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Deprescribing: An educational imperative

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ABSTRACT

The Bruyère Evidence-Based Deprescribing Guideline Symposium included a forum on health professional education that brought together health professionals, researchers, professional organization representatives and public members. The goal was to facilitate partnerships among educators and to build knowledge, skills and support for behaviour change to integrate the use of evidence-based deprescribing guidelines into health care professional education. Participant discussions were analyzed under the thematic headings of teaching, learning, and assessment, impact of heuristics in learning, the importance of patient/public understanding and the role of leadership in enabling curricular change to include deprescribing. Deprescribing is considered to be on a continuum with prescribing, and it was recognized that related skills are not consistently taught or assessed, which may be interpreted by learners and health professionals as being less important than diagnostic or other skills. Strategies used currently to teach prescribing may also imply that it is a technical skill, not enabling learners to understand that prescribing and deprescribing involve complex tasks requiring patient consultation. Social barriers to deprescribing were also discussed and the importance of patient perspective in teaching prescribing/deprescribing was recognized. Based on the symposium discussions, the authors make several recommendations that include better teaching of optimal prescribing and deprescribing within an interprofessional context, that education be supported from the pre-licensure, post-graduate levels through to continuing professional development, and that assessment, demonstrating competence in prescribing and deprescribing, be embedded within programs.

1. Introduction

The Bruyère Evidence-Based Deprescribing Guideline Symposium took place March 26–28, 2018 in Ottawa, Canada. Participants in an 'education' stream held on March 28th included health care providers, educators in areas of pre-licensure, post-graduate and continuing professional development of various health professionals, researchers, administrators, and others, from across Canada and internationally. The aims were to facilitate partnerships among educators and to build knowledge, skills and support for behaviour change to integrate the use of evidence-based deprescribing guidelines and practices into health care professional practice and curriculum. Concurrent to this was a 'research' stream which aimed to generate similar partnerships amongst researchers and to provide guidance on deprescribing guideline evaluation strategies and relevant outcome measures.

Deprescribing education was chosen as an important stream because of the nature and complexity of the tasks involved. Prescribing is typically thought of as a directive to take medication in order to treat a symptom, slow the progress of a disease, or prevent a complication. Deprescribing can be defined as the planned and supervised process of dose reduction or stopping of medication that may be causing harm or no longer be providing benefit. While deprescribing can be seen as a continuum of prescribing, the nature of reducing or stopping medication often involves a different valuation of benefit and risk, a process that is not commonly or easily taught within existing curriculum. Quality prescribing itself is a high-end skill often achieved through

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practice and experience. Little is known about how deprescribing skills can be incorporated at the undergraduate and continuing education levels.

2. Design

A subgroup of the symposium planning committee worked with invited speakers and others to plan the education sessions. This group included representation from pharmacy, medicine, and nursing. Planners noted that although deprescribing may require specific knowledge and skills, it is a continuum of prescribing and learners should start to consider when a drug should be deprescribed when they initially learn to prescribe it. Examining how prescribing is currently taught and assessed could enable educators to consider appropriate strategies to teach deprescribing.

Learning objectives for the education day were articulated as follows:

1. Describe teaching, learning, and assessment methods used to support quality prescribing practices.
2. Evaluate different models and methods used to support quality prescribing practices at the undergraduate, post-graduate, and continuing professional development levels.
3. Articulate and justify success indicators for teaching, learning, and assessment of quality prescribing practices.
4. Reflect upon personal and profession-specific strategies that support quality prescribing practices.

2.1. Overview of the keynote sessions

The day began with a keynote session with Dr. Lisa Dolovich (Ontario College of Pharmacists Professorship in Pharmacy Practice, Leslie Dan Faculty of Pharmacy, University of Toronto) and Dr. Ivy Oandasan (Associate Director, Academic Family Medicine, College of Family Physicians of Canada), each speaking to the interplay between education and research in deprescribing including how the deprescribing guidelines or deprescribing research in general can influence curricular planning and how education and training can encourage deprescribing research. These speakers also highlighted that education was considered as a continuum from prelicensure to continuing professional development. Participants then chose to attend the education or research stream for the bulk of the day but could go between sessions if desired.

