



The importance of Quaternary Prevention in Public Health
(Webinar)
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Quaternary prevention, concept, origin, perspectives.

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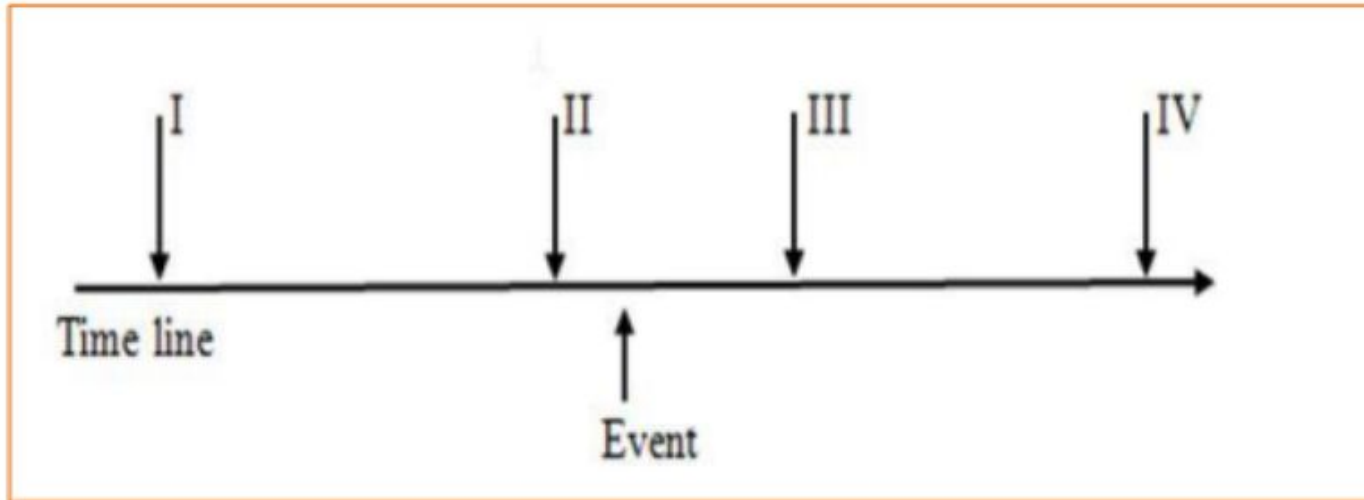
D2IM, Informatics lab, University of Rouen, France

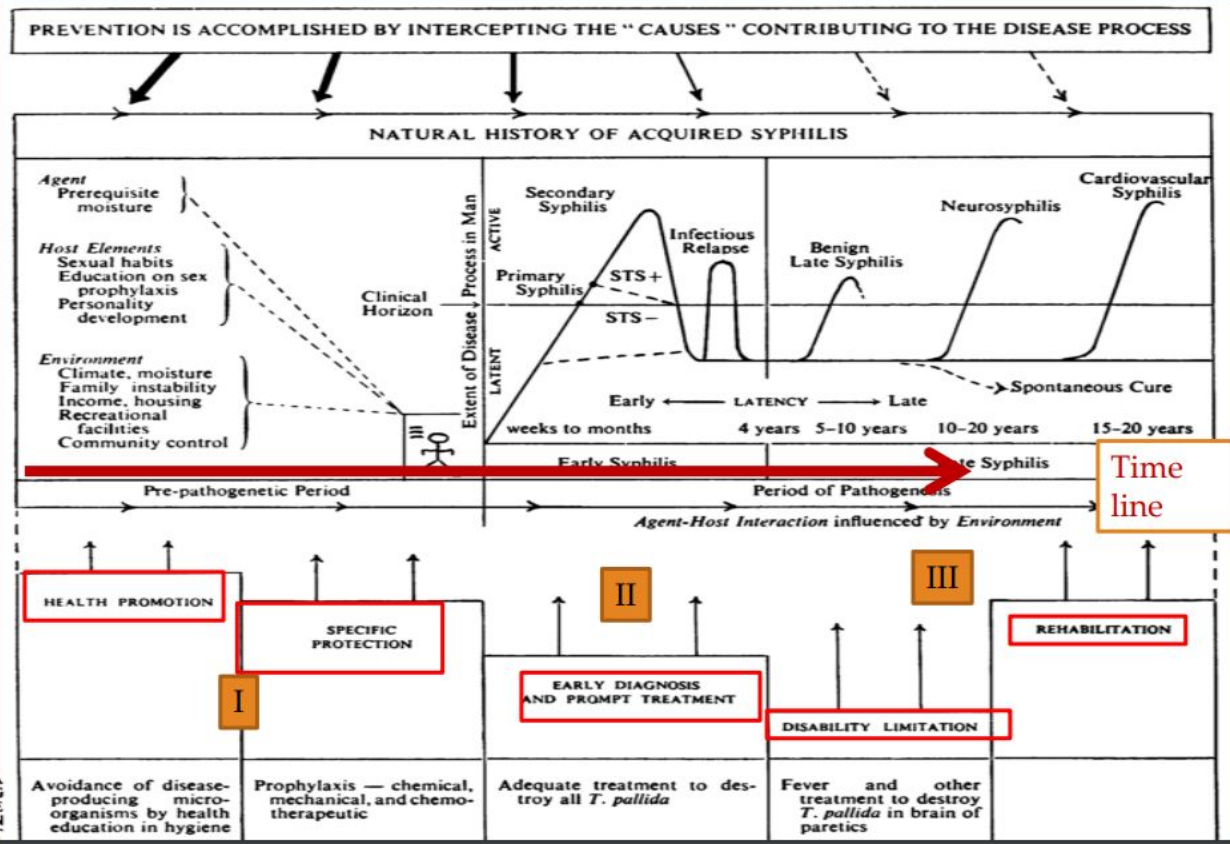
WONCA International Classification Committee member

