Using the INTERMED Complexity Assessment Grid (IM–CAG) and its shortened version the "INTERMED Self Assessment" (IM–SA) with case management

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Contents:
{INTERMED tools are designed for use by case managers with clinically complex cases}

- Definition of Clinical Complexity
- What are case managers (CMs)?
- Interaction of CMs with physicians
- The environment of case management: complex clinical situations
- Case management tools for and organizing complex clinical situation: the “INTERMED Complexity Assessment Grid” (IM–CAG) and the “INTERMED Self Assessment” (IMSA)
The term “Clinical Complexity” needs to be distinguished from the more commonly used terms “Medical Complexity” and “Complex Patient” both refer to medical illness itself removed from other case elements.
“Clinical complexity,” in addition to referring to co-morbid illn
ess, adds emphasis on non-medical, health-related factors e.g. psychological, psychosocial, health systems factors, shifting focus to the *case* away from the individual patient.

Add:
Other environmental interferences with health maintenance

Complex cases also tend to involve “high-service use” patients, requiring many services from multiple providers

>> From this point, when I use the term “complexity” it will be in broad sense referring to “clinical complexity” i.e. complex cases, rather than complex patients
The Impact of Clinical Complexity

“Patients with health (clinical) complexity constitute the 2% to 5% that use 30% to 50% of health resources. They predictably have persistent health problems.

A small percentage of hospital and clinic patients account for a high percentage of unreimbursed services.

[Kathol, 2017]
Mental Health Conditions Added

Add to the above that:

That about 70% of these complex cases involve concurrent and untreated mental health conditions, substance abuse, and/or other health compromising psychosocial disorders.
The Value of Identifying Clinically Complex Cases

- Improved patient selection to determine which patients need earlier and/or enhanced intervention
- Facilitate earlier education for these patients, presumably improving compliance and outcome
- Contain their use of the ED
- More quickly and better address non-medical health related, e.g. social, financial, health services issues
- Identify need for case management [next slide]
Case/Care Managers for Complex Clinical Situations

- Case/care managers are imperative for the treatment of complex cases.
- Most often CMs are nurses or social workers, assigned to patients with one or more illness and/or complicated social issues.
- Primary roles for case managers:
  - (1) advocate for and assist patients in overcoming health-related barriers to improvement
  - (2) coordinate treatment
  - (3) develop and maintain treatment plans
  - (4) act as ombudsman between physician, patient, and treatment staff

Note: Kathol, 2016 calls these providers “assist personnel”
Case Managers (CMs) Roles, Continued

CMs:
- Do not diagnose or treat illness medically (physician does that and is ultimate decision maker)
- Do create treatment plans
- Do measure and document outcome
- Do address non medical (social, health systems) issues

ALSO
- Related categories of assist personnel (require less training) include “patient navigators,” “care coordinators,” non-professional care assistants including coaches
- The most highly trained CM’s are “integrated case managers (ICM)” i.e. case managers who systematically address multi-domain e.g. medical and psychiatric, barriers to improvement
- Additional, supporting features for effective case management: co-location, shared EMR
Function

- Function of physicians in work with case managers
  - Primary treating physician (writes orders)
  - Specialty physicians secondarily involved in patient’s care

Medical Specialization

- Physician specialty most suited to this role: C/L psychiatrists who also take extended responsibility for patients and physicians with dual training in internal medicine/family medicine and psychiatry

- Both groups are ideally suited to assume leadership of integrated, multidisciplinary treatment teams
Assessment instruments used by CMs to assist in the treatment of complex cases

- “INTERMED Complexity Assessment Grid” (IM-CAG) [45+ minutes to administer]*

- … and its self-assessment counterpart the “INTERMED Self-Assessment Instrument” (IM-SA) [10 minutes to take, self administered]

*Recently renamed by Kathol: “Value Based Integrated Case Management Complexity Assessment Grid” (VB–ICM–CAG) [Kathol 2016]
Case – Oscar: IM–CAG Score 44 out of 60 (high complexity)

- Oscar 56 y/o
- Medical: Parkinson’s, chronic diarrhea, COPD, ?cardiac
- Psychiatric: depression and anxiety, r/o alcoholism
- Social: alienation from family and friends
- Health systems: frequent use of ED, ambivalent about his current PCP and accordingly misses appointments
### INTERMED–Complexity Assessment Grid (IM–CAG)

