RAINBOW OF CHAOS

Evaluating integrated care across the care continuum
Objectives

1. Present an overview of the development process of the Rainbow Model of Integrated Care (RMIC);

2. Present an overview of the development and validation process of the Rainbow Model of Integrated Care Measurement Tool (RMIC-MT);

3. Discuss the interest on a collaborative research agenda and action plan to validate the RMIC-MT in Italy;

4. Determine next steps.
1. The Rainbow Model of Integrated Care (RMIC)

2. The Rainbow Model of Integrated Care Measurement Tool (RMIC-MT);
   I. Taxonomy
   II. RMIC-MT 1.0
   III. RMIC-MT 2.0

3. Further research

4. Determine next steps
The Rainbow Model of Integrated Care (RMIC)
The fragmented delivery system

Differentiation, specialisation, segmentation, silo mindset (i.e., policy, regulation, financing, organisation, service delivery and professional/institutional culture).

Current challenges

1. Integrated care is considered an essential strategy to improve patient experience of care, health of the population and reduce the cost per capita (Triple Aim) (Berwick 2009; Alderwick 2015)

2. However, there is a lack of published data to back up this assertion (Valentijn 2015; Nolte 2014)

3. Information on integrated care mechanisms are needed to determine the added value of an integrated care strategy within different settings (Porter 2006; Evans 2013 & 2014; Valentijn 2015)
Integrated care = Conceptual confusion

**Integrated care as** a concept is an imprecise hodgepodge. Its meanings are as diverse as the numerous actors involved.

**Key Conclusions**
Integrated care is essential to sustaining our health systems. It is a multi-level, multi-modal, demand-driven and patient-centred strategy designed to address complex and costly health needs by achieving better coordination of services across the entire care continuum. Not an end in itself, integrated care is a means of optimizing system performance and attaining quality patient outcomes. While there is growing consensus that high-performing healthcare organizations cannot do without health system integration in order to meet changing patient needs and community expectations, there is much less agreement on the best ways to accomplish the goal of integrated care. The purpose of this review was to explore and provide a clearer picture of integrated care.
Different perspectives and values

- Improve access, quality and continuity of services
- Improve quality, market share and efficiency
- Coordination of tasks, services and care across professional and institutional boundaries
- Easy access and navigation; seamless care

INTEGRATED CARE EVALUATION
Connecting those who care.
Disease specific or person-focused?!

Reductionism
(Disease specific)

Inter-determinism
(Person-focused)
## Table 1: Comparison of traditional versus complexity paradigm

<table>
<thead>
<tr>
<th></th>
<th>Traditional perspective</th>
<th>Complexity perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scientific paradigm</strong></td>
<td>Reductionism, determinism</td>
<td>Holism, interdeterminism</td>
</tr>
<tr>
<td></td>
<td>Linear relationships</td>
<td>Non-linear relationships</td>
</tr>
<tr>
<td></td>
<td>Newtonian physics</td>
<td>Quantum physics</td>
</tr>
<tr>
<td><strong>Knowledge type</strong></td>
<td>Known – knowable (potentially ascertainable and predictable by decomposition of elements)</td>
<td>Understandable (non-predictable, but potentially understandable by pattern observation)</td>
</tr>
<tr>
<td></td>
<td>Focus on averages</td>
<td>Focus on variation</td>
</tr>
<tr>
<td><strong>Value philosophy</strong></td>
<td>Efficiency (market power, cost/ risks)</td>
<td>Agility (learning, innovation, entrepreneurship)</td>
</tr>
<tr>
<td></td>
<td>Focus on inputs</td>
<td>Focus on outputs</td>
</tr>
<tr>
<td><strong>Design principles</strong></td>
<td>Process engineering</td>
<td>Complex adaptive social systems</td>
</tr>
<tr>
<td></td>
<td>Behaviour specified from top down</td>
<td>Behaviour emerges from bottom up</td>
</tr>
<tr>
<td></td>
<td>Hierarchy</td>
<td>Heterarchy</td>
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<tr>
<td></td>
<td>Command and control</td>
<td>Incentives and inhibitions</td>
</tr>
<tr>
<td></td>
<td>Contractual</td>
<td>Personal commitments</td>
</tr>
</tbody>
</table>