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Traditionally, clinical prevention is conceptualized as a medical activity before or after the occurrence of a condition. Primary prevention is used before any problem arises and encompass health education and promotion. The place of secondary prevention is unclear, sometimes used by cardiologists as prevention after an event. Tertiary is not really in use and quaternary has been proposed for palliative care. In this view, the patient is the object of care along timeline. The condition is central.





The terms "primary," "secondary," and "tertiary" originate from the work of E.G. Clark, who developed these classifications during his study on syphilis.

These terms have been extended to health organization, particularly to preventive organization by Leavell & Clark in 1958

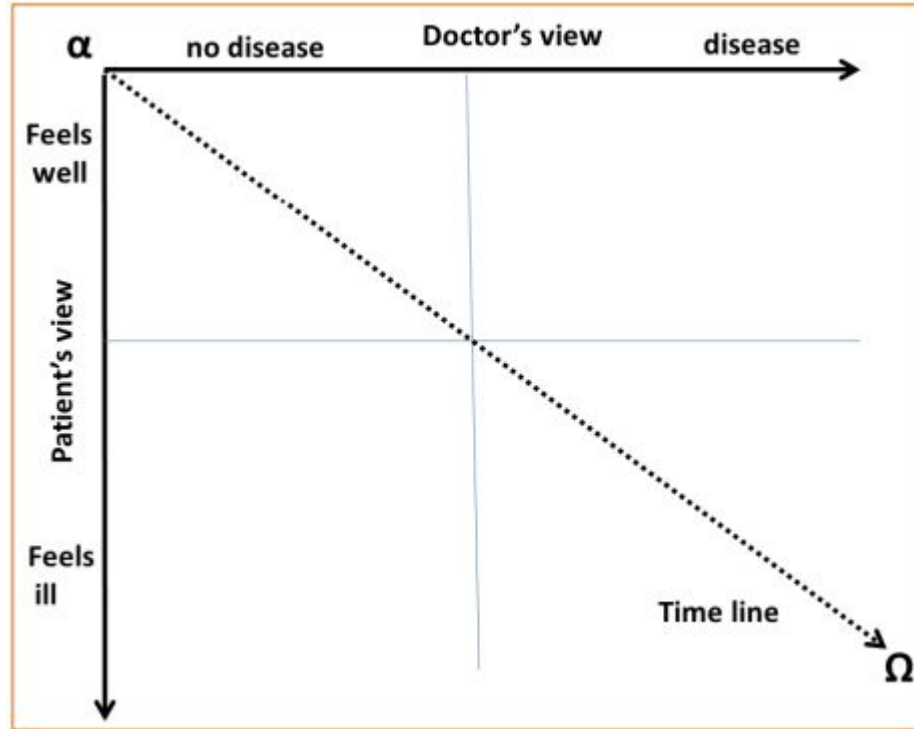
condition based approach

- Clark, E. G. (1954). Natural history of syphilis and levels of prevention. British Journal of Venereal Diseases, 30(4), 191.
- Leavell, H., & Clark, E. (1958). Preventive Medicine for the Doctor in His Community an Epidemiologic Approach (p. 684). McGraw-Hill.

In this model, based on the 2x2 crosstab framework, prevention is portrayed as the outcome of the interaction between patient and doctor. The doctor seeks to identify disease, while the patient anticipates becoming ill at some point. The 2x2 crosstab model allows for the representation of four fields of activity over a timeline, including traditional preventive measures. In this perspective, the timeline intersects the twofold table. Working along this timeline, also referred to as prevention, constitutes the core practice of a family physician throughout the patient's life. Ultimately, patient and doctor converge at the final point, suffering and dying together (point Ω).

Patient centered
care move in
family medicine

Ilitch influence



relationships
based
approach

Jamouille, M. (1986)

