijke actieve GE

- Tabaksmisbruik
- Menopauzale symptomen/klachten
- Niet insuline-afhankelijke diabetes
- Symptomen/klachten schouder
- Overgewicht
- Hypertensie zonder orgaanbeschadiging
- Sociaal probleem nao, begeleiding maatschappelijk werk

Familiale antecedenten

- Acuut myocardinfarct (Vader)
- Niet insuline-afhankelijke diabetes (Moeder)

Medische antecedenten

- Zwangerschap, vlotte partus, zoon
- Zwangerschap, vlotte partus, dochter
- Zwangerschap, vlotte partus, dochter

Chirurgische antecedenten

- appendectomie in 1999

Chronische medicatie

- Metformine Sandoz tab 100x 850mg
- Asaflo tab EC 168x 80mg
- Simvastatin Sandoz tab 100x 20mg

Vaccins

- Toegediende vaccins
- Geplande vaccins

GezondheidsElementen

Alle AB A ZorqE. Zorgaanpakken

Beschrijving	A	B	R	Begin	Einde	Zekerheid	Duur	Code	Presteerder	Specialiteit
Acute infectie bovenste l				12/02/2014	16/02/2014	Niet bepaald	Acuut	R74	VANDEDRINCK, E	Huisarts
Hypertensie zonder orga	A	E		20/03/2013		Niet bepaald	Chronisch	K86	VANDEDRINCK, E	Huisarts
Menopauzale symptomen	A	E		15/01/2014		Niet bepaald	Sub-acuut	X11	VANDEDRINCK, E	Huisarts
Niet insuline-afhankelijke	A	E		01/03/2011		Niet bepaald	Chronisch	T90	VANDEDRINCK, E	Huisarts
Overgewicht	A	E		05/03/2010		Niet bepaald	Chronisch	T83	VANDEDRINCK, E	Huisarts
Preventie	A			05/03/2013		Niet bepaald	Chronisch	A98	VANDEDRINCK, E	Huisarts
Sociaal probleem nao, be	A	E		20/06/2013		Niet bepaald	Chronisch	Z29	DEWAELE, Liesbe	Maatschappelijk wer
Symptomen/klachten sch	A	E		01/03/2013		Niet bepaald	Chronisch	L08	VANDEDRINCK, E	Huisarts
Tabaksmisbruik	A	E		01/01/1990		Niet bepaald	Chronisch	P17	VANDEDRINCK, E	Huisarts
Zwangerschap, vlotte par	E			01/05/1995	16/02/1996	Niet bepaald	Chronisch	W78	VANDEDRINCK, E	Huisarts
Zwangerschap, vlotte par	E			01/04/1998	06/01/1999	Niet bepaald	Chronisch	W78	VANDEDRINCK, E	Huisarts
Zwangerschap, vlotte par	E			01/07/1993	12/05/1994	Niet bepaald	Chronisch	W78	VANDEDRINCK, E	Huisarts

Geneesmiddelen

Beschrijving	Begindatum	Einddatum	A	Presteerder	Specialiteit
<input checked="" type="checkbox"/> Metformine Sandoz tab 100	01/03/2013		<input checked="" type="checkbox"/>	VANDEDRINCK, E	Huisarts
<input checked="" type="checkbox"/> Asaflo tab EC 168x 80mg	05/03/2013		<input checked="" type="checkbox"/>	VANDEDRINCK, E	Huisarts
<input checked="" type="checkbox"/> Simvastatin Sandoz tab 100	05/03/2013		<input checked="" type="checkbox"/>	VANDEDRINCK, E	Huisarts
<input type="checkbox"/> Hygroton tab 30x 50mg	20/03/2013		<input checked="" type="checkbox"/>	VANDEDRINCK, E	Huisarts