Adapted from: Begun et al. (2003)\(^{16}\), Rouse (2008)\(^{18}\) and Glouberman and Zimmerman (2002)\(^{17}\).
The legacy of Barbara Starfield

- Person-focused care
- Population based care
- Comprehensive & coordinated care
- First contact of care
The Rainbow Model of Integrated Care (RMIC)

**Clinical integration**
Coordination of care for a complex need at stake in a single process across time, place and discipline.

**Professional integration**
Inter-professional partnerships based on a shared accountability to deliver care to a defined population.

**Organisational integration**
Inter-organisational partnerships based on collaborative accountability and shared governance mechanisms, to deliver care to a defined population.

**System integration**
Coherent set of (informal and formal) political arrangements to facilitate professionals and organisations to deliver a comprehensive continuum of care.

Valentijn (2013, 2015 and 2016)
The continuum of each dimension

Valentijn (2013)
The hypotheses

- Quality of care
- Average costs

Related terms:
- Segregation
- Linkage
- Coordination
- Integration
### Opening the black box

<table>
<thead>
<tr>
<th></th>
<th>Segregation</th>
<th>Linkage</th>
<th>Coordination</th>
<th>Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Professional</strong></td>
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<tr>
<td><strong>Organizational</strong></td>
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<tr>
<td><strong>Functional</strong></td>
<td></td>
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<tr>
<td><strong>Normative</strong></td>
<td></td>
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<tr>
<td><strong>System</strong></td>
<td></td>
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</tbody>
</table>
The Rainbow Model of Integrated Care Measurement Tool (RMIC-MT)
Background

1. There is no universally accepted framework and measurement tool that measures the level of integrated care across the care continuum (Valentijn 2016)

2. The lack of a validated measurement tool that assesses all aspects of integrated care, which highly impedes the systematic understanding and poses significant challenges for policymakers, commissioners, managers, professionals and researchers to support the effective deployment and evaluation of integrated care in practice (Valentijn 2015 and 2016)

3. The overall objective is to develop and validate a measurement tool that is short, simple and generic in content in order to maximise its potential for routine use across the continuum of care.
Overall study design

A mixed-method approach consisting of: 1) a literature review; 2) thematic analysis; and 3) three Delphi studies were used to develop the RMIC-MT.

1. **Conceptualisation**
   - Narrative literature review & expert meetings
   - RMIC
   - Valentijn et al. (2013)

2. **Operationalization**
   - Literature review & thematic analysis
   - Preliminary taxonomy
   - Valentijn et al. (2015a)

3. **Consensus**
   - Three Delphi studies
   - Final taxonomy
   - Valentijn et al. (2015a and 2015b)

4. **Prototyping**
   - Three pilot studies assessing face and content validity
   - Preliminary RMIC_MT
   - Nurjono et al. (2016) and Angus (2016)

5. **Validation**
   - Three pilot studies assessing the psychometric properties
   - RMIC_MT
   - Nurjono et al. and Angus (2016)

**Methods**
- Step 1-3: Taxonomy
- Step 4-5: RMIC-MT
Step 1 – 3: The taxonomy of integrated primary care
Aim and research objectives

Contribute to the (ongoing) debate of defining and specifying integrated care:

1. Refine the RMIC by developing a taxonomy that specifies the underlying key features

2. Develop a consensus based taxonomy based on national and international expert opinions
Study design

Aim:
Developing a consensus-based taxonomy of integrated primary care

Design:
Mixed-method approach comprising:
• Literature review
• Thematic analysis
• National and international Delphi studies

Method:
- Literature review and thematic analysis: Draft taxonomy of 59 key features
- National Delphi study: 34 out of 59 key features considered appropriate
  - Delphi study 1: Appropriateness of the 59 key features
  - Delphi study 2: Categorisation of the key features across the domains of the RMIC