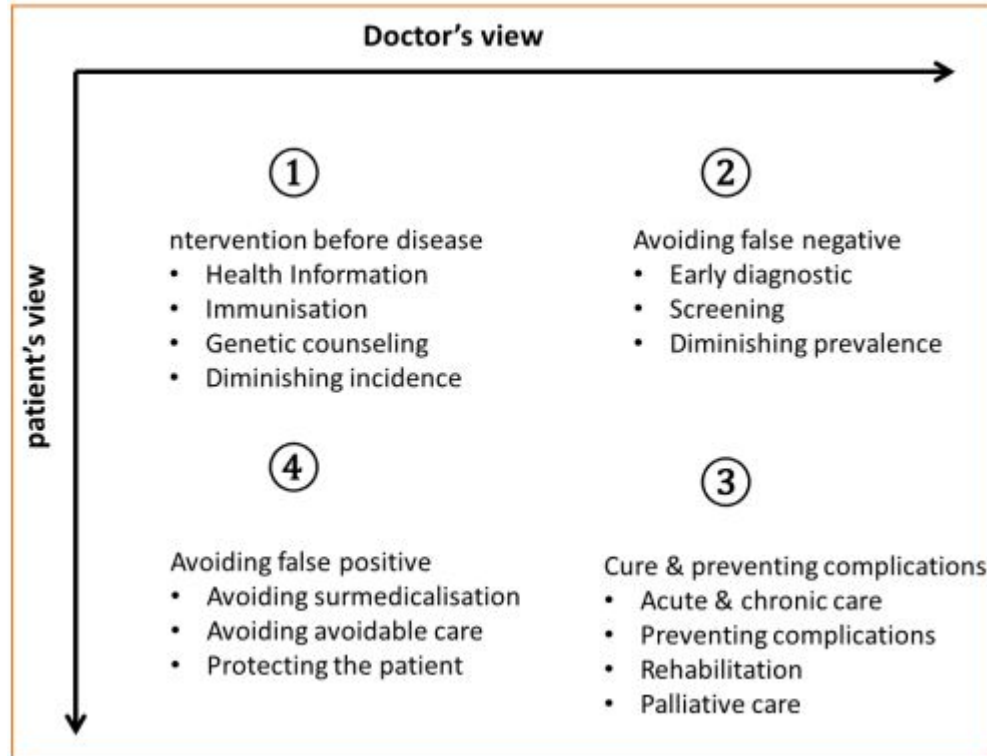
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Jamouille M (2012) [On the basis of a scribble

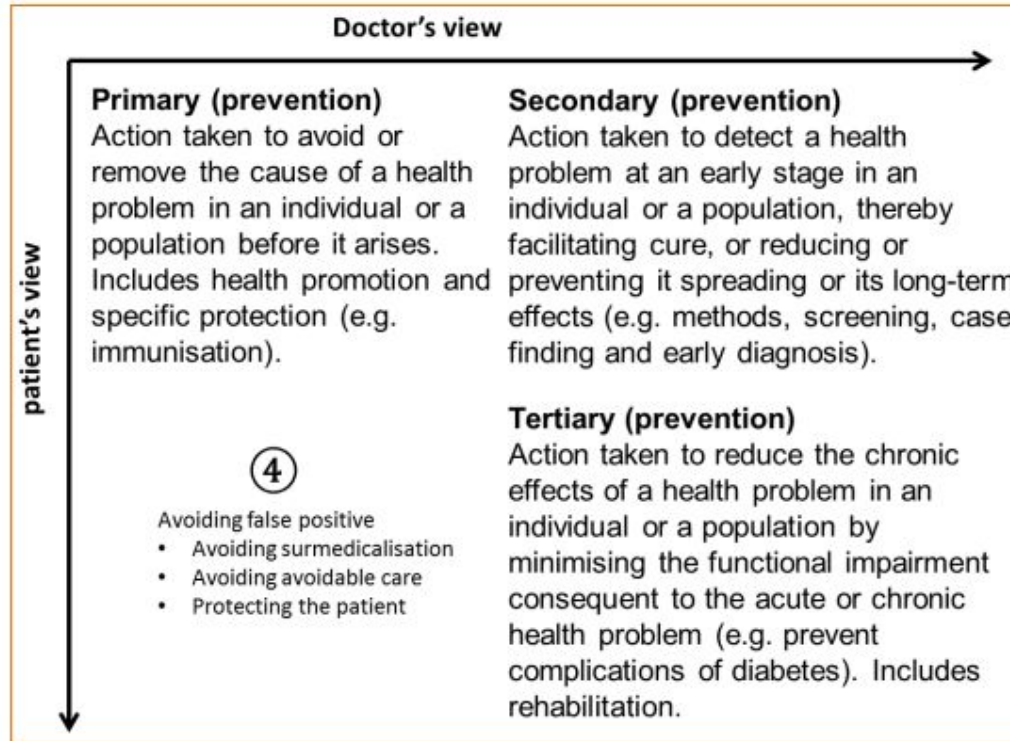
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Presented at Hong Kong Wonca world 1995, the 2x2 crosstab model , built on the patient doctor relationships, allows to define four fields of activities in GP/FM including also preventive activities along the timeline.

Wonca International Classification Committee. An international glossary for general/family practice. WONCA Classification Committee. Family Practice, 12(3), 341–369. 1995



