Clinical Reasoning in Primary Care

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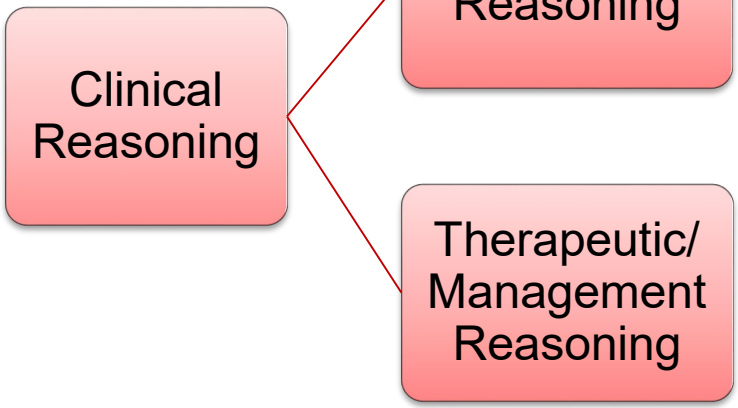
Clinical Reasoning



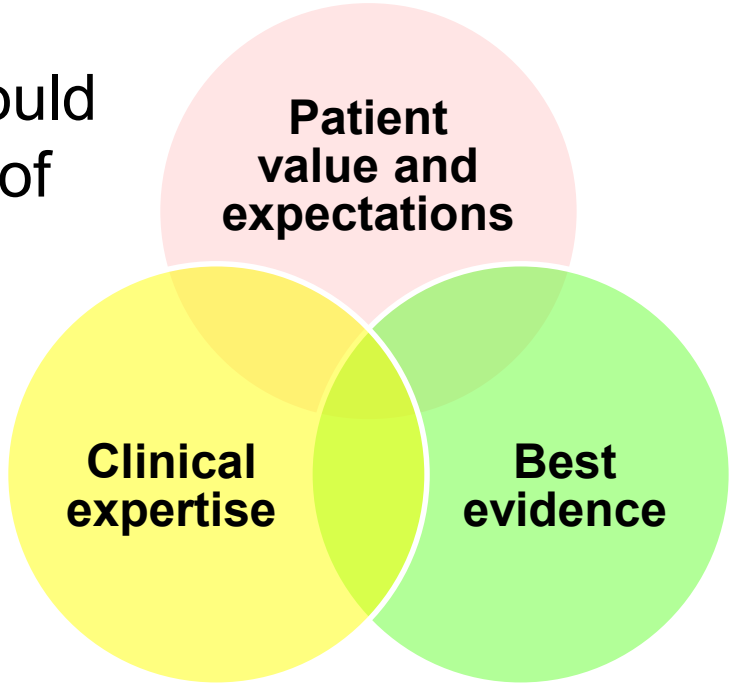
- Much more studies have been conducted.
- In primary care few cases need argument for this category.

- Research is more difficult because a clinician must involve a patient in clinical decision making.
- Clinical judgement is easily done with a clinical guideline.

- Clinical decision making
  - Becomes more complicated due to multimorbidity, ageing, etc.
  - Patient autonomy becomes more important than before.
- Several theoretical frameworks are used for better clinical decision making, such as clinical ethics, values-based practice, etc.

Evidence-based Medicine (EBM)

- Initially, EBM aimed to replace decisions based on habit or authority with those grounded in reliable evidence.
- Clinical decision-making should be based on the integration of best available scientific evidence, clinical expertise, and patient values.



Influences on Diagnostic Reasoning

Aspect	Change
1. Introduction of probabilistic thinking	Diagnostic reasoning shifted from dichotomous thinking to Bayesian reasoning, incorporating pre-test and post-test probabilities.
2. Emphasis on test characteristics	Diagnostic test selection began to rely on metrics like sensitivity, specificity, and likelihood ratios rather than clinical intuition alone.
3. Use of evidence to validate diagnoses	Greater emphasis was placed on literature-based justification of diagnostic accuracy (e.g., diagnostic accuracy studies).
4. Increased transparency in reasoning	Clinical reasoning became more explicit and teachable, promoting educational models that verbalize the diagnostic process.