2.2. Participants

Approximately 25 attendees participated in the education stream. These included clinicians/educators from pharmacy and medical backgrounds (8 pharmacists, 6 physicians), professional organization representatives (e.g. Canadian Medical Association, Canadian Society of Hospital Pharmacists, Association of Faculties of Pharmacy of Canada), public members (e.g. Canadian Association of Retired Persons), as well as those representing various organizations/institutions with an interest in optimal medication management (e.g. Centre for Effective Practice, CADTH, Canadian Deprescribing Network, Kaiser-Permanante, University of British Columbia-Therapeutics Initiative). Most participants were Canadian with individual attendees from the US, Italy, and Denmark. Some participants from the research stream joined the education discussion in the afternoon.

2.3. Session format

To engage the audience, a variety of interactive question-and-answer formats were used. These included short presentations by Dr. Zubin Austin (Professor and Murray Koffler Chair in Pharmacy Management at the Leslie Dan Faculty of Pharmacy, University of Toronto) followed by small group round-table discussions, including think-pair-share format, addressing specific questions. Assigned note-takers kept track of key points outlined on flip charts; these were then shared with the larger group. The discussions were facilitated by Drs. Austin and Lalitha Raman-Wilms (Professor and Dean, College of Pharmacy, Rady Faculty of Health Sciences, University of Manitoba), allowing participants to reflect upon the processes by which health care professionals learn to become prescribers, consider what are quality prescribing practices, and finally what strategies there are for teaching of deprescribing within curriculum. Discussions also addressed the development of deprescribing curriculum in health professional education including competencies, effective teaching practices, assessment methods and how to influence curricular change. In the afternoon, organizers planned to discuss and subsequently coordinate the drafting of a white paper for endorsement in addition to usual methods of dissemination and scholarship related to the symposium proceedings.

The agenda for the symposium can be found here (with details for the education stream on pages 7–8). Presentation slides for the education stream can be found here.

Group discussion questions included the following:

- In your profession/setting, how is prescribing taught, actually learned, and assessed/evaluated?
- How do professionals learn what *quality* prescribing actually is? How is it taught, actually learned and assessed/evaluated, considering the factors discussed: psychology, curriculum, hidden curriculum, societal/system factors?
- What are the most important next 2–3 practical steps required to support widespread adoption of confident, cost-effective deprescribing?

Lastly, the group discussed potential to move forward with developing a white paper to drive change in prescribing and deprescribing education.

3. Overview of discussions

Over the course of the day, participants raised a number of issues with respect to the presentation content and discussion questions. The issues are summarized under the following six categories:

- Teaching
- Learning
- Assessment
- Heuristics
- Patient/public understanding
- Leadership/partnerships

Described below in more detail are what participants discussed within each of these categories, followed by a section describing the authors' interpretation of the implications of these discussions.

3.1. Teaching

Participants described the teaching of prescribing largely as a technical skill (e.g. safe order writing, application of guidelines, drugs that shouldn't be prescribed) rather than a complex task involving cognitive processes such as critical thinking, or priority setting. For example, one physician described being taught to consider only side effects and interactions when prescribing. Participants indicated that students (especially medical students) are taught to think in absolute terms (the right drug vs. the wrong drug). Non-drug options are not often taught. Pharmacists are taught about appropriate pharmacotherapy rather than skills for prescribing; students often seem to know what choices are appropriate but sometimes find it difficult to make a decision to select one drug and a specific dose. Also, students

are not taught the importance of communicating the appropriate duration or including an indication on the prescription.

The delivery of prescribing education, particularly for medical students and residents, tends to occur primarily in experiential settings - either through informal discussions with supervisors/preceptors or through academic detailing. Individuals highlighted formal teaching of prescribing skills within curricula at Queen's University (Ontario, Canada) and in Denmark.

People recognized that prescribing skills are difficult to teach within current curricular structures. For example, participants discussed medication safety as being compartmentalized from teaching about prescribing processes. Standardization across curricula can be challenging if content is focussed on the institutional lead clinician's area of expertise and interest. Even from supervisors, students are taught to focus only on one specialty/area/topic at a time.