Output:
- A taxonomy of key features to achieve integrated primary care

Valentijn et al. (2015)
Three Delphi studies

- Experts with a scientific and/or practical background field of ICPC
- RAND UCLA appropriateness method Fitch et al. (2001)
  - Self-administrated questionnaire (round 1)
  - Physical meeting of experts (round 2)

- Appropriateness to achieve ICPC: 1 (completely irrelevant) to 9 (extremely relevant)

<table>
<thead>
<tr>
<th></th>
<th>Median (1-3)</th>
<th>Median (4-6)</th>
<th>Median (7-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Round 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreement (≤ 70%)</td>
<td>Equivocal; discussion round 2</td>
<td>Equivocal; discussion round 2</td>
<td>Equivocal: discussion round 2</td>
</tr>
<tr>
<td>Agreement (≥ 70%)</td>
<td>Inappropriate; excluded after round 1</td>
<td>Equivocal; discussion round 2</td>
<td>Appropriate; included after round 1</td>
</tr>
<tr>
<td><strong>Round 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreement (≤ 70%)</td>
<td>Equivocal</td>
<td>Equivocal</td>
<td>Equivocal</td>
</tr>
<tr>
<td>Agreement (≥ 70%)</td>
<td>Inappropriate</td>
<td>Equivocal</td>
<td>Appropriate</td>
</tr>
</tbody>
</table>

Valentijn et al. (2015)
### Participants Three Delphi studies

<table>
<thead>
<tr>
<th></th>
<th>Delphi study 1 (national)</th>
<th>Delphi study 2 (international)</th>
<th>Delphi study 3 (international)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No of participants participating</strong></td>
<td>Round 1</td>
<td>Round 2</td>
<td>Round 1</td>
</tr>
<tr>
<td>Dominant background, n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practical</td>
<td>7 (50)</td>
<td>6 (60)</td>
<td>7 (44)</td>
</tr>
<tr>
<td>Scientific</td>
<td>7 (50)</td>
<td>4 (40)</td>
<td>9 (56)</td>
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<td><strong>Years of experience, mean (SD), range</strong></td>
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<td></td>
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<tr>
<td>&lt; 5</td>
<td>1 (7)</td>
<td>1 (10)</td>
<td>2 (12)</td>
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<tr>
<td>5-10</td>
<td>7 (50)</td>
<td>6 (60)</td>
<td>10 (63)</td>
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<tr>
<td>&gt;10</td>
<td>6 (43)</td>
<td>3 (30)</td>
<td>4 (25)</td>
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<td><strong>Experience gained in country, n</strong></td>
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<td>Australia</td>
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<td>0</td>
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<td>Belgium</td>
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<td>El Salvador</td>
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<td>Germany</td>
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</tr>
<tr>
<td>New Zealand</td>
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<td>Russia</td>
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</tr>
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<td>Singapore</td>
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<td>The Netherlands</td>
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</tr>
<tr>
<td>USA</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Valentijn et al. (2015)
Synthesis of results

Eligibility criteria 1
Features considered twice appropriate (Nat. Delphi study and int. Delphi study 1)

Consensus categorisation

Appropriate features

No

Consensus categorisation

Yes

Eligibility criteria 2
Consensus regarding categorisation of feature (int. Delphi study 2)

Synthesis of results
Iterative revision by research team

Yes

Review compiled taxonomy

Final taxonomy of key features

No

Review of initially excluded key features by research team

Valentijn et al. (2015)
Main findings

- Clinical, professional and organisational integration domains were most recognised
- Less emphasises was being placed on the system integration domain
- Normative domain as ‘soft’ enabler was highly recognised by all experts