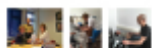
Planning

Datum	Beschrijving	Statuut	Presteerder	T	Te doe	Specialiteit
11/03/2014	aanvraag aangepast rijbewijs	Te doen	VANDE KERCKHO	S	<input checked="" type="checkbox"/>	Verpleegkundige
11/03/2014	Opvolgcontact bij een diëtist	Te doen	VANDE KERCKHO	S	<input checked="" type="checkbox"/>	Verpleegkundige
11/03/2014	verwijzing - oogarts	Te doen	VANDE KERCKHO	S	<input checked="" type="checkbox"/>	Verpleegkundige
11/03/2014	Test op microalbuminurie	Te doen	VANDEDRINCK, E	S	<input checked="" type="checkbox"/>	Huisarts
11/03/2014	Bepaling glucose/HbA1c	Te doen	VANDEDRINCK, E	S	<input checked="" type="checkbox"/>	Huisarts
12/03/2014	Onderzoek diabetische voet	Te doen	VANDE KERCKHO	S	<input checked="" type="checkbox"/>	Verpleegkundige
11/06/2014	DiabetesSpreekUur, educator	Te doen	VANDE KERCKHO	I	<input checked="" type="checkbox"/>	Verpleegkundige
05/09/2014	vaccin griep	Te doen	VANDEDRINCK, E	I	<input checked="" type="checkbox"/>	Huisarts
05/03/2020	vaccin difterie/tetanus	Te doen	VANDEDRINCK, E	I	<input checked="" type="checkbox"/>	Huisarts
25/06/2013	DiabetesSpreekUur	Uitgevoerd	BLOKLAND, INEK	I	<input type="checkbox"/>	Huisarts

Contacten

Datum	Type	Presteerder	Specialiteit
15/05/2014	Raadpleging	VANDEDRINCK, E	Huisarts
11/03/2014	Raadpleging	BLOKLAND, INEK	Huisarts
12/02/2014	Raadpleging	VANDEDRINCK, E	Huisarts
15/01/2014	Raadpleging	VANDEDRINCK, E	Huisarts
01/11/2013	Raadpleging	DEWAELE, Liesbe	Maatschappelijk wer
16/10/2013	Raadpleging	LANCKSWEEEDT,	Dietiste
03/09/2013	Raadpleging	VANDE KERCKHO	Verpleegkundige