Participants felt that clinical supervisors should be able to model prescribing and deprescribing skills. They expressed a desire to be taught two approaches to deprescribing - evidence-based and patient-focused. Other recommendations included the desire for an interprofessional education approach for prescribing, as well as more content on how to communicate with both other prescribers (e.g. specialists) and with patients/family about what is important to them. Patient stories and narratives were suggested as an approach for teaching that would motivate learners.

The importance of terminology and language was mentioned. For example, often in health care, the word 'need' is used, as in 'you need this medication'. A point was raised that perhaps this was not an appropriate term to use as a better way to communicate this may be to discuss that the drug may reduce the risk for a medical complication or event.

It was also mentioned teachers need to be comfortable in allowing students to be in the grey zone and not expect them to come up with one single, correct response to a situation. Teachers need to approach teaching differently to develop critical thinkers. In complex situations, thinking critically and holistically is important in determining how to support the health care of the patient. In geriatrics and palliative care, clinicians are taught to think more holistically and quality of life is a key driving factor - perhaps this is why deprescribing has emerged from these fields.

3.2. Learning

There was overall agreement from clinicians and educators at the symposium that students in the health professions learn prescribing skills through experiential settings, embedded in their patient care activities. While the knowledge of what is technically required to write a prescription is sometimes learned in the didactic setting, the practice was typically learned on clerkships. Some participants noted that their learning had often been through exposure to pre-printed care orders in acute care settings, which guided them on appropriate choices for medications. This led to rote learning rather than critical thinking about the process of prescribing. Some participants noted that the clerkship experiences did help learning, but there was a lack of standardization across the different sites and under different preceptors.

Once in practice, clinicians described a lack of continuing education for prescribing, and reported relying on resources such as academic detailing. One of the expert presenters highlighted the low levels of confidence that physicians have in deprescribing once they become responsible for this activity.

Some participants felt that the learning was fairly simplistic, with students categorizing medications as 'good/bad', or 'appropriate/inappropriate' to help them prescribe. The pharmacist participants suggested that pharmacists had learned a simplistic approach to treatment and prescribing, possibly based on guidelines or 'rules-based' appropriateness criteria. Other participants noted that medical students also learn in absolute terms (e.g. you should do this in these situations). These strategies can enable new clinicians to make decisions efficiently but are not always suitable for learning how to make complex decisions about prescribing and deprescribing.

3.3. Assessment

Participants agreed that prescribing skills are not explicitly assessed in health professions curricula in Canada. Some educators provided examples where prescribing had been assessed as a technical skill or task, rather than a process involving shared decision-making and clinical judgement. A specific example was shared in which a student lost marks on an assessment for recommending shared decision-making. Some educators and clinicians noted that a checklist approach (e.g. student followed guideline recommendation - yes or no) may not be the best approach to assessing prescribing/deprescribing given the complexity of patient care. Assessing clinical judgment that reflects how learners make decisions and why they choose to prescribe or deprescribe may be preferable for preparing health professions for lifelong learning. Many participants stated that despite the importance of prescribing, the assessment of prescribing was not conducted at all. The lack of assessment could be interpreted by students and clinicians to mean that prescribing skills and behaviors are not necessarily skills to be learned and therefore it was perceived that this might send a message to students and clinicians that prescribing and hence deprescribing is not important. With the move towards competency-based education, experts and presenters provided examples from the UK where prescribing skills are being assessed but there are still many challenges in assessing quality prescribing.

3.4. Heuristics

The role of heuristics - or cognitive shortcuts - in prescribing decision-making was reviewed and discussed. Heuristics are known to be of importance in guiding diagnostic decision-making and are part of the way in which pattern recognition serves many physicians as a dominant cognitive strategy.[1–3] The influence of heuristics on prescribing is less well understood, particularly as other health professionals (like pharmacists and nurses) become more involved in independent prescribing activities. One particular complication associated with reliance on heuristic reasoning or pattern recognition as a cognitive strategy for prescribing was highlighted in the discussion by participants: the need to take, accept and incorporate personal responsibility into the decision-making process.[2,4] Pharmacists in attendance noted that many in the profession are comfortable in an educational or advisory role, providing suggestions to others who would take ultimate responsibility for writing a prescription. As scope of practice continues to evolve in pharmacy and other professions to allow for independent prescribing, there may be members of these professions who do not feel comfortable or confident in assuming this responsibility. In part this may be due to risk aversion that is partly driven by temperament/personality, as well as lack of education and training in using probabilistic reasoning techniques to balance risks and benefits. Pharmacists in particular have been historically trained in a paradigm of problem-spotting, rather than independent problem-solving. The heuristics for problem-spotting may be different than for problem-solving. Participants emphasized that pharmacists are of course responsible individuals, but that taking responsibility for independent prescribing decisions is a qualitatively different cognitive and emotional activity that few pharmacists feel well prepared for through their education and training. Importantly, it was noted that pharmacists may feel comfortable saying "I don't know", and there is social acceptability to pharmacists deferring authority to a physician.[2,4] Additionally, participants noted that technology assisted standard medication orders facilitated rote prescribing vs. individualized assessment and decision-making. Medical education and culture prizes independent and confident decision-making; it may be more challenging heuristically, culturally, and practically for a