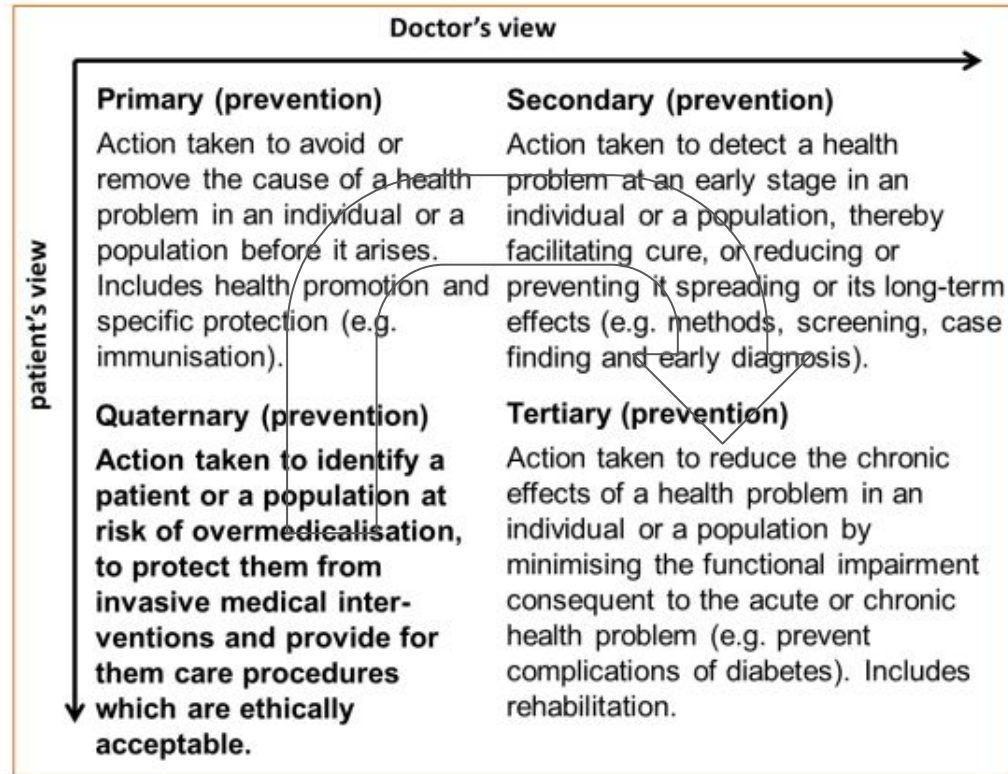
The 3 definitions of Primary , Secondary and Tertiary prevention already published in 1995 in the Wonca glossary of GP/FM fit perfectly in the 2x2 crosstab model.



The definition of the missing field, the fourth one, called Quaternary Prevention, proposed at the 1999 Durham WICC meeting has been endorsed by the whole WICC group and edited in the Wonca dictionary of GP/FM in

Quaternary prevention goes beyond being a simple set of activities; it represents a mindset that applies across various areas of medical practice (as indicated by the arrow). It addresses issues such as overmedicalization through excessive information, overscreening, overdiagnosis, and overtreatment, as well as unnecessary care, patient protection, and, more broadly, the limitations of medical intervention. Implicitly, this concept also encompasses patients and populations who are underserved or deprived of care, addressing the problem of undermedicalization as well.