Valentijn et al. (2015)
# Taxonomy of 21 key features

<table>
<thead>
<tr>
<th>Main categories and domains</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope of integrated care</strong></td>
<td></td>
</tr>
<tr>
<td>Person-focused care</td>
<td>The principle of integrated service delivery is to address the needs of individual clients.</td>
</tr>
<tr>
<td>Centrality of client needs</td>
<td></td>
</tr>
<tr>
<td>Population based care</td>
<td>The principle of integrated service delivery is to address the dominant needs of well-defined population groups.</td>
</tr>
<tr>
<td>Centrality of population needs</td>
<td></td>
</tr>
<tr>
<td><strong>Type of integration processes</strong></td>
<td></td>
</tr>
<tr>
<td>Clinical integration</td>
<td>Coordination of care for clients with a high risk profile (e.g., identifying risks, developing strategies, implementing interventions).</td>
</tr>
<tr>
<td>Case management</td>
<td>Integrated service delivery aims to provide fluid processes of care delivery.</td>
</tr>
<tr>
<td>Continuity</td>
<td>Attitude and behavioral characteristics between professional and client regarding all health needs.</td>
</tr>
<tr>
<td>Interaction between professional and client</td>
<td>Implementation and application of a multidisciplinary care plan at the individual level.</td>
</tr>
<tr>
<td>Individual multidisciplinary care plan</td>
<td></td>
</tr>
<tr>
<td>Professional integration</td>
<td>Inter-professional education for professionals focused on interdisciplinary service delivery and collaboration.</td>
</tr>
<tr>
<td>Agreements on interdisciplinary collaboration</td>
<td>Agreements on the establishment of interdisciplinary service delivery and collaboration.</td>
</tr>
<tr>
<td>Value creation for the professional</td>
<td>The value added by the integrated service delivery approach for the individual professional.</td>
</tr>
<tr>
<td>Organisational integration</td>
<td>The governance of the integrated service model is focused on openness, integrity, and accountability between involved organizations and professionals.</td>
</tr>
<tr>
<td>Inter-organisational governance</td>
<td>Collective elaborated strategy between the organizations involved in the integrated service model.</td>
</tr>
<tr>
<td>Inter-organisational strategy</td>
<td>The extent to which those involved in the integrated service model trust each other.</td>
</tr>
<tr>
<td>Trust</td>
<td></td>
</tr>
<tr>
<td>System integration</td>
<td>Alignment of regulatory frameworks for teamwork, coordination, and continuity.</td>
</tr>
<tr>
<td>Alignment of regulatory frameworks</td>
<td>Political, economic, and social climate in the environment of the integrated service model.</td>
</tr>
<tr>
<td>Environmental climate</td>
<td></td>
</tr>
<tr>
<td><strong>Enablers for integration</strong></td>
<td></td>
</tr>
<tr>
<td>Functional integration</td>
<td>Collective learning power between the organizations involved in the integrated service model.</td>
</tr>
<tr>
<td>Learning organisations</td>
<td>Aligned information management systems within the integrated service model.</td>
</tr>
<tr>
<td>Information management</td>
<td>Regular feedback of performance indicators for quality improvement and self-reflection.</td>
</tr>
<tr>
<td>Regular feedback of performance indicators</td>
<td></td>
</tr>
<tr>
<td>Normative integration</td>
<td>Collectively shared long-term vision among the people who are involved in the integrated service model.</td>
</tr>
<tr>
<td>Shared vision</td>
<td>The extent to which the agreements and promises within the integrated service model are fulfilled.</td>
</tr>
<tr>
<td>Reliable behaviour</td>
<td>Leadership based on a vision that inspires and mobilizes people within the integrated service model.</td>
</tr>
<tr>
<td>Visionary leadership</td>
<td>Linking cultures (e.g., values and norms) with different ideological values within the integrated service model.</td>
</tr>
<tr>
<td>Linking cultures</td>
<td></td>
</tr>
</tbody>
</table>

* Features were added at final taxonomy during the review and synthesis process
* Features were merged due to identical or nearly identical content

Valentijn et al. (2015)
Step 4 – 5: Development and validation of a measurement tool (RMIC-MT)
Aim and research objectives