Familiale antecedenten

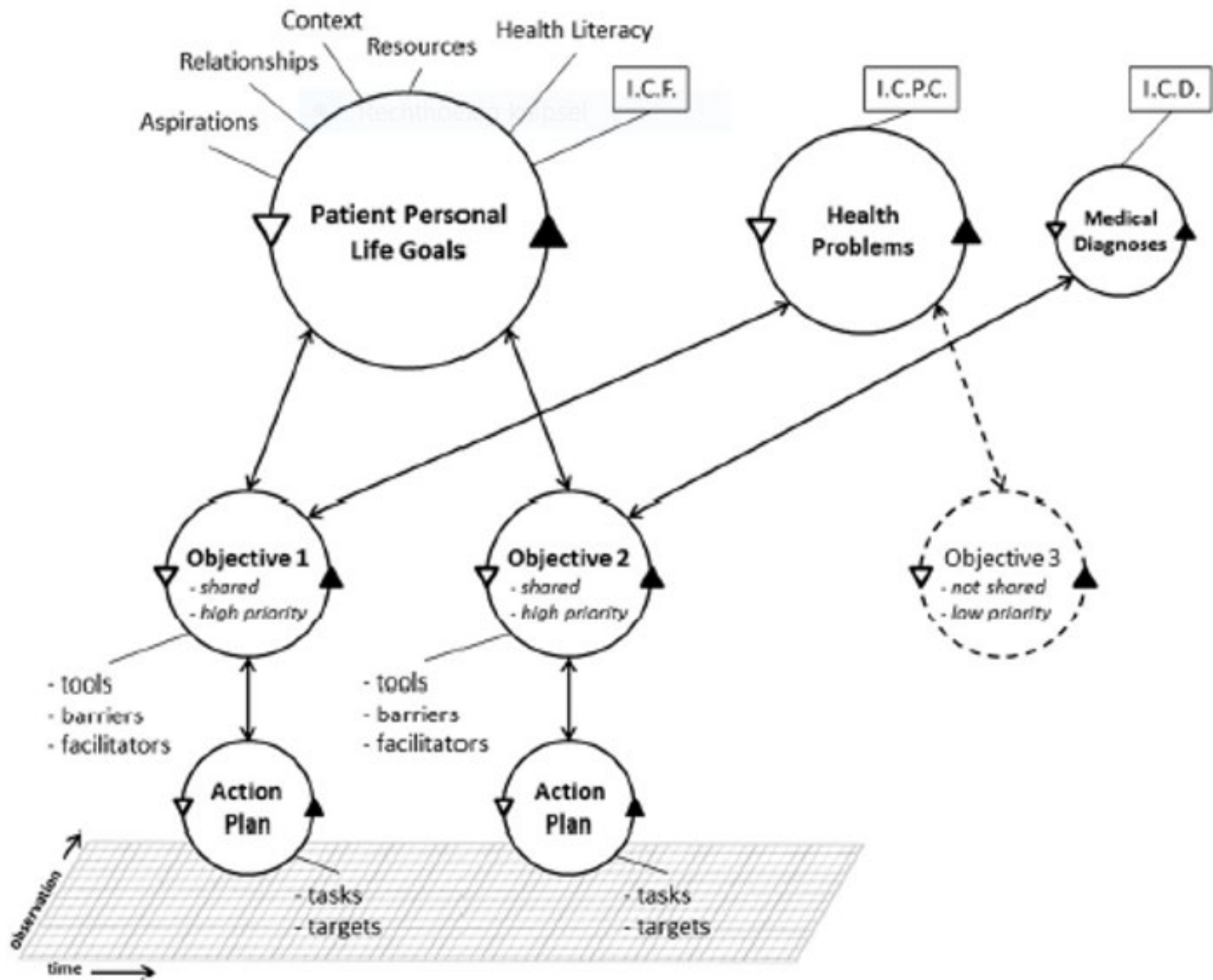


Towards an overarching model for electronic medical-record systems, including problem-oriented, goal-oriented, and other approaches

Huibert Tange, Zsolt Nagykaldi & Jan De Maeseneer

To cite this article: Huibert Tange, Zsolt Nagykaldi & Jan De Maeseneer (2017) Towards an overarching model for electronic medical-record systems, including problem-oriented, goal-oriented, and other approaches, European Journal of General Practice, 23:1, 257-260, DOI: [10.1080/13814788.2017.1374367](https://doi.org/10.1080/13814788.2017.1374367)

To link to this article: <https://doi.org/10.1080/13814788.2017.1374367>





Identifying Clusters of Conditions and their Sociodemographic Patterns Addressed by Community Health Centres in Ontario

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 4. Alliance for Healthier Communities
 ON, Canada



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INTRODUCTION

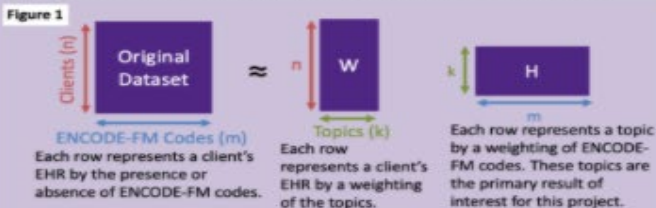
- Primary health care populations demonstrate high heterogeneity in terms of health needs and/or care received both within and across clinics.
- Better understanding this heterogeneity and especially reasons for care that frequently co-occur may have implications for resource planning and future research.
- Unsupervised machine learning techniques can elicit patterns from large databases, which may help improve understanding of a population's characteristics or needs.
- This is an **exploratory, in-progress research project** aimed at examining how clustering or dimensionality reduction techniques may be used to obtain useful information from primary health care, electronic health record (EHR) data.
 - Objective** for the presented work: identify common and co-occurring reasons for care amongst a complex primary health care population in Ontario.
 - Future work: explore patterns of care with sociodemographic characteristics.

METHODS

Population: The Alliance for Healthier Communities provides inter-professional primary health care through Community Health Centres (CHCs) across Ontario to people who are at high-risk for health needs or experience barriers to receiving regular care.