No more prevention
but
ACTION



The arrow indicates that the fourth field impacts the other three

Easy glide from P1, P2, P3 to P4

Doctor's view side

Health information
Health education

Immunization

Screening

Early diagnosis

Therapy

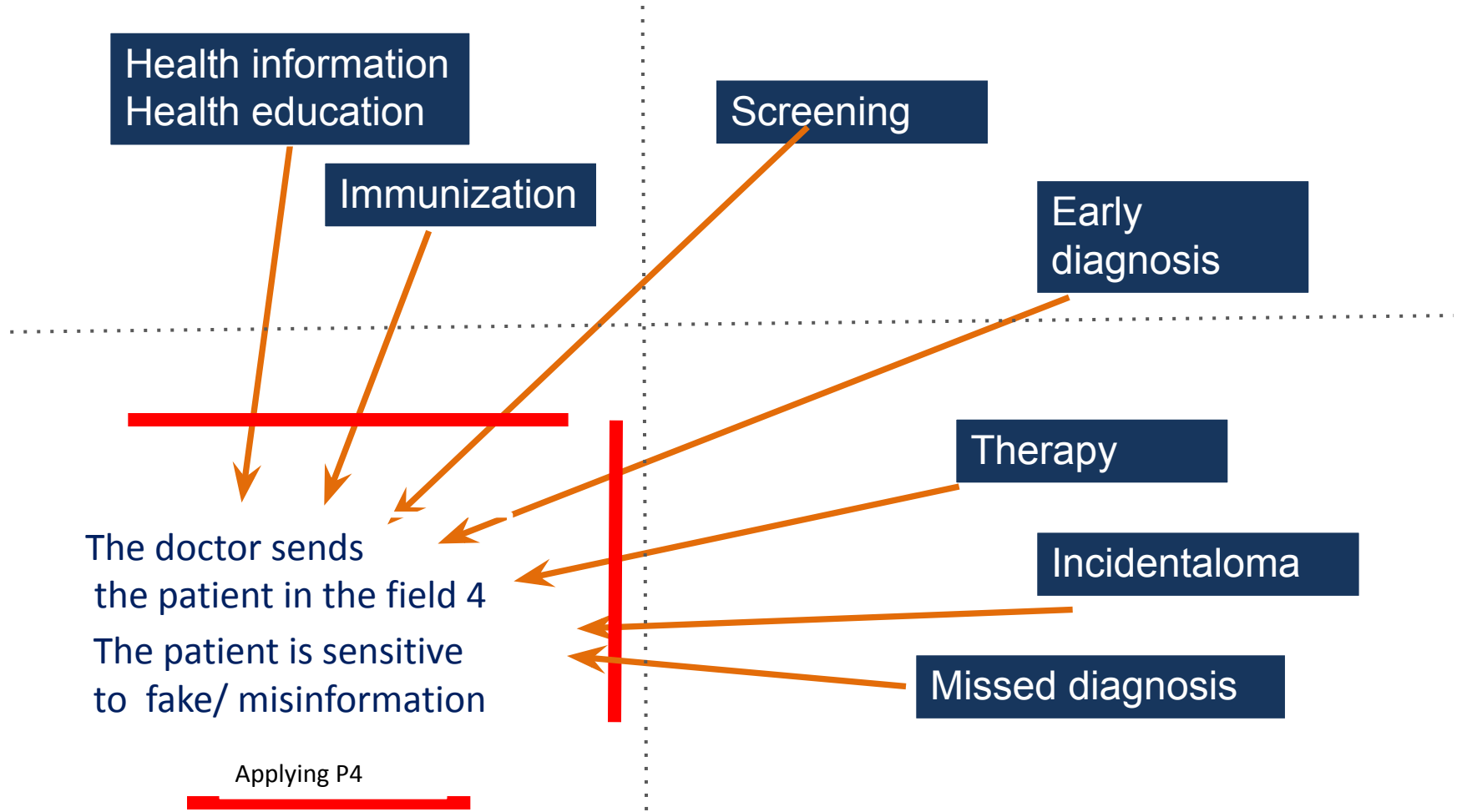
Incidentaloma

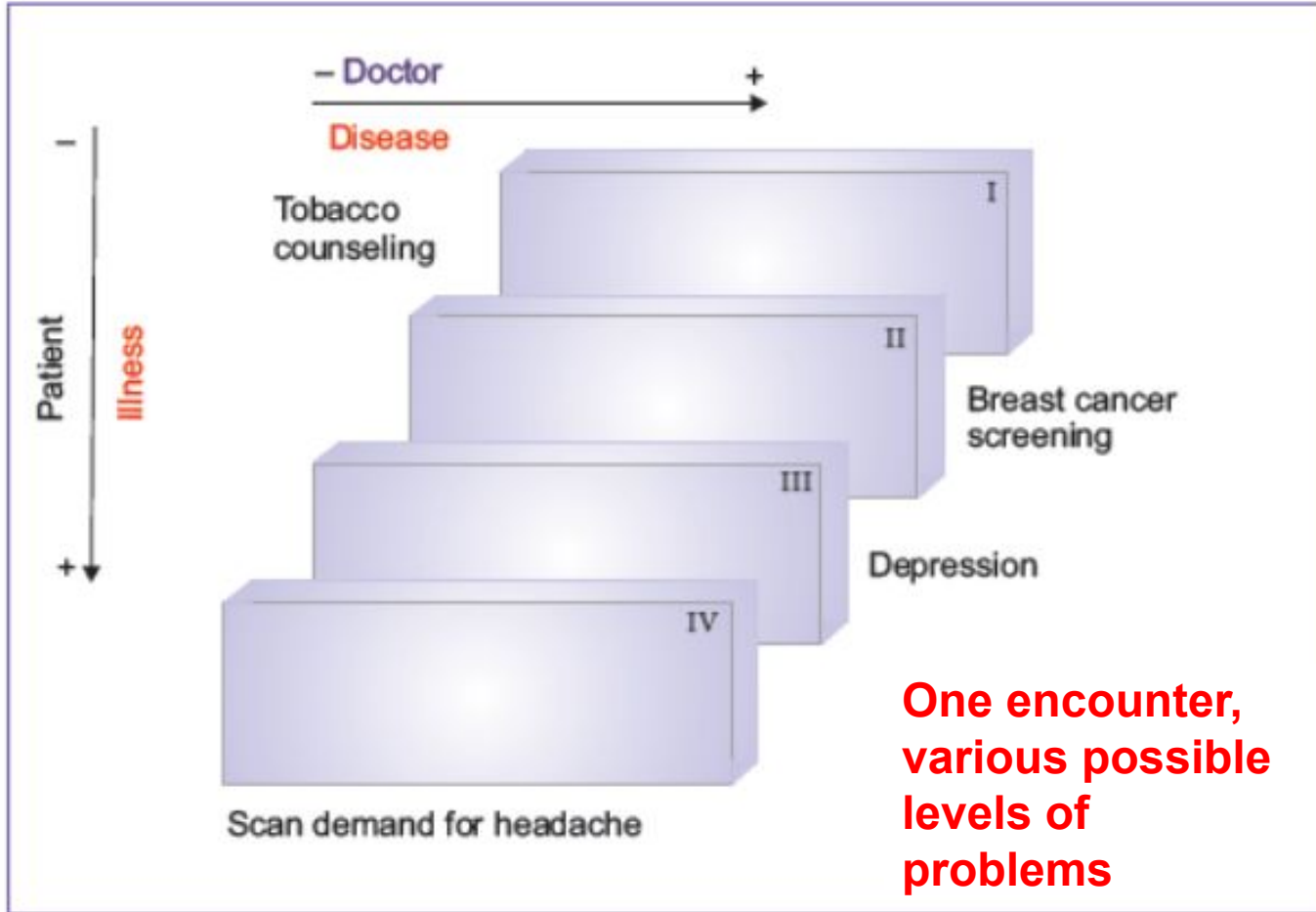
Missed diagnosis

The doctor sends
the patient in the field 4
The patient is sensitive
to fake/ misinformation

