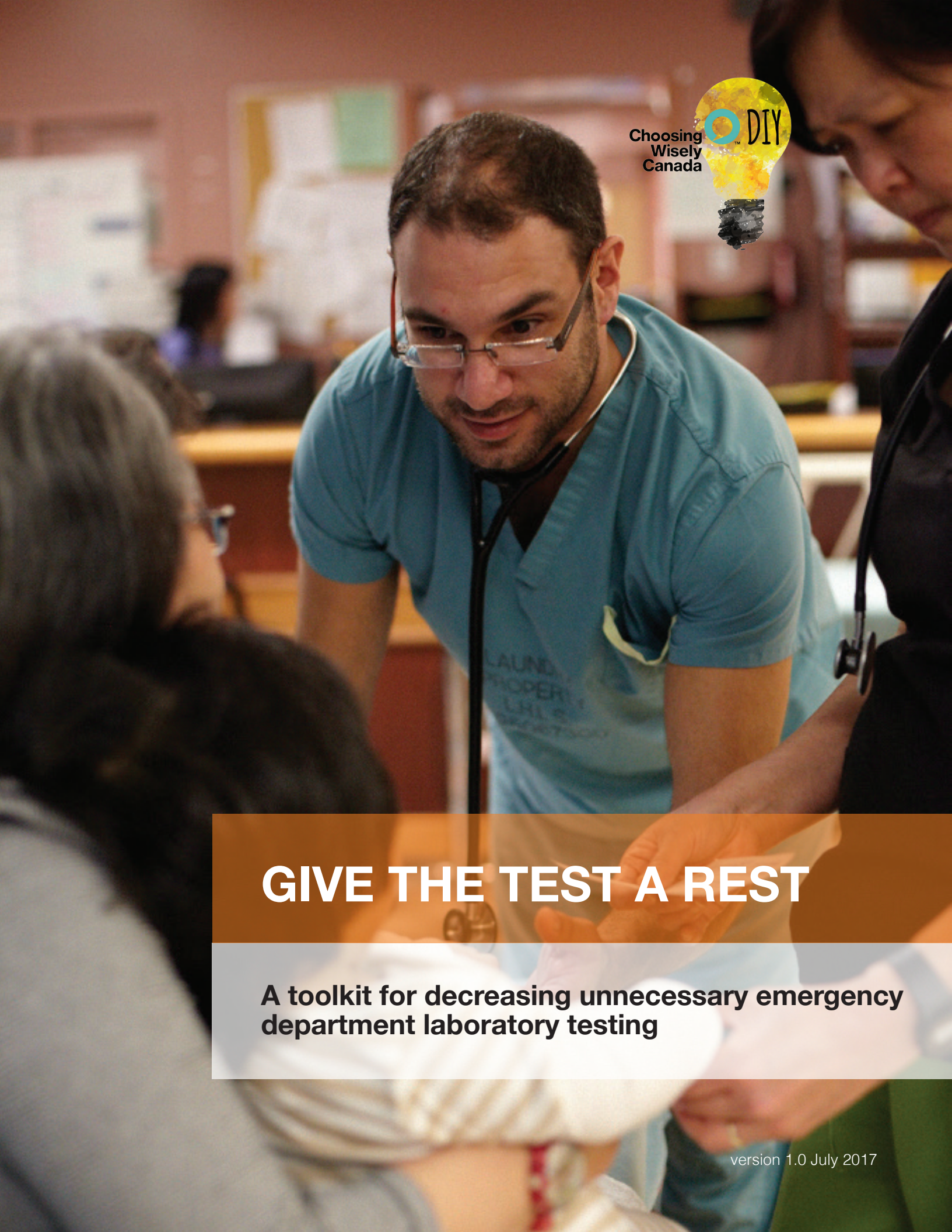


GIVE THE TEST A REST

A toolkit for decreasing unnecessary emergency department laboratory testing

version 1.0 July 2017

Don't collect urine specimens for culture from adults who lack symptoms localizing to the urinary tract or fever unless they are pregnant or undergoing genitourinary instrumentation where mucosal bleeding is expected.