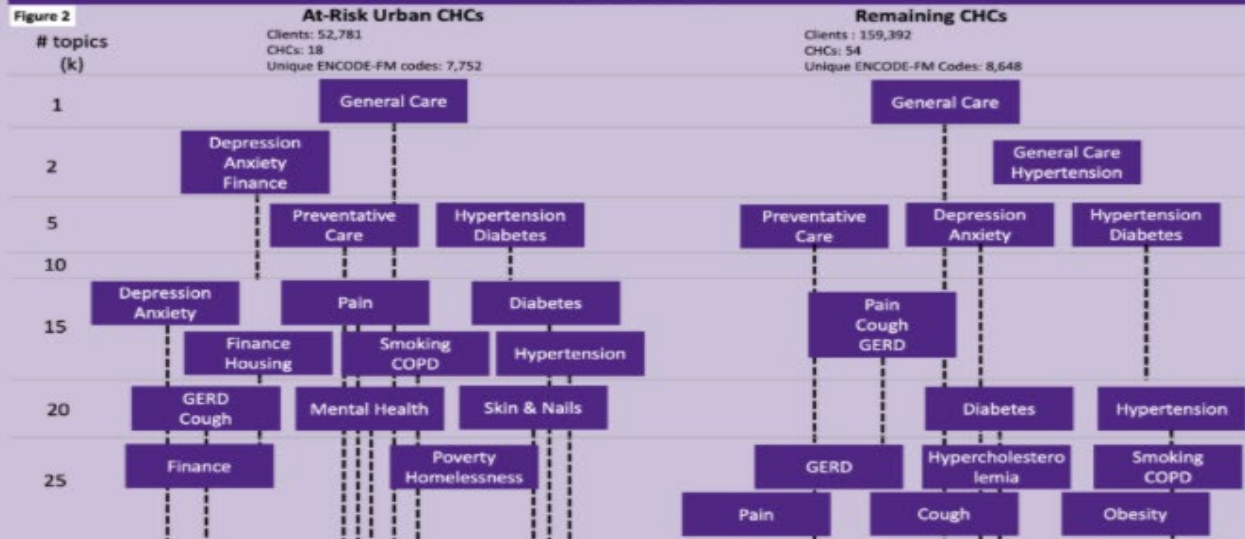
Data source: ENCODE-FM codes from de-identified EHR data for adult clients who had at least one encounter with an MD or NP at a CHC from 2015-2017. Analyses were done separately for "at-risk urban" (ARU) CHCs, which are in major urban areas and serve priority populations defined by homelessness and/or mental health and addictions.

Primary analysis method: Non-negative matrix factorization (NMF) is a data-driven technique that identifies patterns in data that can then be used to approximate the original dataset (Fig. 1). The algorithm created weighted collections of codes ("topics") to explain client EHRs; the number of topics the algorithm could use in each analysis was set manually. Codes that show up together in topics tend to frequently co-occur in EHRs and vice versa. E.g. a topic characterized by codes 'A', 'B', and 'C' would indicate that subset of codes were all present in many client EHRs over the 3-year time window.



- NMF was run with 1,2,5,10,15,20, and 25 topics for ARU and non-ARU CHCs.
- Topics were characterized manually based on the highest-weighted ENCODE-FM codes (Fig 2).

RESULTS



Plot Interpretation Notes:

- Topics are shown for the first analysis they appeared in; dotted black lines indicate the topic remained present for subsequent analyses as k increased.
- "General Care" topics are characterized by codes that do not refer to any specific issue, e.g. 'visit for prescription renewal'. As k increased so did the number of general and preventative care topics; only the first appearance for these types of topics are shown.
- Remember these topics summarize ENCODE-FM codes, not complete client experiences.

Results not shown in plot:

codes/topic:

- As k increased, "general" topics tended to be characterized by 1-2 highly weighted codes; specific health issue topics usually had more codes with similarly higher weights.
- Social issue topics tended to have the highest number of highly weighted codes per topic.