Applying P4

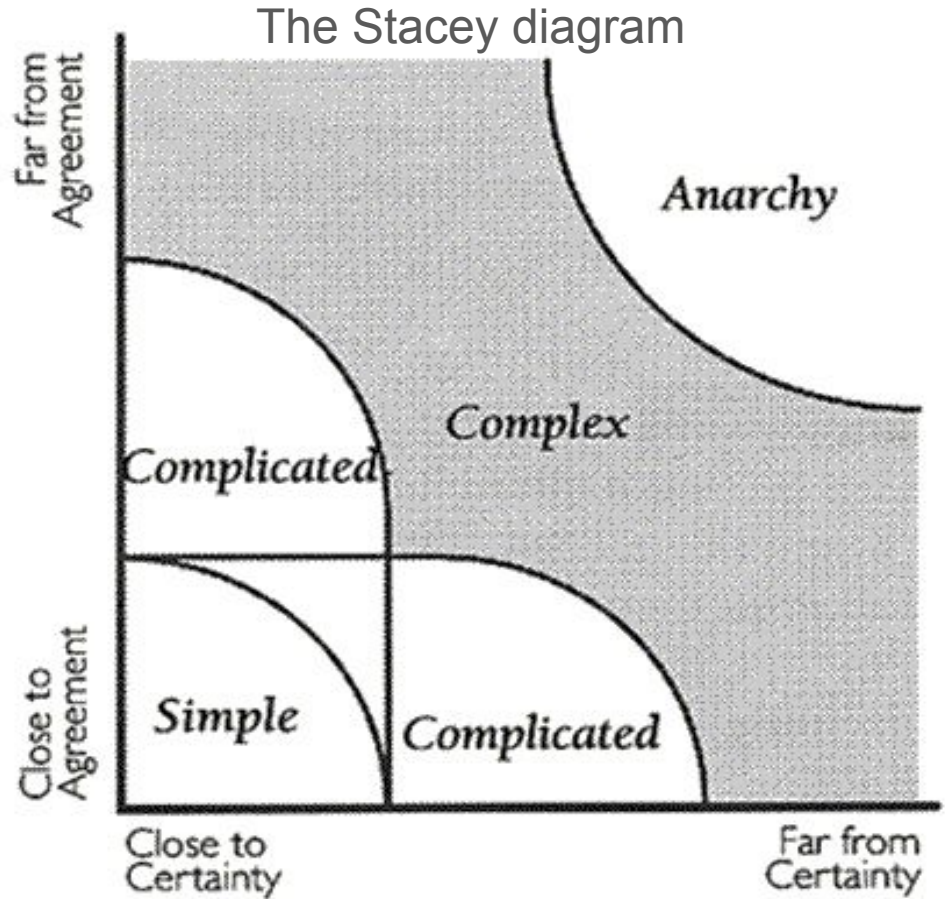
patient's view





A woman who smokes comes to receive her mammography results. She is being treated for depression, and at the end of the consultation, she requests a scan because she has a headache

- Human are symbolic beings
- Doctors stand at the intersection of biosciences and anthropology
- Applying medical science presents significant challenges.



- Plsek, P. E., & Greenhalgh, T. (2001). The challenge of complexity in health care. *Bmj*, 323(7313), 625-628.

Quaternary prevention involves the need for close monitoring by the doctor himself, a sort of permanent quality control on behalf of the consciousness of the harm they could do, even unintentionally, to their patients.

Quaternary prevention is also about understanding that medicine is based on a relationship, and that this relation must remain truly therapeutic by respecting the autonomy of patients and doctors.

Jamouille, M. " *Rev bras med fam comunidade* 10.35 (2015): 1–3.

And everything that applies to the relationship between the primary care provider and the patient naturally also applies to public health and its relationship with the population.

How to apply quaternary prevention?

Micro Level (Individual/Patient Level)

- Patient-Centered Decision-Making & patient partnerships
- Avoiding Unnecessary Tests/Interventions
- Patient Education, Doctor education
- Medical anthropology as a necessity
- Data and Research

Meso Level (Healthcare Organization/Community Level)

- Promoting Evidence-Based Protocols
- Training Healthcare Providers including in communication field .
- Community Awareness Programs
- Interprofessional Collaboration
- Data and Research

Macro Level (Policy/Population Level)

- Health Policy Development
- Regulatory Oversight
- Public Health Campaigns
- Data and Research

- Pizzanelli M, Almenas M, Quirós R, Pineda C, Cordero E, Taureau N, et al. Quaternary Prevention: Medical Ethics, Evaluation and Efficiency in the Health Systems. *Rev Bras Med Fam Comunidade*. 2016;11(Suppl 2):75-85. [http://dx.doi.org/10.5712/rbmfc11\(0\)1388](http://dx.doi.org/10.5712/rbmfc11(0)1388)
- Gomes LF, Gusso G, Jamouille M. Teaching and learning quaternary prevention. *Rev Bras Med Fam Comunidade*. 2015;10(35): 1-14. Available at: [http://dx.doi.org/10.5712/rbmfc10\(35\)1050](http://dx.doi.org/10.5712/rbmfc10(35)1050)
- Otte, J. A., & Pou, M. L. (2024). Enablers and barriers to a quaternary prevention approach: a qualitative study of field experts. *BMJ open*, 14(3), e076836.
- Jamouille, M., Roland, M., Bae, J. M., Heleno, B., Visentin, G., Gusso, G. D. F., ... & Rossi, I. (2018). Ethical, pedagogical, socio-political and anthropological implications of quaternary prevention. *Revista Brasileira de Medicina de Família e Comunidade*, 13(40), 1-14. <https://rbmfc.org.br/rbmfc/article/view/1860>

- In the previous slide, data and research were referenced multiple times. I believe that each patient's health issue could be approached as a unique research question. In the following slides, I will demonstrate how I address the complex issue of Long Covid, also known as Post-Acute Covid Syndrome.
- When you encounter several patients who experience profound disruptions in their life trajectories, without any clear abnormalities in their biological tests or imaging, it poses a significant challenge for you as a physician.
- In the next slide, I will show you in box 4 a word cloud with verbatim responses from 34 patients seen in 2021. For these patients, I also uncovered a list of diagnoses that were as strange as they were inaccurate (shown in box 3).
- The table on the right shows the symptoms described by a patient suffering from long covid documented for 3 years.