[Schematic View]

<table>
<thead>
<tr>
<th>Domain</th>
<th>Historical</th>
<th>Current state</th>
<th>(Future) Vulnerability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biological domain</strong></td>
<td>1. Chronicity</td>
<td>1. Symptom severity/impairment</td>
<td>Complications and life threat</td>
</tr>
<tr>
<td></td>
<td>2. Diagnostic dilemma</td>
<td>2. Diagnostic/therapeutic challenge</td>
<td></td>
</tr>
<tr>
<td><strong>Psychological domain</strong></td>
<td>1. Barriers to coping</td>
<td>1. Resistance to treatment</td>
<td>Mental health threat</td>
</tr>
<tr>
<td></td>
<td>2. Mental health history</td>
<td>2. Mental health symptoms</td>
<td></td>
</tr>
<tr>
<td><strong>Social domain</strong></td>
<td>1. Job and leisure</td>
<td>1. Residential stability</td>
<td>Social vulnerability</td>
</tr>
<tr>
<td></td>
<td>2. Relationships</td>
<td>2. Social support</td>
<td></td>
</tr>
<tr>
<td><strong>Health System domain</strong></td>
<td>1. Access to care</td>
<td>1. Getting needed services</td>
<td>Health system impediments</td>
</tr>
<tr>
<td></td>
<td>2. Treatment experience</td>
<td>2. Coordination of care</td>
<td></td>
</tr>
</tbody>
</table>
IM–CAG: Structure of IM–CAG and clinical findings i.e. “Risk Profile”

*INTERMED Complexity Assessment Grid  [see handout]

To follow are slides illustrating the IM–CAG itself and the IM–CAG component parts

IM–CAG structure:

- Four “domains” (biological, psychological, social, health systems) [vertical axis]

- Each domain is further subdivided into three sections according to time periods (historical, current, vulnerability i.e. prognosis) [horizontal Axis]

- Each cell contains one or two “complexity items”

- Each complexity item is assigned a severity rating of 0–3 and becomes an “anchor point” [color coded]

- Goals and actions are individualized for each assigned anchor point
Final product: Oscar’s IM-CAG “Risk Profile” (i.e. administrator rated IM-CAG) (Completed)
IM–CAG: “Anchor Points” (severity ratings) for Complexity Items

- Each anchor point in each dimension is scored 0–3 and color coded for clinical immediacy:
  0[green] = no vulnerability
  1[yellow] = mild vulnerability (monitor),
  2[orange] = moderate vulnerability (need for action/plan),
  3[red] = severe (immediate attention required)

- There are screens, hidden behind the “risk profile” default screen, that provide
  1) help (general)
  2) help with criteria for anchor points
  3) suggest goals and actions for each anchor point
  4) place to enter notes for each anchor point
IM–CAG: Risk Profile – Complexity Item i.e. “Cell,” help screens (hidden screen embedded in IM–CAG default screen)

**Chronicity - HB1**

**Cell Help**

Chronicity (HB1): scores are based on the presence and duration of physical conditions during the previous 5 years, e.g., heart disease, obstructive lung disease, headaches, back pain, etc.

**Time Sensitivity**

last 5 yr

**Barriers**

Old understanding of illnesses and treatments, burnout, frustration with lack of control, complicated needs

**Success Metrics**

Patient understands illnesses and participates in treatments; patient
IM-CAG: Risk Profile – Anchor Point help (embedded in IM-CAG default screen)

ICM-CAG® Complexity Assessment Grid

2013 Gold Standard Adult Grid

Historical

<table>
<thead>
<tr>
<th>Chronicity - HB1</th>
<th>Current State</th>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
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<tr>
<td>1</td>
<td>1</td>
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<td>2</td>
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<tr>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Biological

<table>
<thead>
<tr>
<th>Diagnostic Dilemma - BD1</th>
<th>Resistance to Treatment - CP1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
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<tr>
<td>1</td>
<td>1</td>
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<td>2</td>
<td>2</td>
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<tr>
<td>3</td>
<td>3</td>
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</tbody>
</table>

