Critical Appraisal to Intraabdominal and Complicated Intraabdominal Guidelines to Develop Indonesian Specific Clinical Practice Guidelines

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Critical Appraisal to Intraabdominal and Complicated Intraabdominal Guidelines to Develop Indonesian Specific Clinical Practice Guidelines

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Abstract

Introduction. There were many clinical practice guidelines (CPG) intraabdominal infection/complicated intraabdominal infections (cIAI) have been developed since 1992 and were periodically updated recently. But to date, the implementation in Indonesia encountering problems. One is Indonesian characteristics which is different to the population of where the CPG developed. To adapt a CPG, the quality of CPG should be first critically appraised. The best will be used furthers as the subject to be adapted, with modification regarding Indonesian characteristics.

Method. A literature search carried out on guidelines databases to find out CPG on cIAI (1992–2017). The assessment preceded using AGREE II tools (MyAGREE platform) focused on 23 assessments in 6 domains (scope and purpose, stakeholder involvement, rigour of development, clarity of presentation, applicability, and editorial independence). Such an assessment placed a guideline in rating of 1 to 7. Updated guidelines were assessed using Checklist for the Reporting of Updated Guidelines (CheckUp). Appraised CPG were discussed.

Results. There were 33 CPG in full text downloaded and subjected to selection criteria. Duplicates and those irrelevant were excluded. In the assessment there were 18 CPG included and 13 guidelines places the strong recommended category, two can be recommended and other 2 were not recommended. All updated CPG met the criteria of the best quality updates.

Conclusion. Two cIAI–CPG were met the criteria of the quality guidelines to be adopted. These guidelines were developed in accordance with appropriateness in development a CPG and were updated.

Keywords: cIAI guidelines, AGREE II, CheckUp

Introduction

There were guidelines intraabdominal infection/complicated intraabdominal infections have been developed since 1992 to reduce mortality of those who suffered cIAIs. These guidelines, as the rules, were updated periodically where the last updated in 2017. Though it had been developed for years, its implementation in Indonesian surgeons almost nil, whereas De Simone and colleagues showed in a review that an inexpensive and easily application of guidelines based on medicine evidence in the use of antibiotics can lead to a significative reduction of hospital costs with outcomes improvement. There were explanatory reasons proposed. Firstly, Indonesian characteristics of which is differed to the population in centers of where those guidelines developed. This issue is a reason of why the guideline couldn’t be implemented by many surgeons. Secondly, a guideline should be critically appraised prior to endorsing its recommendations to reduce unnecessary variations in care. Guidelines are also meant to eliminate unnecessary and unjustified variations in practice, but their efficacy in that regard is debatable. Naturally, clinical guidelines cannot be applied to eradicate variations because an enormous number of variables — for example, local characteristics and comorbid conditions — influencing clinical decisions. Guidelines may consider variations in clinical settings, resources, and other variables, but may not always adjust for the combination of resources that may be available to a physician. In addition, it would be unwise, even if it were possible, to provide completely uniform care because some variations, such as those that result from an individual physician’s professional judgment, are universally acceptable.

Therefore, despite providing Indonesian epidemiology of microorganisms related to cIAIs which is Indonesian specific, we run an appraisal to published guidelines from 1992 to 2017 to find out the best and suitable for Indonesian. These will be of benefit to adapt the best one, with modification to Indonesian characteristics.