Long Covid is a collection of symptoms that neither patients nor doctors fully understand.

Doctors tend to overlook these patients, whose conditions are incomprehensible and cannot be explained by their technology. Patients are stuck in box 4.

The only way out of this situation is through science: by gathering information, listening to patients, observing, studying the phenomenon, and seeking alternatives.

—> Gathering information; Access to my Long Covid classified bibliography on Zotero https://www.zotero.org/groups/4929325/long_covid_open_library/library

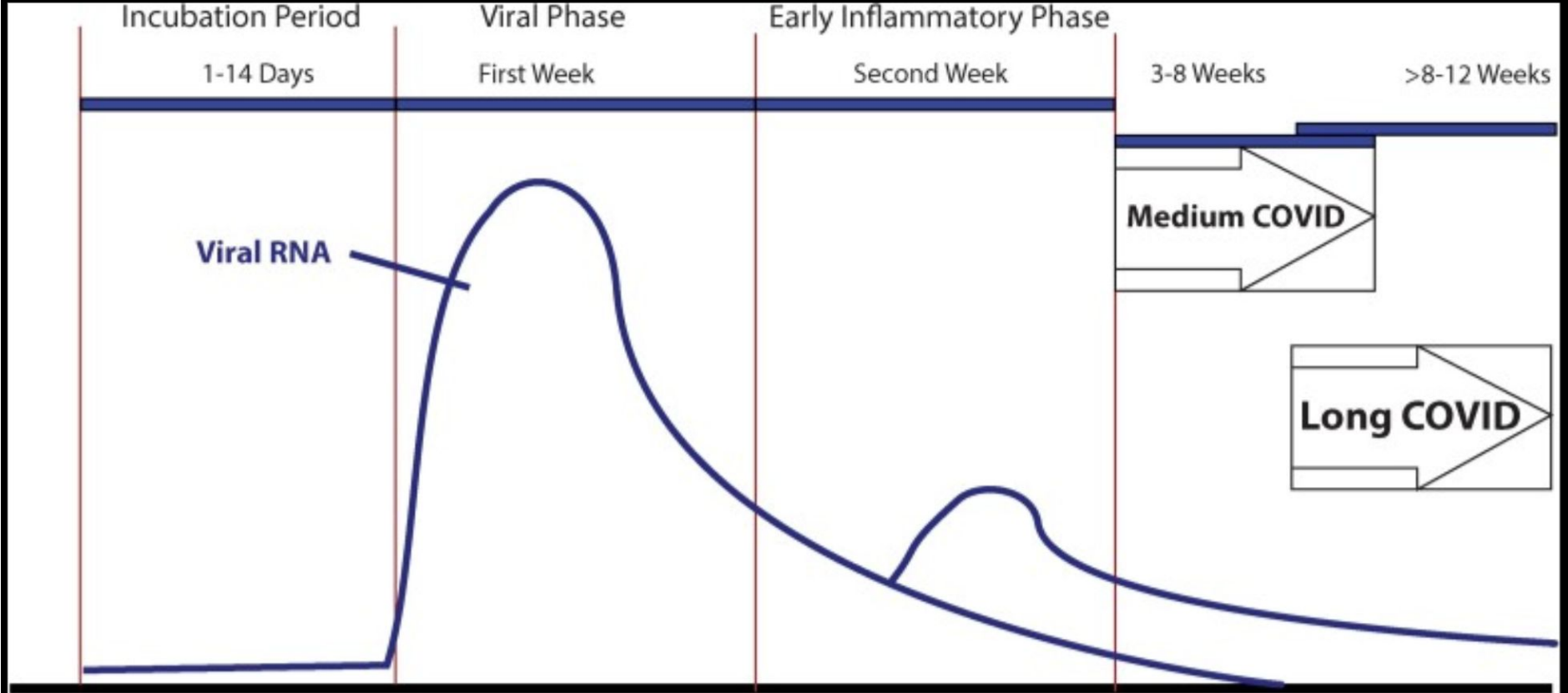
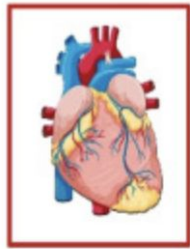


Figure 1. The stages of COVID-19: the incubation period, early inflammatory phase, delayed recovery period (medium COVID phase), and long COVID phase. Abbreviation: COVID-19, coronavirus disease 2019.