More than 3 months of physical symptoms/dysfunction or several periods of less than 3 months
IM–CAG: Risk Profile – Goals, preset and custom (embedded in IM–CAG default screen)
IM-CAG: Risk Profile – Actions, preset and custom (embedded in IM-CAG default screen)
IM-CAG: Final product: Oscar’s IM-CAG “Risk Profile” (i.e. administrator rated IM-CAG)

(Completed)
[Optional] IM–CAG: Third column on horizontal axis of default screen i.e. “Vulnerability” (prognosis)

- The third column (vulnerability) in each domain is essentially the average of all contributing anchor points

- It is a prediction of the subject’s vulnerability, i.e. prognosis, in that clinical “dimension” for 3–6 months
Column 3, biological domain:

Example: Oscar’s Score
0 – No risk of limitations in activities of daily living
1 – Mild risk of limitations in activities of daily living
*2 – Moderate risk of permanent and/or substantial limitations of activities in daily living
3 – Severe risk of physical complications with serious permanent functional deficits and/or dying
IM–CAG: Care Planning Tools for Case Managers

(1) **Care Planning Tool** – (“Care Plan Development,” CP)

- The “CP” is a plan that is meticulously created, followed, and updated every several weeks or months by care manager

- It lays out complexity items that are considered barriers to progress, goals, and actions to be taken
IM–CAG: Care Planning Tools for Case Managers

(2) Progress Measurement Tool – Metrics to measure progress in selected areas (“patient centered integrated case management progress,” PCIP)

Each progress tracking (PCIP) list is different and is linked to individual health barriers listed in treatment plan. Oscar’s might, for example, include:

- Personal & Clinical Goals
- IM–CAG score (complexity is the “barrier”)
- HRQOL
- Patient Satisfaction Determinations
- Clinical (medical)/Functional/Economic Measures
- Etc.
(3) Measurement of (overall) progress ("Care Plan Outcomes," CPO)

This record is organized according to the clinically relevant actions instigated by care manager or provider (The record itself is called the “record of outcome measures,” ROM)

Partial example for Oscar’s ROM:
Goal – Control alcohol use
Action – Participate in group sobriety counseling
Outcome – Discontinue use of alcohol and social re-involvement (specific determinations of these)
IM-SA: “INTERMED Self-Assessment”

- The IM-SA is a streamlined complexity self-assessment tool, modeled after and validated against the IM-CAG.

- The IM-SA is a time saving questionnaire completed by the patient.

- The IM-SA takes about 10 minutes to complete and closely follows the IM-CAG in structure and accuracy.

- In contrast, the IM-CAG takes 45–50 minutes to complete and requires an examiner for administration.

- It is currently being RE-VALIDATED and recalibrated by our group at UCSF with complex HIV positive patients. I am PI of the study.
Parallels the IM–CAG with 4 domains (biological, psychological, social, health systems)

Total IM–CAG and IM–SA Score = 60, both with 15 points allocated to each domain

Administration:
- IM–CAG: examiner required
- IM–SA: self assessment (20 questions in total, all multiple choice)

IM–SA cut off score for high complexity (determined in Europe) of 20 is flexible. Cut off depends on population.

While the scored numbers differ, the IM–SA scores generally follow the IM–CAG in meaning and use
IM–SA: Excerpt from the IM–SA questionnaire

20 Items Following the IM–CAG Organization
Scored 0–60, 15 Points Total Per Domain

- Historical – Coping
  - Question 5: In the past 5 years, how did you cope with stressful, difficult situations?
    - [a] Generally speaking, I have always been able to cope with stressful, difficult situations
    - [b] Sometimes I had difficulties in coping with stressful, difficult situations, which sometimes resulted in tensions and problems with my partner, family or other people.
    - [c] I often experienced difficulties with stressful, difficult situations, which often led to tensions and problems with my partner, family or other people.
    - [d] I always experience difficulties with stressful, difficult situations. They upset me and make me tense.