Code weights with topics:

- For ARU diabetes and hypertension showed up in a topic with similar weight; for non-ARU hypertension was initially more highly weighted than depression.
- Smoking had more weight than COPD for ARU topics but similar weight for non-ARU.
- For non-ARU financial problems showed up in the depression & anxiety topic but unlike for ARU, the weight was too low to be considered a defining feature.

DISCUSSION

Summary of results:

- In general, NMF elicited patterns that aligned with expectations for the populations.
- ARU and non-ARU EHRs were described with a mix of similar and distinct topics.
- ARU EHRs were summarized by more issue-specific topics than non-ARU EHRs, but for both most topics were characterized by general and preventative care codes.
- Mental health and financial issue topics were more apparent for ARU than non-ARU.

Other exploratory methods tried before NMF:

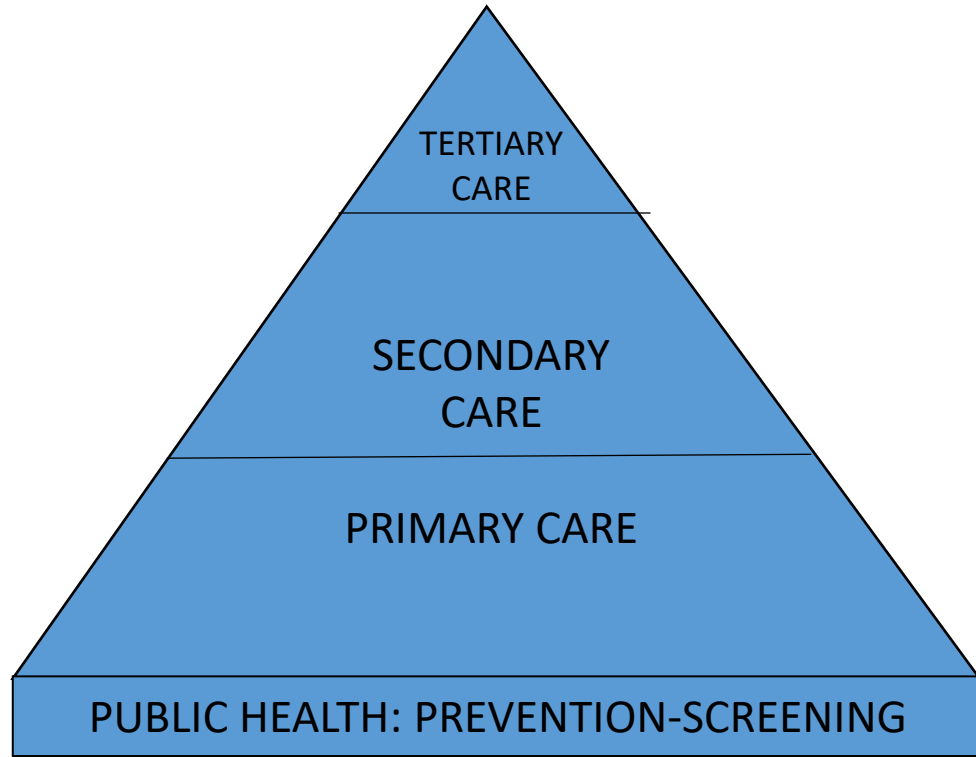
- Hierarchical agglomerative clustering with average linkage and cosine similarity, and two other data-preprocessing techniques (raw and categorized ICD-10 codes).
- Performance was poor.

Expected outcomes: "Community diagnosis" with identification of commonly co-occurring conditions seen by Community Health Centres (CHC), which clusters are present regardless of CHC, and which vary by sociodemographic characteristics