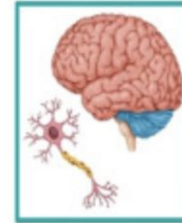
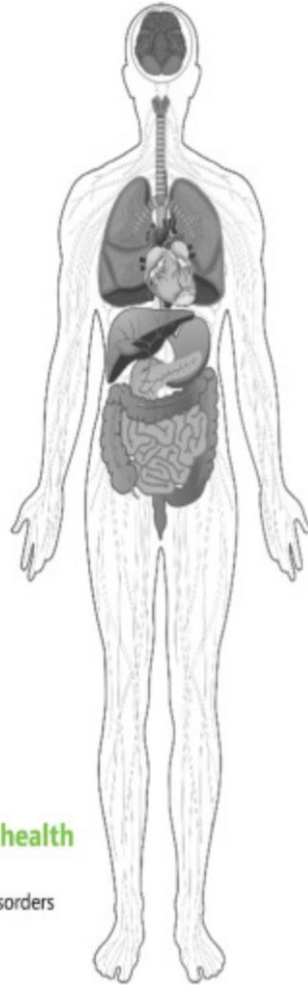
Cardiovascular

- Myocarditis
- Arrhythmias
- Acute myocardial infarction
- Chemical/non-ischemic cardiovascular illness
- Pericarditis
- Heart failure
- Thrombotic conditions



Metabolic/Endocrine

- Hyperglycemia
- Obesity
- Diabetes
- High cholesterol
- Hypothyroidism
- Hyperthyroidism,
- Adrenal insufficiency



Nervous System

- Headaches
- Confusion
- Delirium
- Encephalopathy
- Strokes
- Postural orthostatic tachycardia syndrome



Respiratory System

- Shortness of breath
- Cough
- Wheezing
- Reduced lung capacity
- Pulmonary fibrosis



Gastrointestinal

- Nausea
- Vomiting
- Abdominal pain
- Anorexia
- Diarrhea
- G.I. bleeding
- Acid reflux
- Constipation



Genitourinary

- Orchitis
- Epididymitis
- Acute kidney injury
- Chronic kidney disease



Mental health

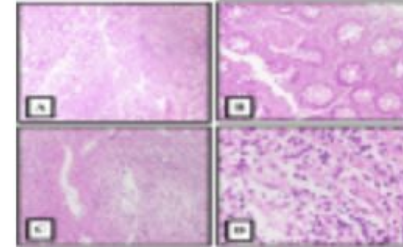
- Anxiety
- Mood disorders



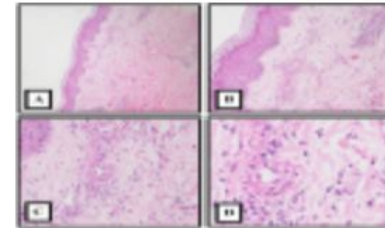
Musculoskeletal

- Myositis
- Arthritis
- Muscle weakness

Umakanthan, S., et al (2024). Post-Acute Sequelae of Covid-19. *American Journal of Medicine Open*, 12, 100071.



Microscopic images of Inflammatory bowel disease appearance in a patient with post COVID-19.



images demonstrating vasculitis in a patient with musculoskeletal features.

Results so far have shown that:

1. About half of the patients, particularly those with pronounced neurological symptoms, display signs of encephalitis on brain SPECT CT imaging. These findings provide important insights into the persistence of the virus and its impact on the central nervous system.

Jamouille, M., Kazeneza-Mugisha, G., & Zayane, A. (2022). Follow-up of a cohort of patients with post-acute COVID-19 syndrome in a Belgian family practice. *Viruses*, 14(9), 2000. <https://www.mdpi.com/1999-4915/14/9/2000>

2. Long Covid is a chronic viral condition, demonstrated through the use of transcriptomics in blood samples, specifically identifying the presence of SARS-CoV RNA.

Menezes, S. M., Jamouille, M., Carletto, M. P., Moens, L., Meyts, I., Maes, P., & Van Weyenbergh, J. (2024). Blood transcriptomic analyses reveal persistent SARS-CoV-2 RNA and candidate biomarkers in post-COVID-19 condition. *The Lancet Microbe* [https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247\(24\)00055-7/fulltext](https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247(24)00055-7/fulltext)

WONCA Special Interest Group: Quaternary Prevention & Overmedicalization

Quaternary Prevention & Overmedicalization

A new WONCA Special Interest Group on Quaternary Prevention and Overmedicalization was approved by the WONCA Council in October 2016. Membership is open to interested family doctors.

Introduction: Justification and Importance

"Medicine increasingly focuses on the problems that result from an excess of medical care, in particular overscreening and overdiagnosis. In a new framework or paradigm, based on patient doctor relationships, quaternary prevention (P4) describes the protection of patients from diagnostic tests, interventions and treatments that offer no benefit for overall morbidity or mortality for the individual, and may cause physical or psychological harm. It includes the protection of patients from misled well-meaning doctors and from a system in which the commercial interests of pharmaceutical and diagnostic companies, and governments working in a marketised model of health care, that can distort care, medicalize normal life and waste resources". Jamouille M, Mangin D (not published).



WONCA SIG Quaternary Prevention and Overmedicalization

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various countries

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miguelpizzanelli@gmail.com

Take home message



Rouen museum, France. Rome, portal

If you don't understand, shift your perspective and consider it as a research question.

Learn to communicate carefully with patients to avoid dramatic misunderstandings.

Use Evidence-Based Medicine (EBM), but approach it with caution and critical thinking.

In medicine, we don't believe—we verify. Rely on data, not belief.

A suffering patient must be met with empathy and helped, even if the disease isn't immediately identifiable.

Recognize that the role of primary care providers is highly complex, demanding a blend of scientific knowledge and interpersonal skills.

Anthropology is just as important as technology in understanding and treating patients

Thank you