- Historical – Mental health
  - Question 6: In your past, have you ever had psychological problems, such as being tense, anxious, down/blue or confused?
    - [a] No, almost never
    - [b] Yes, however without clear influence on my daily life
    - [c] Yes and it influenced my daily life
    - [d] Yes and these problems have had or still have a long-lasting effect on my daily life

Note: Some questions have multiple parts.
6 very different European clinical settings (to increase generalizability of results)

100 patients per site (arbitrary choice), total sample size of > 850

No specific inclusion/exclusion criteria: adult patients providing consent, unless too ill, suicidal or confused, or with significant linguistic barrier

Recording of excluded patients (reason for exclusion, age, sex, medical comorbidities)
Research hypotheses:

- The IM-SA identifies a majority of complex patients (> 80%), identified by the IM-CAG
- A high correlation exists between IM-SA and IM-CAG for complex patients
- Note: low correlation anticipated for some European subpopulations
- Patients perceive the questions asked in the IM-SA as relevant

Findings

- The IM-SA has predictive validity comparable to the IM-CAG for: ER visits, outpatient visits, and diagnostic exams, but not for hospitalizations at 3 and 6 months
- A tentative complexity cut-off point of 20 for the IM-SA was identified in Europe, but may need to be modified for use with our patient population
## IM–SA Validation Study: IM–CAG SCORES VS IMSA

<table>
<thead>
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<th></th>
<th>IMCAG</th>
<th>IMSA</th>
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<td>Mean</td>
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<td>SD</td>
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<td>2.1</td>
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<td>FUTURE</td>
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### IM–SA validation study: Predictive validity

**Does the IM–SA predict health care use after 3 months?**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>ER visits</th>
<th>Hospital admissions</th>
<th>Outpatients visits</th>
<th>Diagnostic exams</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
<td>p</td>
<td>OR (95% CI)</td>
<td>p</td>
</tr>
<tr>
<td>IMSA–total score</td>
<td>1.05 (0.99–1.11)</td>
<td>0.08</td>
<td>1.04 (0.98–1.10)</td>
<td>0.2</td>
</tr>
<tr>
<td>IMSA–total score adjusted for age, gender, living situation, education</td>
<td>1.07 (1.00–1.15)</td>
<td>0.04</td>
<td>1.05 (0.98–1.11)</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>1.08 (1.02–1.14)**</td>
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Summary

- We have defined clinical (medical/health) complexity
- Underscored the clinical and resource challenges of complex cases (most of which include complex patients)
- Presented clinical instruments for management of complex cases by case managers: IM–CAG and IM–SA
- The IM–SA with IM–CAG as backup could be used to identify complex patients requiring extra care and services, those likely to overuse ED, as well as to assign them to the correct providers e.g. case managers, psychiatrists, etc.
References


- The Integrated Case Management Manual: Assisting Complex Patients Regain Physical and Mental Health by Roger Kathol MD, Rebecca Perez RN BSN CCM, and Dr. Janice Cohen PhD C Psych (Jun 3, 2010), Springer Publishing

- Essential Articles on Collaborative Care Models for the Treatment of Psychiatric Disorders in Medical Settings, Huffman JC, Niazi SK, Rundell JR, Sharpe M, Katon WJ., Psychosomatics, 2014

- Integrated Care: Creating Effective Mental and Primary Health Care Teams (2014) Anna Ratzliff, PhD, Jürgen Unützer; and Wayne Katon, Wiley
LEVEL I
- **Anticipated time of involvement:** Days or less
- ** Likely IM-CAG score:** Below 22

LEVEL II
- **Low:** Brief management involvement (e.g. disease management, disability management)
- **Anticipated time of involvement:** Days to weeks
- ** Likely IM-CAG score:** 23 to 29

LEVEL III
- **Moderate**
- **Poorly treated medical comorbidity in the face of serious subacute and/or chronic psychiatric illness, social challenges, and health system issues**
- ** Likely IM-CAG score:** 30 to 35

LEVEL 4
- **High:** Extended case management involvement, as in Level III; however, problems are persistent, complex, and multiple with long-term high service use or anticipated risk of high service use, thus longer term case management involvement warranted
- **Anticipated time of involvement:** Months or longer
- ** Likely IM-CAG score:** 36 or above

[optional] IM–CAG Complexity Score Levels (total 60), an equivalent hierarchy needs to be created for each population
Selecting for Clinical Complexity

- **Traditional criteria**: age of the patient, diagnoses, number of comorbid and chronic illnesses ... as well as the cost of health services

- **Expanded criteria** (depends on setting, its objectives and resources) adds health related complications in any of the following domains: psychological, social, and care delivery systems