Method

Guidelines search preceded on all available guidelines database sites: Ärztlisches Zentrum für Qualität in der Medizin (AEZQ, German Agency for Quality in Medicine), Guidelines Advisory Committee (GAC, Canada), Guidelines International Network (GIN), Grading of Recommendations Assessment, Development and Evaluation (GRADE), Haute Autorité de Santé (HAS, France), Institute for Clinical Systems Improvement (ICSI), National Guideline Clearinghouse (NGC), National Institute for Health and Care Excellence (NICE), New Zealand Guidelines Group (NZGC), and publishers (BioMed central, ClinicalKey, EBSCOHost, Embase–Elsevier, Liebertpub, Oxford, ProQuest, PubMed, ScienceDirect, Springer, etc.). The keywords used was: ‘clinical practice guidelines’, AND “intraabdominal infections”, OR “IAIs”, AND “complicated intraabdominal infections”, OR “cIAIs”. All CPGs about IAIs and cIAIs. These CPGs were screened out for duplicates and those where the full text available were included to the appraisal. The appraisal carried out using AGREE II Tools (My AGREE PLUS platform, available online, www.agreetrust.org/agree-ii/) rating 23 assessments (1 to 7) in six domains, i.e. scope and purpose, stakeholder involvement, rigour of
development, clarity of presentation, applicability, and editorial independence. Overall quality of guidelines was analyzed, where the criteria of the best was those with the greater scores. The updates were also subjected to appraisal in accordance with the Reporting of Updated Guidelines (CheckUp). The assessment was carried out independently by experts. There were sixteen assessments in the CheckUp as follows. 1) The updated version can be distinguished from the previous version of the clinical guideline, 2) The rationale for updating the clinical guideline is reported, 3) Changes in the scope and purpose between the updated and previous version are described and justified, 4) The sections reviewed in the updating process are described, 5) Recommendations are clearly presented and labelled as new, modified, or not changed. Deleted recommendations are clearly noted, 6) Changes in recommendations are reported and justified, 7) The panel participants in the updated version are described, 8) Disclosures of interests of the group responsible for the updated version are recorded, 9) The role of the funding body for the updated version is identified and described, 10) The methods used for searching and identifying new evidence in the updating process are described, 11) The methods used for evidence selection in the updating process are described, 12) The methods used to assess the quality of the included evidence in the updating process are described, 13) The methods used for the evidence synthesis in the updating process are described, 14) The methods used for externally reviewing the updated version are described and 15) The methods and plan for implementing the changes of the updated version in practice are described, and 16) The plan and methods for updating the new version in the future are reported. In contrast to scoring applied in AGREE II tools to find out the best one, the criteria as the best was those with score of 16 (where one represent score for each assessment).

The recommendation of such a CPGs based on the criteria in AGREE user manual 2001 (revised on 2013), applied by Gorman in his appraising CPGs on pharmacotherapy stated that a guideline can be strongly recommended if the majority of item scores are 3 or 4 and the majority of standardized domain scores are 60% or greater. A guideline can be recommended with alterations if there are equal numbers of item scores 3 or 4 and 1 or 2, and most standardized domain scores are between 30 and 60%. A guideline cannot be recommended if majority of item scores are 1 or 2, and most standardized domain scores are 30% or less.

**Results**

On literature search, there were 68 guidelines available in those databases and downloaded. On the first selection, there were 33 cIAIs related–guidelines included. On the second selection, there were thirteen cIAIs–CPGs and five IAIs–CPGS enrolled in the assessment. Out of these, the majority of cIAIs guidelines developed by Infectious Diseases Society of America (IDSA) and World Society of Emergency Surgery (WSES). There were also CPGs developed by Canadian Surgical Society (CSS) and Canadian Association of Medical Microbiology and Infectious Disease (AMMI), France, Spanish, Turkish, and Asian developed a single guideline each. Other related guidelines developed were, Tokyo guidelines in the management for cholangitis and cholecystitis; European Association for the Study of the Liver (EASL) guidelines for primary biliary cholangitis, and Japanese Society for Abdominal Emergency Medicine guideline for acute abdomen. Most guidelines were focused on the management, whereas 4 were focused on antibiotics; it was noticed five guidelines were the updated CPGs (see table 1for detail).

On the first step of assessment using AGREE II tools, mostly total scores were >60% (see table 1 for detail); only a few items were scores under 30%. In accordance with AGREE scoring, those with the majority (>4) items scores were greater than 60% were set as strongly recommended (see table 2). The next step was to appraise for updating. For this purpose, following assessment it found that all updates were having a same score, which was 20 (see table 3). Thus, those of the two latest CPGs were recommended to be adopted.