physician to say “I don't know” and defer authority to a pharmacist or nurse in a given situation.

3.5. Patient/public understanding

Some participants noted that through their experiences as patient advocates, usually for family members, they needed to become self-educated about deprescribing. They also described having medications addressed only at the point of a crisis, rather than during routine medical visits. The participants did provide examples of patient and caregiver focused media and public campaigns to try and address overmedication in seniors, and the seniors present at the symposium supported the value of these programs.

The participants highlighted social barriers to deprescribing. Both patient representatives and health professionals observed that patients often desire a prescription for treating their medical conditions and their expectation often is that they will leave the doctor's office with a prescription, not a recommendation for deprescribing. They also noted that patients need to be empowered to ask questions and to alter expectations around lifelong medication treatment.

3.6. Leadership/partnerships

A number of the educators and researchers present supported the partnership of deprescribing initiative leaders with educational, professional and regulatory bodies. Public members at the symposium suggested that this was essential to start health care professionals in a good prescribing practice from their earliest training and to support them in these practices throughout their careers. Participants supported a broad approach throughout health professional education and possibly as an interprofessional learning module. Researchers suggested some programs such as audit and feedback can have positive or negative effects, and cautioned against regulatory bodies adopting a method like this without further study. In addition, champions from the health care disciplines and also patient advocates were suggested as the change agents. Participants also commented that there are many system level issues in relation to prescribing/deprescribing and this needs to be addressed within health care system courses that are taught and recognized by regulatory bodies and professional leaders. Being an advocate for the patient/public is also important. Overall, an approach involving partnerships amongst leaders in these areas is vital to successful health care professional education for quality prescribing and deprescribing.

4. Discussion and implications for curricula

The continuum of prescribing to deprescribing involves complex tasks that may take many years to gain competence. Furthermore, prescribing and deprescribing are not yet part of the routine teaching or assessment in health professions education. Given the complexity of prescribing, a relatively new body of literature on deprescribing, and the integration of public and patients into health sciences education, there are many relevant findings from the symposium.

The reliance on experiential education should not be dismissed, but earlier, formal, structured learning regarding prescribing in terms of frameworks and practical application need to be introduced, and revisited routinely.[5] The experiential education provided for many health professionals (e.g. nursing, pharmacy, medicine) usually involves the acute care setting. However, prescribing, and deprescribing in particular, are best addressed in a setting of long-term professional-patient relationships, where shared decision-making can take place. This is most often found in primary care settings with health care teams working with shared patient populations. Deprescribing requires a level of trust by patients who trust the judgment of health care professionals to change or discontinue medications that may have been long-term treatments. They must also be convinced that the tapering, or monitoring for adverse drug withdrawal effects or symptom re-emergence is worth deprescribing. Identifying experiential learning opportunities in settings that allow health care professional learners to understand the nuances related to deprescribing and to practice how to deprescribe with guidance is important. Providing longitudinal learning opportunities with exposure to a variety of clinical areas, will allow learners to practice prescribing and deprescribing in realistic contexts. Development of effective deprescribing skills may require longer experiential rotations and a more longitudinal experience enabling the learner to build trusting relationships with patients and be able to better understand the process of deprescribing which may often require several weeks or months.