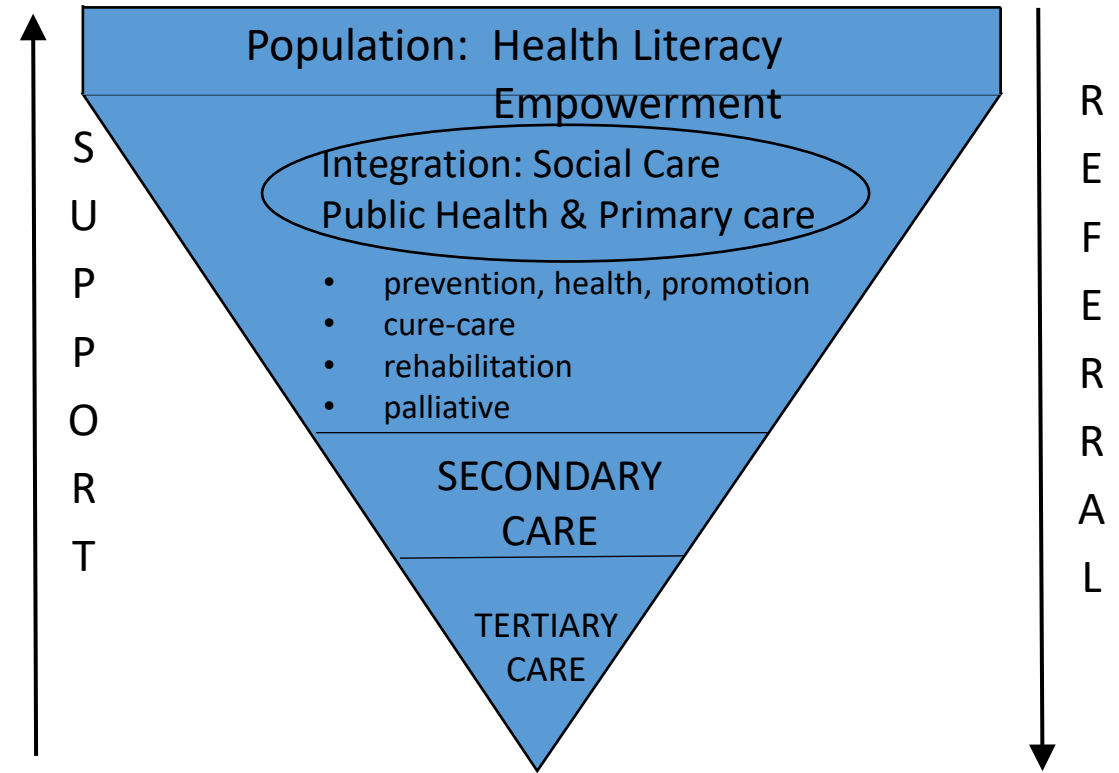
Reorientation: Need for new organisational and financing models:

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- Integration of Primary Care and Public Health services in 'Primary Care Zones'/Districts
- (GDPR-proof) Integration of EPR in Primary Care and Public Health enabling a 'Community Diagnosis'
- Interprofessional teams providing care, cure, prevention, health promotion and population management at local level in an integrated way with task shifting and competency sharing
- Integrated population-oriented financing systems to stimulate interprofessional cooperation; integrated financing for hospital networks
- New health system design: reversing the pyramid

Primary Care and hospitals : turning the pyramid upside down (after H. Vuori).



PAST



FUTURE



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- **Ensure that the relevant workers, including health care professionals, health promotion experts, and other social actors have the necessary skills to support this change.**