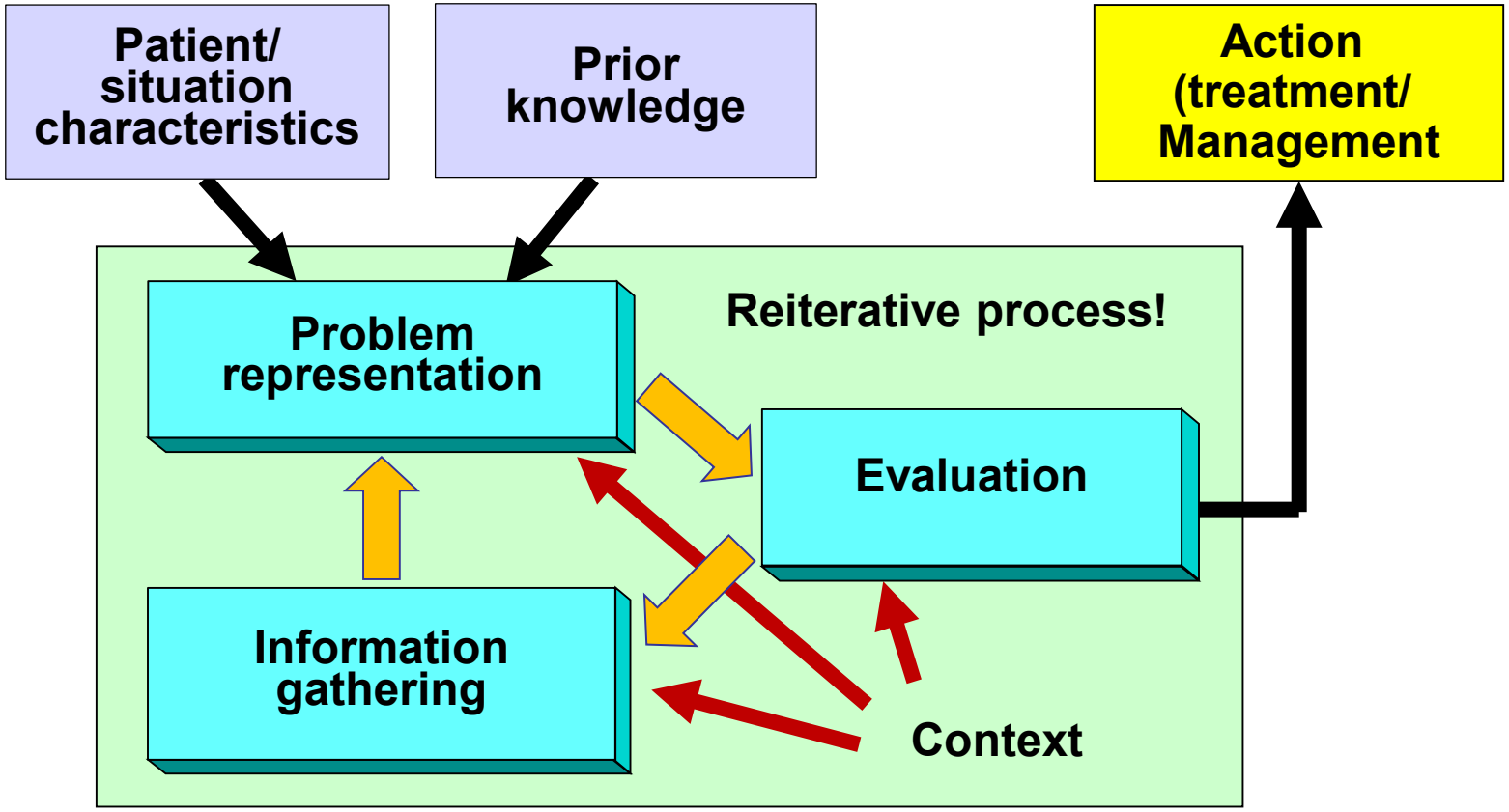
Influences on Therapeutic/ Management Reasoning

Aspect	Change
1. Clarification of treatment choices	Therapeutic decisions shifted from clinician intuition to choices based on intervention studies like RCTs.
2. Consideration of harm-benefit balance	Emphasis moved toward balancing benefits, side effects, cost, and patient burden in risk-benefit assessments.
3. Utilization of clinical guidelines	Evidence-based guidelines became central in determining standard treatments.
4. Promotion of shared decision making (SDM)	Greater emphasis was placed on integrating patient values and preferences into management decisions, aligning with values-based practice.

What is Lacking in EBM?

- Balancing both a patient's and a clinician's values → Values-based practice.
- In clinical research all patients with a target disease should be treated as "same" without contexts.