The delivery of the curriculum may be problematic in many ways. For example, who presents the information on prescribing or deprescribing can infer priority in the professor's area of expertise, rather than identifying prescribing as an issue for all members of the profession. For example, emphasizing deprescribing in the palliative care curriculum, but not in cardiology, does not appropriately represent optimal prescribing practices. In pharmacy programs, the professional practice requirements and decision-making also place prescribing in social and administrative science courses, in addition to content on therapeutics. In addition, health care is complex and often requires clinicians to navigate the grey area that calls for the use of clinical judgment. In contrast, health professional students, including medical students, are often taught to think in absolute terms and to strive for the ‘right answer’, which often relies on clinical practice guidelines. Students are often taught using a systems-based approach and often learn through rote learning, rather than addressing complexity and multimorbidity as the most common type of chronic disease presentation. Providing realistic patient cases, emphasizing a more holistic approach to patient care, and demonstrating how to navigate shared decision-making in these grey areas can be valuable for students.

The content of the curriculum also requires revisiting. Learners should be taught and expected to consider patients' values and preferences in determining therapy, and assessment of this should focus on justification of the therapy within a collaborative context. The focus is on holistic care and critical thinking, in addition to ethics, public health, institutional and personal biases, and barriers and enablers to care. Additional content that is lacking in many programs is the informed use of nonpharmacological interventions. While medical or pharmacy students may not become experts, an increasing awareness regarding the therapeutic value and evidence for nonpharmacological interventions is important. Students should graduate questioning if a medication is first line or necessary to manage the patient's health care. Increased learning regarding nonpharmacological treatments also necessitates increased skill in communication and patient engagement, as the emphasis of nonpharmacological therapies may not be consistent with patient expectations in western society. Consideration for health across the lifespan is necessary to effectively apply deprescribing principles, as this can showcase distinct aspects of shared decision-making, caregivers, patient priorities, moral distress, consideration of non-drug options to manage specific conditions, and teaching students to always ask first if a drug is the optimal way to manage the patient's condition.

Educators also have to ensure that content currently included is not misused to provide incorrect information about prescribing. Often clinicians view guidelines or lists of ‘potentially inappropriate medications’ as a set of rules and may not use these as a guide in determining the best individualized therapy for a particular patient. An example of this is the common misunderstanding that a drug on a list of ‘potentially inappropriate medications’ should not be used in an older patient vs. considering the criteria as a tool that should trigger critical thinking (examining the use of the particular medication in a specific patient). There may be times when a drug on one of these lists is being appropriately used. When and how should guidelines be used in teaching should be carefully considered as use of guidelines, which can enable

the clinician to make decisions quickly, may take away from critical thinking and the ability to individualize therapy. Curricula need to consider how guidelines are used in teaching, learning, and assessment.

During the discussions some suggested that there are two approaches to deprescribing - evidence-based and patient-focused. This statement indicates the need to incorporate shared decision-making into the curricula as evidence-based information is not meant to be used in isolation of patient-focused care. Teaching health professional learners how to apply evidence into clinical shared decision-making is important in the teaching of prescribing and deprescribing. Also, teaching students how to make decisions when strong evidence is not available in treating certain conditions is important. The incorporation of deprescribing guidelines, which aim to facilitate shared decision-making about the need for continuing a medication vs. slowly reducing or stopping it, while also considering nonpharmacological options, should be considered.

A change in perspective is also necessary in learning about deprescribing. The importance of understanding the patient perspective was emphasized. Students and health care professionals need more exposure to understanding the public dialogue and to understand the importance of being a patient advocate versus just delivering care as a clinician. Participants suggested that bringing humanities into health care curricula (e.g. poems, art - self-reflection skills - hearing the patient's narrative) can enable learners to start to approach patients with a more holistic approach to the care they provide. Language is also important when it comes to perspective, and how activities or actions are described or labelled. A consideration in education should be the terminology that is used when medications are prescribed. It was suggested that rather than informing patients that they *need* something, they should be taught to discuss the risks of a medication up-front, as well as its benefits.

A change in perspective may also be required for the educators. For example, many pharmaceutical companies support buildings, laboratory space, research and educational grants, and may support specific student events. While sponsorship provides many benefits to publicly funded institutions, the conflict of interest must be addressed to ensure that these companies, whose interest is in profiting from health care technologies and drugs, does not interfere with the delivery of curriculum on deprescribing.