Vision statement

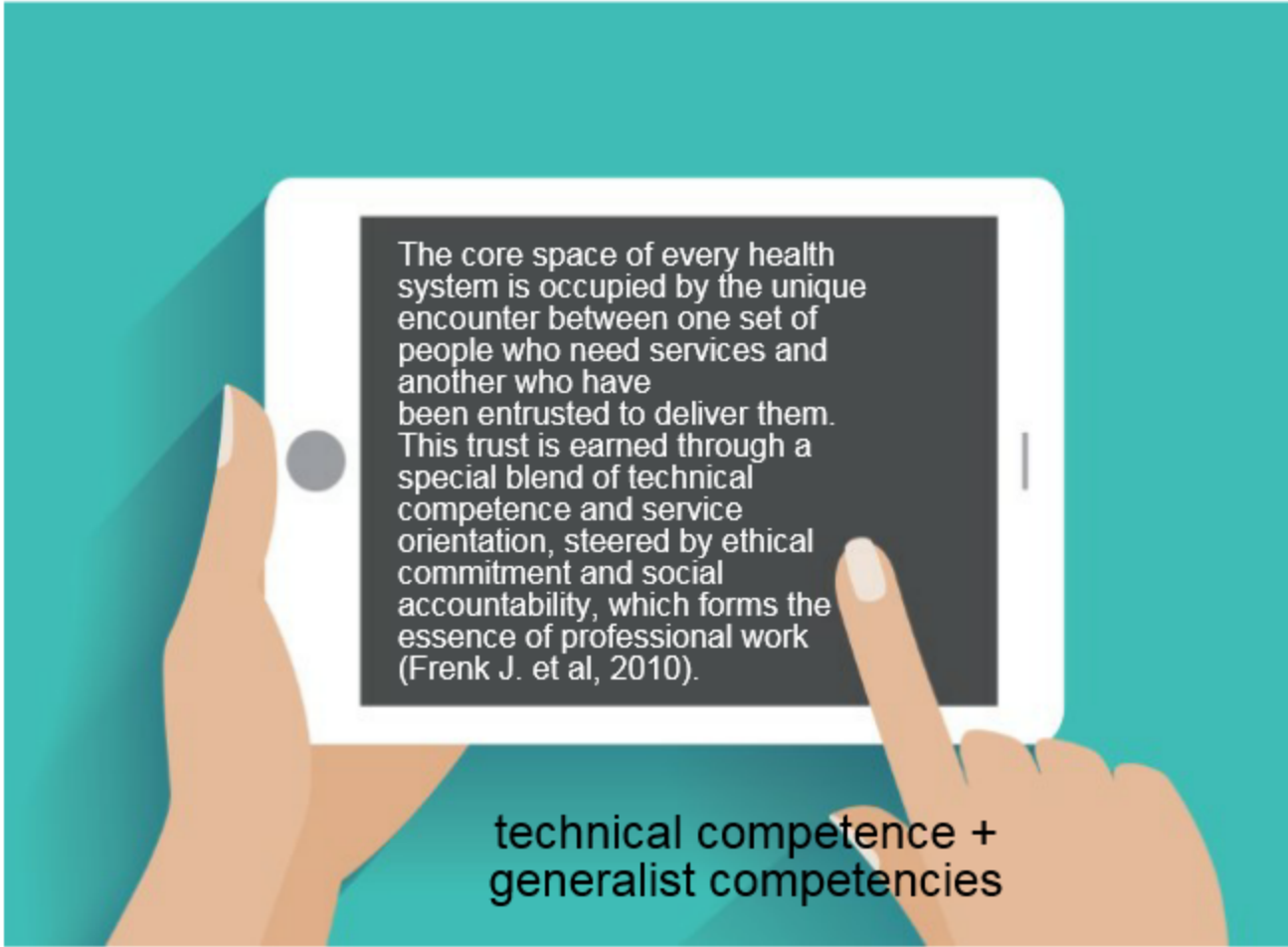


 SARWGG
Strategic Advisory Council
WELFARE HEALTH & FAMILY

New professionalism
in care and support
as a task for the
future

Barbara Krekels
Prof. Jan De Maeseneer

THE CARE AND SUPPORT PROFESSIONAL

An illustration showing two hands holding a white tablet against a teal background. The tablet screen is dark grey and contains white text. The hands are rendered in a simple, flat style with light skin tones. The left hand is on the left side of the tablet, and the right hand is on the right side, with the index finger pointing towards the screen.


The core space of every health system is occupied by the unique encounter between one set of people who need services and another who have been entrusted to deliver them. This trust is earned through a special blend of technical competence and service orientation, steered by ethical commitment and social accountability, which forms the essence of professional work (Frenk J. et al, 2010).

technical competence +
generalist competencies

GENERALIST COMPETENCIES

those competencies that require a professional to provide care and support based on a generalist strategy or approach. A generalist approach implies that a varied palette of approaches and strategies could be used to address a broad range of unspecified health and/or well-being (related) problems.