Process Model for Clinical (Diagnostic) Reasoning



(Gruppen & Frohna. Clinical reasoning.
In: International handbook of research in medical education. 2002)

Therapeutic Reasoning

Therapeutic Research

Developing a research hypothesis → Therapeutic intervention → Outcome interpretation → Draw a conclusion

Therapeutic Reasoning by De Vries

Problem identification → Diagnosis → Therapy → Outcome interpretation → Decision of therapeutic success

Therapeutic Reasoning by Onishi

Problem identification → Specifying what to intervene → Intervention → Monitoring the intervention → Whether intervention is successful

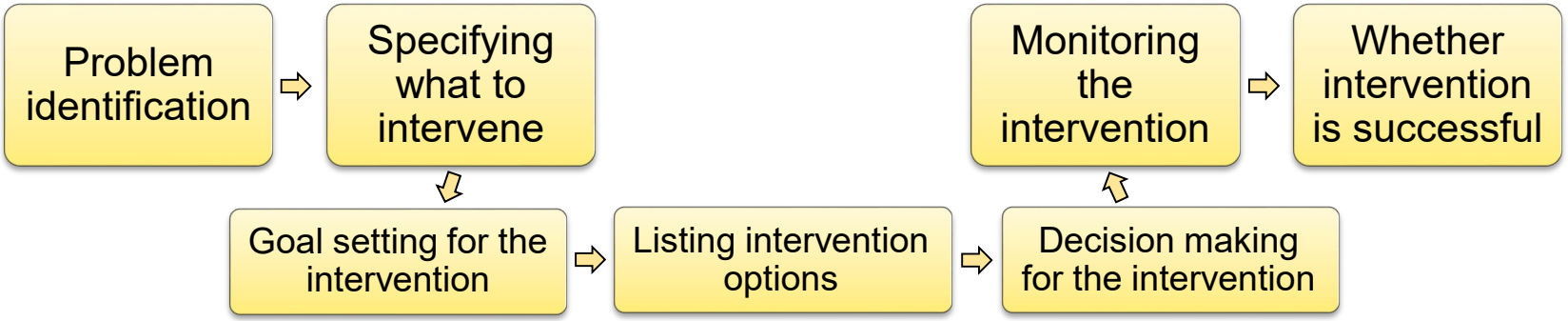
Clinical decision making should be made by shared decision making