<table>
<thead>
<tr>
<th>MNG</th>
<th>NEA</th>
<th>GAC</th>
<th>ICSS</th>
<th>SIGN</th>
<th>GRADE</th>
<th>EBBC</th>
<th>PubMed</th>
<th>BiMeds</th>
<th>ChinaKey</th>
<th>ScienceDirect</th>
<th>ProQuest</th>
<th>JSTOR</th>
<th>Springer</th>
<th>Oxford</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>17</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Critical appraisal: AGREE II Tools (My AGREE PLUS platform online (www.agreeptrust.org/agree-ii))

n = 33 → 13 were strongly recommended, 3 were can be recommended, 2 were not recommended

Assessment of updating: Reporting items for Updated Clinical Guidelines: Checklist for the Reporting of Updated Guidelines (CheckUp)

n = 5 → 5 were met the criteria, and 2 were adopted

Figure 1. Literature search, selection, and appraising
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>Guidelines</th>
<th>Scope and Purpose</th>
<th>Stakeholder Involvement</th>
<th>Rigour of Development</th>
<th>Clarity of Presentation</th>
<th>Applicability</th>
<th>Editorial Independence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mazuski, et al</td>
<td>2002</td>
<td>The Surgical Infection Society Guidelines on Antimicrobial Therapy for Intra-Abdominal Infections: Evidence for the Recommendations</td>
<td>96.6%</td>
<td>90%</td>
<td>29%</td>
<td>100%</td>
<td>35%</td>
<td>27%</td>
</tr>
<tr>
<td>Solomkin, et al</td>
<td>2003</td>
<td>Guidelines for the Selection of Anti-infective Agents for Complicated Intra-Abdominal Infections</td>
<td>100%</td>
<td>100%</td>
<td>77.1%</td>
<td>76%</td>
<td>27%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Chow, et al</td>
<td>2010</td>
<td>Canadian practice guidelines for surgical intra-abdominal infections</td>
<td>83.3%</td>
<td>76.6%</td>
<td>93.8%</td>
<td>100%</td>
<td>62.5%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Solomkin, et al</td>
<td>2010</td>
<td>Diagnosis and Management of Complicated Intra-Abdominal Infections in Adults and Children: Guidelines by the Surgical Infection Society and the Infectious Diseases Society of America</td>
<td>90%</td>
<td>76.6%</td>
<td>73.5%</td>
<td>96.6%</td>
<td>81.3%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Eckman, 2011</td>
<td>2011</td>
<td>Antimicrobial Treatment of Complicated Intra-abdominal Infections and The New IDSA Guidelines - A Commentary and An Alternative European Approach According to Clinical Definitions</td>
<td>56.6%</td>
<td>63.3%</td>
<td>49%</td>
<td>43.3%</td>
<td>18.8%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Sartelli, et al</td>
<td>2011</td>
<td>WSES consensus conference: Guidelines for first line management of intra-abdominal infections</td>
<td>36.6%</td>
<td>86.6%</td>
<td>65.6%</td>
<td>86.6%</td>
<td>50%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Sartelli, et al</td>
<td>2013</td>
<td>2013 WSES guidelines for management of intra-abdominal infections</td>
<td>93.3%</td>
<td>83.3%</td>
<td>60.4%</td>
<td>96%</td>
<td>72.4%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Yamauchi, et al</td>
<td>2013</td>
<td>TGI3 surgical management of acute cholecystitis</td>
<td>93.3%</td>
<td>100%</td>
<td>48%</td>
<td>80%</td>
<td>56.3%</td>
<td>41%</td>
</tr>
<tr>
<td>Kurup, et al</td>
<td>2014</td>
<td>Antibiotic management of complicated intra-abdominal infections in adults: The Asian perspective</td>
<td>70%</td>
<td>63%</td>
<td>15.6%</td>
<td>10%</td>
<td>14.5%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Montresors, et al</td>