major importance of
personnel with a good
technical or specialist
background

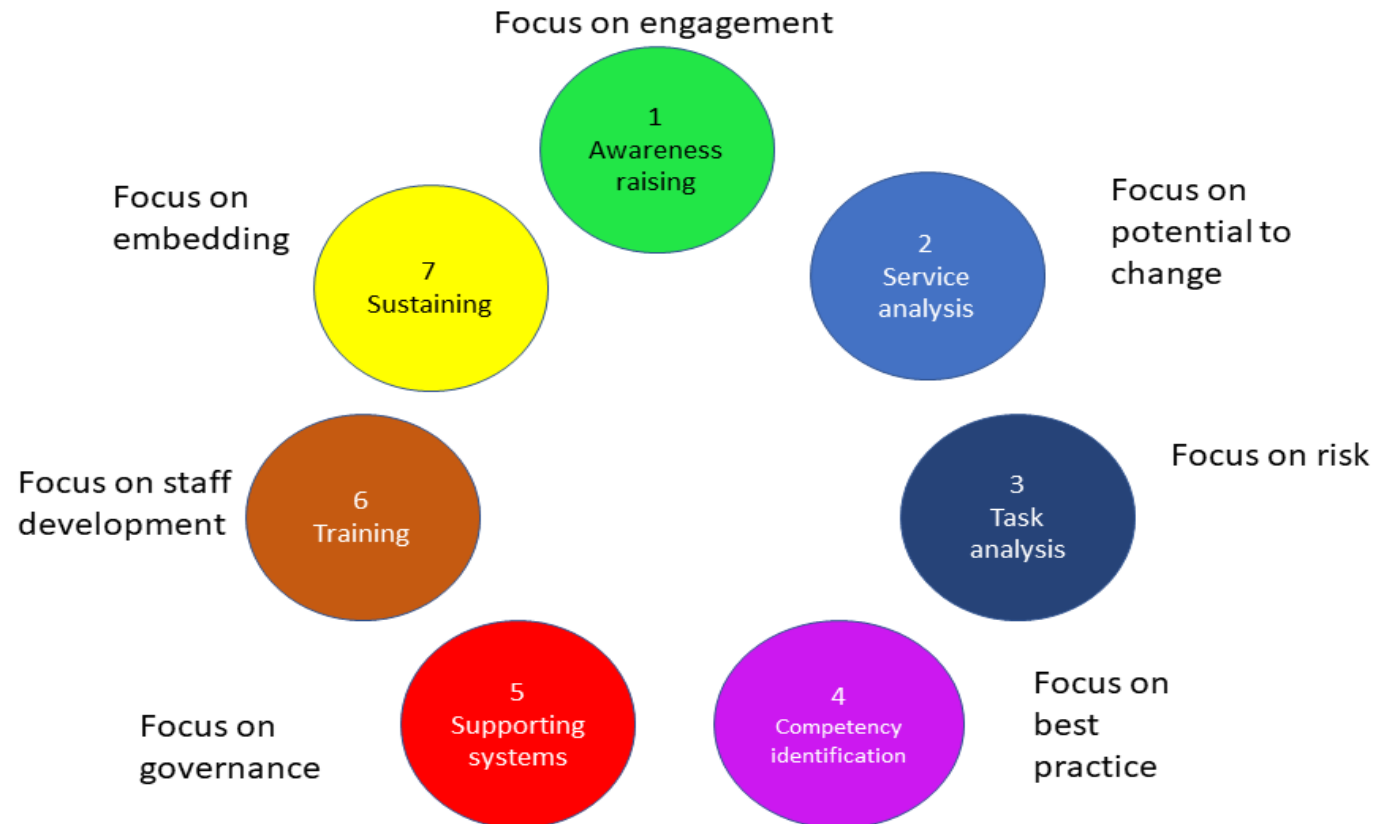

BUT
generalist competencies are essential
in the context of comprehensive care
and support



TASK SHIFTING AND HEALTH SYSTEM DESIGN

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Making it happen: The Calderdale Framework





Jan De Maeseneer
Family Medicine
and Primary Care

At the Crossroads of Societal Change

LANNOO
CAMPUS

Thank you....



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