Therapeutic Reasoning

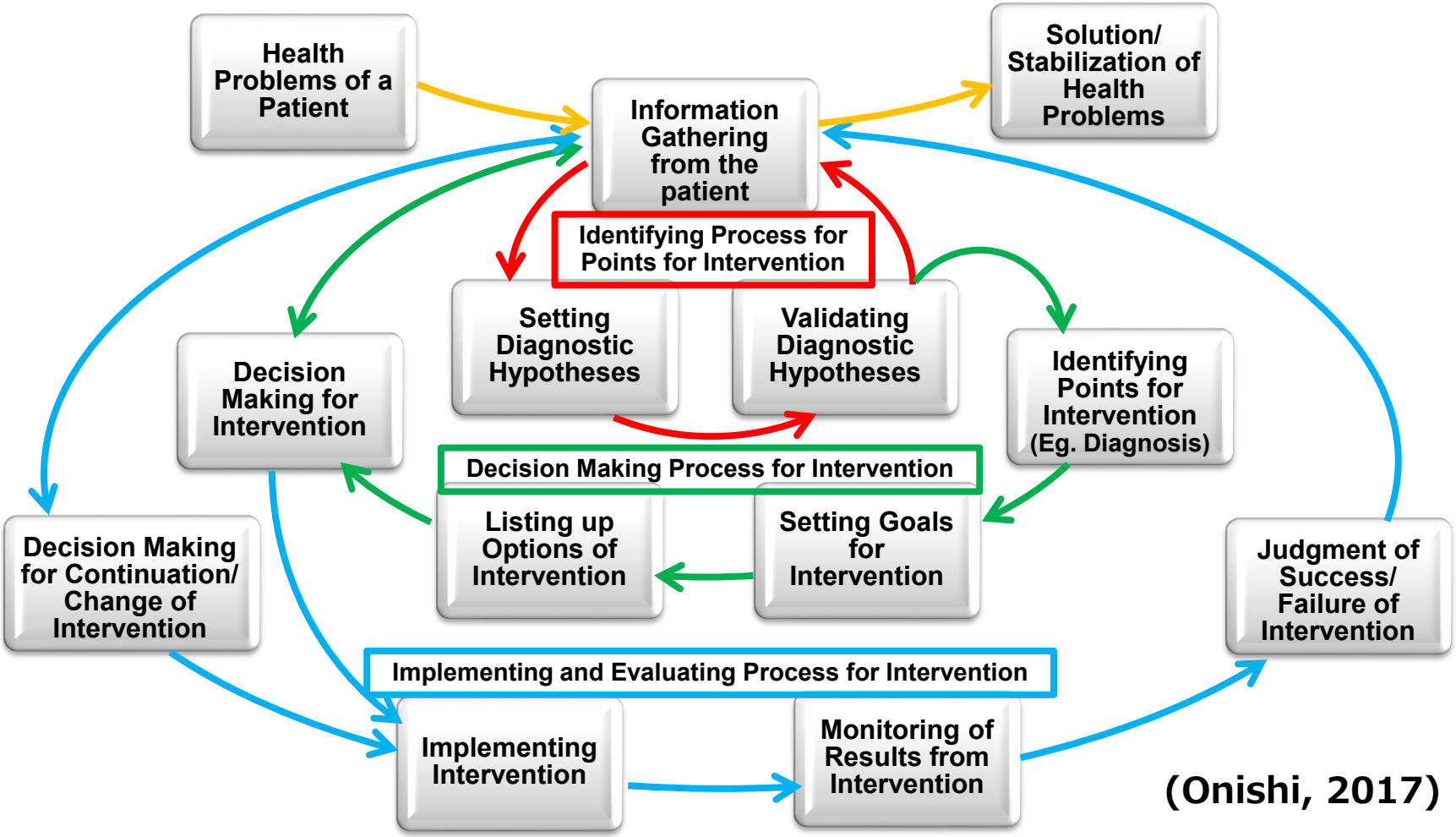
Therapeutic Research

Therapeutic Reasoning by De Vries

Therapeutic Reasoning by Onishi



Three-layer Cognitive (TLC) Model for Clinical Reasoning



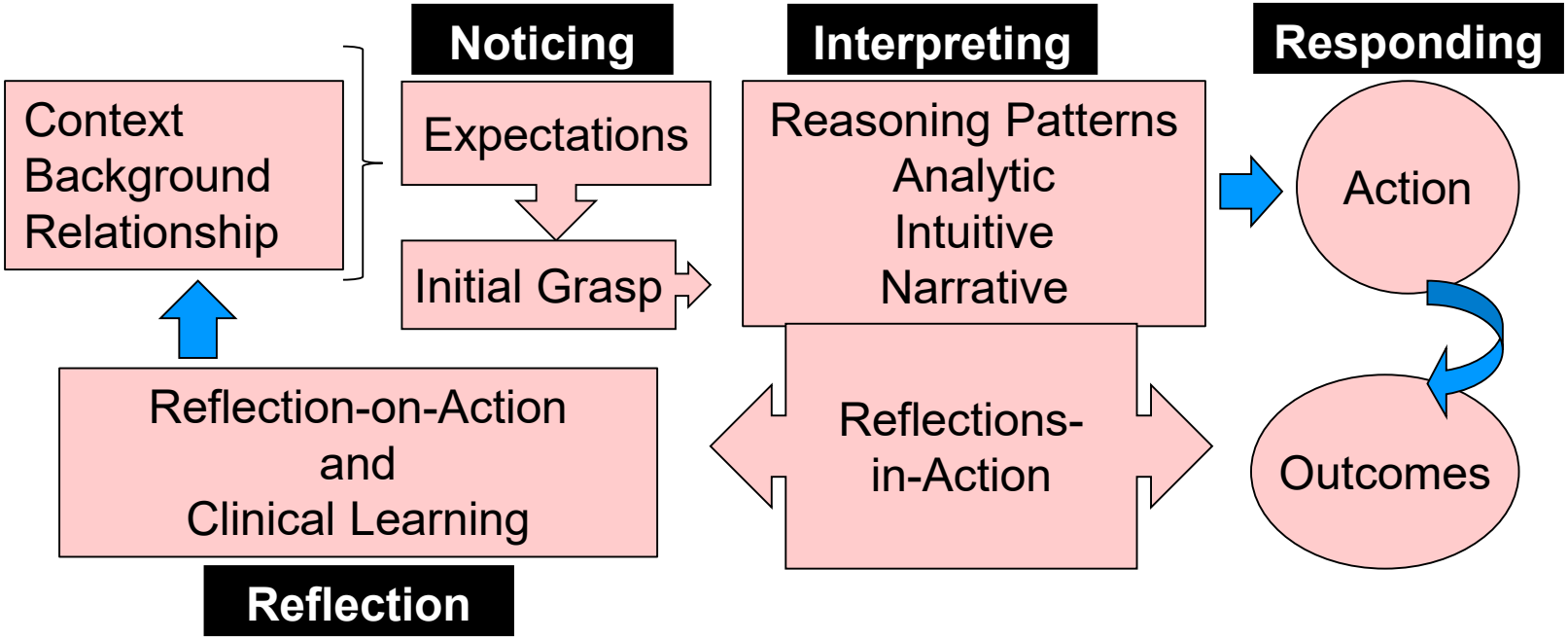
(Onishi, 2017)