<td>2015</td>
<td>Guidelines for management of intra-abdominal infections</td>
<td>100%</td>
<td>93.3%</td>
<td>83.3%</td>
<td>100%</td>
<td>79.2%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Vildun, et al</td>
<td>2016</td>
<td>Recommendations for intra-abdominal infections consensus report</td>
<td>100%</td>
<td>100%</td>
<td>88.5%</td>
<td>80%</td>
<td>83.3%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Di Saviero, et al</td>
<td>2016</td>
<td>WSES Jerusalem guidelines for diagnosis and treatment of acute appendicitis</td>
<td>93.3%</td>
<td>90%</td>
<td>69.8%</td>
<td>66.6%</td>
<td>48%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Ansaloni, et al</td>
<td>2016</td>
<td>2016 WSES guidelines on acute calculus cholecystitis</td>
<td>83.3%</td>
<td>96.6%</td>
<td>74%</td>
<td>90%</td>
<td>62.5%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Sartelli, et al</td>
<td>2016</td>
<td>WSES Guidelines for the management of acute left sided colonic diverticulitis in the emergency setting</td>
<td>70%</td>
<td>90%</td>
<td>54.2%</td>
<td>80%</td>
<td>50%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Mazuski, et al</td>
<td>2017</td>
<td>The Surgical Infection Society Revised Guidelines on the Management of Intra-Abdominal Infections</td>
<td>86%</td>
<td>100%</td>
<td>90.6%</td>
<td>100%</td>
<td>89.5%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Sartelli, et al</td>
<td>2017</td>
<td>Management of intra-abdominal infections: recommendations by the WSES 2016 consensus conference</td>
<td>93.3%</td>
<td>76.6%</td>
<td>92.7%</td>
<td>93.3%</td>
<td>52%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Year</td>
<td>Guidelines</td>
<td>Scope and Purpose</td>
<td>Stakeholder Involvement</td>
<td>Rigour of Development</td>
<td>Clarity of Presentation</td>
<td>Applicability</td>
<td>Editorial Independence</td>
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<td>------------------------</td>
</tr>
<tr>
<td>17 Sartelli, et al</td>
<td>2017</td>
<td>The management of intra-abdominal infections from a global perspective: 2017 WSES guidelines for management of intra-abdominal infections</td>
<td>100%</td>
<td>100%</td>
<td>80.2%</td>
<td>73.8%</td>
<td>87.5%</td>
<td>54.5%</td>
</tr>
<tr>
<td>18 Hirschfield, et al</td>
<td>2017</td>
<td>EASL Clinical Practice Guidelines: The diagnosis and management of patients with primary biliary cholangitis</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>93.3%</td>
<td>92%</td>
<td>54.5%</td>
</tr>
</tbody>
</table>
Such a grouping carried out based on the population of normal flora of a region. The pattern of microorganism grew in the media culture of pus taken from abdominal cavity intraoperatively was as follows. Data in dr. Soetomo hospital showed that out of 114 subjects, bacteriology exams preceded on 65 subjects (57%) only for unknown reason, and data in dr. Cipto Mangunkusumo showed that out of 74 isolates taken from 58 subjects (41.34%) there were no growth.16 The five mostly found organisms in the culture was Escherichia coli (35.41%), Klebsiella pneumonia (13.44%), others (9.84%) Enterobacter cloacae (9.34%), Proteus mirabilis (8.69%), Enterococcus faecalis (7.87%), Acinetobacter baumanii (5.74%), Staphylococcus epidermidis (3.44%), Pseudomonas aeruginosa (3.44%), Staphylococcus haemolyticus (1.31%), Klebsiella oxytata (0.66%), and Staphylococcus aureus (0.66%) were also reported (table 1).