The overall aim is to develop and validate ‘The Rainbow Model of Integrated Care Measurement Tool (RMIC-MT)’ to assess the micro level, meso level, macro level and enabling aspects of integrated care. To this end, the research objectives include:

1. To develop the RMIC-MT using the taxonomy
2. To explore the face and content validity of the RMIC-MT
3. To explore the psychometric properties of the RMIC-MT in different pilot studies
4. To modify and improve the RMIC-MT based on the results of the different pilot studies
The RMIC-MT 1.0
Study design

Literature review of integrated care instruments

Core domains and item selection
- Person-focused care
- Population-based care
- Clinical integration
- Professional integration
- Organisation al integration
- System integration
- Functional integration
- Normative integration

Design criteria
- Evidence for psychometric properties;
- Generic content; and
- Easy to use (e.g. minimal user burden).

Pilot version 1.0

Pre-testing
- Assessment of face and content validity

Field-testing
- Testing for clarity and feasibility among target groups

Validation studies
- Psychometric testing
Preliminary pilot version RMIC-MT 1.0 (44 items)

- Operationalization of the 21 key features
- Focus on inter-sectorial, inter-organisational, and inter-professional integration and /or collaboration
- Developed for healthcare professionals, policymakers, commissioners, managers, professionals

<table>
<thead>
<tr>
<th>Domain</th>
<th>Variable</th>
<th>Example</th>
<th>Items</th>
<th>Response options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope</td>
<td>Person-focused care</td>
<td><em>Interventions are used to promote clients’ self-care ability</em></td>
<td>5</td>
<td>Never (1) – All the time (4)</td>
</tr>
<tr>
<td></td>
<td>Population based care</td>
<td><em>Population needs are included in the objectives of the partnership</em></td>
<td>4</td>
<td>Never (1) – All the time (4)</td>
</tr>
<tr>
<td>Type</td>
<td>Clinical integration</td>
<td><em>Professionals have agreements on the referral and transfers (follow-up) of clients</em></td>
<td>5</td>
<td>Never (1) – All the time (4)</td>
</tr>
<tr>
<td></td>
<td>Professional integration</td>
<td><em>Professionals use multidisciplinary guidelines and protocols</em></td>
<td>6</td>
<td>Never (1) – All the time (4)</td>
</tr>
<tr>
<td></td>
<td>Organisational integration</td>
<td><em>Interest of the organizations involved are considered</em></td>
<td>6</td>
<td>Never (1) – All the time (4)</td>
</tr>
<tr>
<td></td>
<td>System integration</td>
<td><em>The partnership is hampered by the rules and/or policies set by the ministries (e.g. Ministry of health)</em></td>
<td>5</td>
<td>Never (1) – All the time (4)</td>
</tr>
<tr>
<td>Enablers</td>
<td>Functional integration</td>
<td><em>Incentives are used to improve teamwork, coordination and continuity of care among professionals</em></td>
<td>7</td>
<td>Never (1) – All the time (4)</td>
</tr>
<tr>
<td></td>
<td>Normative integration</td>
<td><em>Activities are undertaken to better understand other organizational cultures</em></td>
<td>6</td>
<td>Never (1) – All the time (4)</td>
</tr>
</tbody>
</table>
Preliminary field testing in three pilots

1. **The Netherlands**
   - **Objectives:**
     1. Explore the usability of the pilot version
   - **Method:**
     - Multiple case study design (23 birth centre’s)
   - **Data collection:**
     - Self-administrated questionnaire
   - **Results:**
     - 77% response rate (56 out of 73)
     - Easy to use
   - **Conclusion:**
     - Further work needed to improve the measurement tool

2. **Australia**
   - **Objectives:**
     1. Assess the usability of the pilot version
     2. Explore face and content validity
   - **Method:**
     - Purposive sample of 38 integrated primary care initiatives
   - **Data collection:**
     - Self-administrated questionnaire
   - **Results:**
     - 77% response rate (56 out of 73)
     - Easy to use
   - **Conclusion:**
     - Acceptable face and content validity
     - Need for additional item development and editing