Three-layer Cognitive (TLC) Model

1. Identifying Process for Points for Intervention
2. Decision Making Process for Intervention
3. Implementing and Evaluating Process for Intervention

- Clinicians sometimes intervene the patient without making diagnosis.
- Some information in the initial communication is closely related with shared decision making (e.g. QOL, family issues…)

Compared with Clinical Judgment Model (Tanner, 2006)



- Difficult to understand how to find points for intervention.
- Clinicians need reflections-in-action all the time.
- Clinicians need intervention options for SDM.
- Process of SDM is not clearly described in the model.

Definition of Terminologies

- Clinical judgment
  - A clinician's evaluation of a situation based on experience, intuition, and interpretation of information, often involving tacit knowledge.
- Clinical Decision Making
  - A broader process that includes selecting among alternatives based on evidence, reasoning, and patient values, often involving structured steps.

Case Study

- 83Yo, Man, Living alone
- Type 2 diabetes with mild dementia
- Glucose level is fluctuating
- Protected by the police while wandering around
- A daughter lives in 15 mins drive and comes twice a week to help clean and tidy up

Layer 1 – Targeting

- In-total
  - Complex case
- Dementia
  - Meal preparation
  - Toileting/bathing
  - Cleaning
- Type 2 DM
  - Oral or injection?
  - Meal contents/volume
  - Activities
- Others
  - Help from neighbors
  - Nursing care services
  - Issues of frailty
  - Advance care planning
  - How to keep household (legal guardian?)
  - Relationship with the daughter or other relatives

Layer 2 – Linking

- Goals
  - Avoid hypo, maintain function, relieve daughter's caregiver burden, target at stable daily life
- Options
  - If the man wants, one option is to admit to a facility
  - Adjust meds, check for infection, keeping cleanliness, non-drug strategies
- Shared decision-making
  - Consider trade-offs between treatment burden and benefit with both the old man and the daughter

Layer 3 – Checking

- Close monitoring: Dr/Ns/pharmacist/nutritionist/caretaker
- Avoid hyperglycemic hyperosmolar syndrome
- Check psychological/social status of both the man and the daughter

Integrating Generalism & TLC

- Medical generalism = Whole-person care
  - See a person-in-context, not just a disease.
  - Care is shaped by a pt's values, circumstances, and life story, not just biomedical data.
- Clinical decision making
  - Openly done with multiple parties including pt, family, multiple health/welfare professionals.
  - Each professional might use TLC model for judgment and reflective practice.
  - Accept any opinions and target at dissensus (Not to seek consensus but a compromise)

Middle-Range Theories in Treatment Reasoning

- Duong et al. (2023): Scoping review on treatment reasoning
- Identified multiple middle-range theories used in CR
  - Information processing theory*[1]
  - Dual process theory*[2]
  - Hypothetico-deductive reasoning*[3]
  - Three-track mind*[4]
  - Cognitive continuum theory*[5]
  - Pattern recognition*[6]
  - Script theory*[7]
  - Problem space*[8]
  - Therapeutic inferences*[9]
  - Cognitive load theory*[10]
  - Three levels of concept*[11]
  - Narrative reasoning*[12]
  - Schon's model of refection*[13, *14]
  - System thinking/approach*[15]
  - Situated reasoning*[16]
  - Naturalistic decision making*[17]
  - Personal construct theory*[18]

*1. Newell, 1972, *2. Marcum, 2012, *3. Elstein et al., 1990, *4. Fleming, 1991, *5. Hammond & Mellers, 1999, *6. Barrows & Feltovich, 1987, *7. Tomkins, 1978, *8. Newell, 1972, *9. Patel & Groen, 1986, *10. Paas et al., 2003, *11. Roth & Frisby, 1986, *12. Ian Edwards et al., 1998, *13 Schön, 1987 *14 Zimmerman, 2008 *15 Checkland, 1993 *16 Greeno, 1989, *17 Klein, 2008, *18. Kelly, 1970

Wrap Up

- Discussed clinical reasoning in primary care
  - Need for therapeutic reasoning
  - Three-layer cognitive (TLC) model: targeting, linking, and checking
  - Redefining of terminologies: clinical judgement and clinical decision making
- Discussion with other frameworks
  - Joanne Reeve's medical generalism
  - Duong's discussion of middle-range theories