Table 3: Assessment of updated (AAdIs) CPGs using CheckUp Tools

<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Year</th>
<th>Updated CPGs</th>
<th>AGREE II</th>
<th>GRADE</th>
<th>IOM</th>
<th>CheckUp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sollidin et al</td>
<td>Diagnosis and Management of Complicated Intra-abdominal Infections</td>
<td>2005</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sollidin et al</td>
<td>Scientific Guidelines for the Management of Complicated Intra-abdominal Infections</td>
<td>2010</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sollidin et al</td>
<td>Diagnosis and Management of Complicated Intra-abdominal Infections</td>
<td>2015</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
| Sollidin et al  | The Surgical Infection Society Guidelines for the Management of Intra-abdominal Infec-
| tion (SIS)       | 2017 | 3             | 1        | 1     | 1   | 1       |

For this purpose, guideline of a high quality is required. A quality CPGs rigorously developed evidence based guidelines minimize the potential harms. But indeed, they have potential benefits and harms.10 Quality of guidelines as the confidence that the potential biases of guideline development have been addressed adequately and that the recommendations are both internally and externally valid, and are feasible for practice,4,11 thus it should be evaluated. The assessment includes judgments about the methods used for developing the guidelines, the components of the final recommendations, and the factors that are linked to its uptake.11

The use of AGREE II tools was based on recent systematic reviews that a tool is an outstanding on CPGs appraising.12,13 Out of thirty-three CPGs related to cIAIs, eighteen were selected and based on the assessment, there were thirteen guidelines were ‘strong recommended’, three were ‘can be recommended’ and other two were ‘not recommended’. The assessment of this kind using a tool that lead to a judgement of how to find out guidelines of the best quality. The key point is the development process, but not the recommendations.

Of these CPGs, there should be some to be chosen to be adopted. Then, the option was to assess the updating. A quality of CPGs is when it continuously updated. Regarding assessment of this update, CheckUp can be used to evaluate the completeness of reporting in updated guidelines and as a tool to inform guideline developers about reporting requirements. Editors may request its completion from guideline authors when submitting updated guidelines for publication. Adherence to CheckUp will likely enhance the comprehensiveness and transparency of clinical guideline updating for the benefit of patients and the public, health care professionals, and other relevant stakeholders.1 But, as concluded by Vernooij et al, there are currently no gold standards for guideline updating methodology. Nonetheless, updating is key to ensuring trustworthy, implementable, and clinically relevant recommendations. Current guideline evaluation tools or guideline method resources (e.g., AGREE II, Grading of Recommendations Assessment, Development, and Evaluation (GRADE), IOM Standards, and the like) are not simply transferrable to the conceptual requirements of an updated guideline. CheckUp addresses the gap: it has been supported by our study participants and is a resource that complements (rather than) other relevant tools.
than competes with) the other high-quality tools available in the guideline enterprise.3

This appraisal using assessment tools formulated by AGREE offered a lot of critical insight to a CPGs to be implemented or adopted since it deals with the process of how a recommendation is formulated, not to the statement of recommendation itself. Thus, it might have described of why a CPGs encountering barriers in the implementation.21,11 In contrast, it supposed to be some critical points for the developers.

Out of eighteen CPGs, there were eleven CPGs focused on the management comprehensively starting with population at risk (or high risk), diagnostic, surgical and antibiotic management; whereas the rest were focused solely on antibiotics. This should be noticed, that antibiotic is an integral part of management, but not the only. It was seen that those with comprehensive measurement were categorized as strong recommended, that might be benefit to those dealing with cIAIs; and certainly, for the patient safety. It referred to be required in the clinical practice.

Conclusion
Perforated appendicitis, perforated gastric and duodenal ulcer, small bowel perforation, large bowel perforation, and postoperative in sequel are the main causal of cIAI in Indonesia. The epidemiology predominated by Gram negative, particularly Escherichia coli and Klebsiella pneumonia.

Disclosure
This study has no conflict of interest.

References