3. **Singapore**
   - **Objectives:**
     1. Explore face and content validity
     2. Explore psychometric properties
   - **Method:**
     - Purposive sample of 2 Regional Health Systems (the National Healthcare Group and the National University Health System)
   - **Data collection:**
     - Self-administrated questionnaire
   - **Results:**
     - 40% response rate (103 out of 260)
     - Good content and face validity
     - Five distinguishable factors (43 items)
     - Proper scale reliability (α 0.81-0.94)
   - **Conclusion:**
     - Acceptable psychometric properties
     - Further work needed to cover all conceptual dimensions of the RMIC
Main findings preliminary pilots

• Relevant and easy to use instrument;

• Good content and face validity within different settings;

• Need for contextual editing and item development;

• Good psychometric properties for scales: clinical integration, normative integration, and person-focused care;

• Further work needed to improve psychometric properties for scales: professional integration, organisational integration, system integration, functional integration, and population-based care;

• Patient version is highly needed/ recommended;

• Further validation studies using larger samples are needed.
The RMIC-MT 2.0
Towards and improved version of the RMIC-MT

Literature review of integrated care instruments*

Core domains and item selection
- Person-focused care
- Population-based care
- Clinical integration
- Professional integration
- Organisation integration
- System integration
- Functional integration
- Normative integration

Design criteria
- Evidence for psychometric properties**;
- Generic content; and
- Easy to use (e.g. minimal user burden).

Pilot version 2.0

Pre-testing
- Assessment of face and content validity

Field-testing
- Testing for clarity and feasibility among target groups

Validation studies
- Psychometric testing

* Based on Bautista et al. (2016) and Uijen et al (2012) and hand search of reference lists.
** COSMIN (COnsensus-based Standards for the selection of health Measurement Instruments) quality score
The RMIC-MT 2.0

- Reviewed > 300 integrated care instruments for healthcare staff (e.g. management and healthcare professionals) and patients

- **Item database staff**: 170 potentially relevant items

- **Item database patients**: 164 potentially relevant items

- **Selection criteria:**
  - Generic content per RMIC domain
  - Evidence for psychometric properties (e.g. COSMIN quality score)
  - Ease to use
# The RMIC-MT 2.0

## 1. RMIC-MT 2.0 staff version (52 items)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Variable</th>
<th>Example</th>
<th>Items</th>
<th>Response options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope</td>
<td>Person-focused care</td>
<td>Thinking about the patient as a person is important in getting treatment right.</td>
<td>5</td>
<td>Strongly disagree (1) - Strongly agree (5)</td>
</tr>
<tr>
<td></td>
<td>Population based care</td>
<td>We work with non clinicians to deliver more effective healthcare</td>
<td>5</td>
<td>Strongly disagree (1) - Strongly agree (5)</td>
</tr>
<tr>
<td>Type</td>
<td>Clinical integration</td>
<td>Written plans and schedules are used for patient referrals, transfers and follow-up</td>
<td>7</td>
<td>Never (1) – Always (5)</td>
</tr>
<tr>
<td></td>
<td>Professional integration</td>
<td>Multidisciplinary guidelines and/or protocols are being used</td>
<td>7</td>
<td>Never (1) – Always (5)</td>
</tr>
<tr>
<td></td>
<td>Organisational integration</td>
<td>Our clinic coordinates with other organizations to eliminate unnecessary duplication</td>
<td>4</td>
<td>Strongly disagree (1) - Strongly agree (5)</td>
</tr>
<tr>
<td></td>
<td>System integration</td>
<td>Local healthcare policies incentivise partnerships with other organisations</td>
<td>5</td>
<td>Strongly disagree (1) - Strongly agree (5)</td>
</tr>
<tr>
<td>Enablers</td>
<td>Functional integration</td>
<td>Outcomes are systematically monitored/followed-up</td>
<td>11</td>
<td>Never (1) – All the time (4)</td>
</tr>
<tr>
<td></td>
<td>Normative integration</td>
<td>People treat each other with respect</td>
<td>8</td>
<td>Never (1) – All the time (4)</td>
</tr>
</tbody>
</table>