In addition to the formal curriculum, educators need to be aware of informal and 'hidden' curricula that can impact on the learner. Hidden curricula could include subtle messages that may be transmitted by preceptors and senior clinicians that may indicate that some activities may be more valued than others. Informal learning could occur when students discuss issues with other students in passing.

It is well-known in education that assessment drives teaching. In order to ensure that health professional students are trained and consistently competent in the continuum from prescribing to deprescribing[6,7] assessment of these important skills should be embedded within national and other high-stakes exams. For example, prescribing skills assessment is mandatory in the UK for medical students. Some Canadian medical schools assess prescribing but no course weight is given to this. Not assessing this important skill may impart the message that this is a technical skill only and can be casually learned. However, the reality that needs to be communicated to students is that these are complex processes that require thinking at a higher cognitive level than technical skills and requires the learner to approach a patient with a holistic approach prior to prescribing or deprescribing. Assessments may have to be structured differently to capture the evaluation of critical thinking; this is often more complex and time consuming than many assessments are, and may be counter-cultural to student learning, where they are usually asked to choose between right and wrong and not necessarily discuss the risks vs. benefits of therapy.

Overall, the discussions emphasized the importance of patient/public engagement. Educating the public and encouraging them to advocate for themselves and others they care for is important to ensure that deprescribing is considered as an option for all patients when appropriate. This will also involve supporting patient empowerment and guiding patients on the best way to use language and negotiate shared decision-making. Patient groups need to be supported as they often come up against a health care system that uses patient-centred language, but may behave inconsistently with the stated values.

Addressing these challenges will require both high-level leadership and advocacy, to ensure that a fundamental activity conducted multiple times a day by many health professionals, will be taught and learned effectively. Development of some high-level, national principles considering how to bring about change within the health system through leadership and advocacy, focusing on the public lens, is important. There also has to be a dramatic change/shift in how we teach and assess prescribing and deprescribing and this needs to be addressed at the leadership level at health education institutions, with instructors supported to innovate and expand this area of teaching. Thinking differently about the learner's teaching experience, for example, use of panels/debates that show professional disagreement vs. the right solution, can prepare the learner to navigate the grey area and to gain comfort in making decisions in these situations.

5. Recommendations

Based on symposium discussions, the authors suggest that the following recommendations be considered by national leaders in health sciences education:

- That a national interprofessional best practice guide/standard for prescribing medications be developed, and made public, with the focus on the public health and wellness.
- Deprescribing be included as part of the continuum to support optimal prescribing within an interprofessional context.
- Ensure that prescribing is built into accreditation standards to be taught throughout the curriculum, not solely during practicum training.
- Leadership should be collaborative but should come from the medical sciences, pharmacy and nursing, and should include all professions that prescribe medications.
- Support education on prescribing that runs from entry-to-practice through the career of health professionals. Teachers/preceptors must integrate these skills into their practice and model it for learners.
- Support continuing professional development (including that provided by health care professional organizations and accredited by national bodies) to teach skills relating to prescribing and deprescribing.
- Public and patient representatives should be included in the development and delivery of education on prescribing and deprescribing.

Similarly, the authors recommend that each Faculty/School/Professional Program consider the following:

- Support education for faculty members, facilitators of professional skills-based courses, preceptors, instructors, teachers, or others who will interact with students in discussing prescribing and deprescribing in any form.
- Develop a variety of methods of delivery, including active learning that requires dialogue and engagement with students, instead of didactic teaching and rote learning.
- Develop interprofessional simulation or case-based activities to facilitate learning about prescribing and deprescribing.
- Assessment that demonstrates competence in prescribing and deprescribing should be embedded within programs; this should include a self-assessment component.

Conflicts of interest

Dr. Farrell has received honoraria for deprescribing presentations from the College of Psychiatric and Neurologic Pharmacists, the European Association of Hospital Pharmacists, and the Nova Scotia College of Pharmacists, as well as a stipend from the Institute for Healthcare Improvement for advice and review of documents related to introducing deprescribing into the US healthcare system. Dr. Raman-Wilms has received an honorarium for a deprescribing presentation from CancerCare Manitoba. Drs. Austin and Sadowski declare no conflicts.

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Appendix A. Supplementary data

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