## 2. Revised RMIC-MT patient version (24 items)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Variable</th>
<th>Example</th>
<th>Items</th>
<th>Response options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient perceived care</td>
<td>Person-focused care</td>
<td>Care providers listen to the things that matter most to me</td>
<td>6</td>
<td>Strongly disagree (1) - Strongly agree (5)</td>
</tr>
<tr>
<td></td>
<td>Clinical integration</td>
<td>My doctor always remembers what he/she did during my last visit(s)</td>
<td>8</td>
<td>Strongly disagree (1) - Strongly agree (5)</td>
</tr>
<tr>
<td></td>
<td>Professional integration</td>
<td>Care providers work together very well</td>
<td>4</td>
<td>Strongly disagree (1) - Strongly agree (5)</td>
</tr>
<tr>
<td></td>
<td>Organisation integration</td>
<td>I can get appointments with my specialist quickly enough</td>
<td>6</td>
<td>Strongly disagree (1) - Strongly agree (5)</td>
</tr>
</tbody>
</table>
## Validation steps of the RMIC-MT 2.0

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Method</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1: Improvement of measurement tool</td>
<td>Generation of items based on systematic review of measurement tools and grey literature</td>
<td>Review of existing questionnaires</td>
<td>1. Generic content per RMIC domain; 2. COSMIN quality score ( &gt; 1.50); and 3. Ease to use (1 to 3 score).</td>
</tr>
<tr>
<td>Phase 2: Pre-testing</td>
<td>Assessment of face and content validity</td>
<td>Multidisciplinary expert panel of app. 10 professionals and app. 5-10 patients (per pilot).</td>
<td>1. Wording is clear; 2. Question is redundant; and 3. Relevance (4-point Likert scale).</td>
</tr>
<tr>
<td>Phase 3: Field-testing</td>
<td>Testing for clarity and feasibility among patients.</td>
<td>Pilot-testing the RMIC-MT 2.0 among a sample of app. 50 to 60 patients.</td>
<td>1. Length; 2. Clarity; and 3. Upsetting.</td>
</tr>
<tr>
<td>Phase 4: Validation study</td>
<td>Testing psychometric properties</td>
<td>Multinational survey study among 321 dialysis clinics in 20 countries</td>
<td>1. Reliability; 2. Construct validity; 3. Concurrent validity</td>
</tr>
</tbody>
</table>
Further research
A multinational survey study

1. To identify the prevalence of perceived unmet care coordination needs among Chronic Kidney Disease (CKD) patients; and

2. To assess the relationship between a dialysis clinics care coordination characteristics and the patient perceived care coordination needs.

<table>
<thead>
<tr>
<th>Practice characteristics</th>
<th>Patient perceived outcomes</th>
<th>Enabling characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Person-focused care</td>
<td>• Person-focused care</td>
<td>• Normative integration</td>
</tr>
<tr>
<td>• Population based care</td>
<td>• Clinical integration</td>
<td>• Functional integration</td>
</tr>
<tr>
<td>• Clinical integration</td>
<td>• Professional integration</td>
<td>• System integration</td>
</tr>
<tr>
<td>• Professional integration</td>
<td>• Organisational integration</td>
<td></td>
</tr>
</tbody>
</table>
The global unmet care coordination needs?!

Sample and setting:

• 321 clinics in 20 countries
• Staff (n=3000)
• Patients (n=10,000)
Discussion and next steps
Discussion and next steps

1. Are you interested to validate the RMIC-MT 2.0 in the Italian context?

2. What kind of funding is needed to set-up a (validation) study in Italy?

3. What could be our collaborative next steps?
Read more

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References