Association of Medical Microbiology and Infectious Diseases Canada,
Choosing Wisely Canada recommendation #1

Don't do a urine dip or urine culture unless there are clear signs and symptoms of a urinary tract infection (UTI).

Long Term Care Medical Directors Association of Canada,
Choosing Wisely Canada recommendation #3

Don't order an erythrocyte sedimentation rate (ESR) to look for inflammation in patients with undiagnosed conditions. Order a C-reactive protein (CRP) to detect acute phase inflammation.

American Society for Clinical Pathology,
Choosing Wisely recommendation #6

Do not test for amylase in cases of suspected acute pancreatitis. Instead, test for lipase.

American Society for Clinical Pathology,
Choosing Wisely recommendation #13

Don't perform urinalysis, urine culture, blood culture or C. difficile testing unless patients have signs or symptoms of infection. Tests can be falsely positive leading to over diagnosis and overtreatment.

Society for Healthcare Epidemiology of America,
Choosing Wisely recommendation #3

Don't obtain a urine culture unless there are clear signs and symptoms that localize to the urinary tract.

The Society for Post-Acute and Long-Term Care Medicine,
Choosing Wisely recommendation #3

Don't test for myoglobin or CK-MB in the diagnosis of acute myocardial infarction (AMI). Instead, use troponin I or T.

American Society for Clinical Pathology,
Choosing Wisely recommendation #9

Inspiration for this toolkit

At North York General Hospital (NYGH), 40% of all lab tests came from the emergency department (ED). Among those, almost 50% were ordered through medical directives. While medical directives are utilized to support quality patient care and flow within the department, ordering unnecessary lab tests must be avoided. NYGH found that unnecessary testing was associated with outdated medical directives, inappropriate utilization of medical directives, and inconsistent ordering habits. As an early adopter of the Choosing Wisely initiative, NYGH implemented a campaign in 2014 to improve the appropriateness of tests ordered in the ED. The process involved revising and updating ED medical directives and incorporating the latest evidence-based practices, including Choosing Wisely Canada recommendations. The campaign engaged ED and lab staff at all levels and was accompanied simultaneously by educational and awareness activities. With the introduction of the newly updated medical directives, the ED has experienced and maintained a 23% reduction of total ED lab testing over 2 years.

This toolkit was co-authored by Marwan Asalya, Andrea Ennis, Donna McRitchie, and Kuldeep Sinhu, the key individuals involved in the NYGH project.

Introduction

This toolkit was created to support the reduction of unnecessary testing in the ED by implementing changes to ED medical directives through a comprehensive approach that incorporates engagement, education and sustainability.

What are medical directives

Medical directives are indirect physician orders, used to expedite patient care by competent health professionals. Medical directives are role-specific and apply to specific patient population who meet specific criteria.[1]

The need to address medical directives in the ED

Studies show that the most commonly used laboratory tests are often ordered together regardless of the widely varied patient population.[2] Appropriate utilization of ED testing can therefore be achieved by limiting the availability of unnecessary test ordering, applying medical directives and test panels based on best available evidence, and encouraging the conversation between providers and patients.

Outdated medical directives can impact test utilization and patient flow in the ED. Updating medical directives is therefore necessary to ensure consistent implementation and improve appropriateness of ordered tests. Effective implementation of medical orders requires interprofessional collaboration between ED staff and a good level of knowledge and competence among nurses initiating medical directives.

Possible risks associated with medical directives

While medical directives improve parallel processing of patients which leads to improvement in patient flow, wait times and patient satisfaction, ordering of inappropriate or unnecessary laboratory tests is a possible risk.

Make sure this toolkit is right for you

This toolkit is well suited for your institution if your testing rates are on the rise, and you have reason to believe that current test ordering practices are not consistent with the Choosing Wisely Canada recommendations and/or your medical directives are not up to date.

Key ingredients of this intervention:

Building your leadership team

Assembling a group of dedicated individuals with influence and energy to lead and support this change is an essential component of this intervention. Team members should consist of different healthcare professionals, have a shared objective, and work effectively within an environment of trust and interprofessional collaboration.

The composition of the team should also reflect a good representation of all the key players who can present all relevant views. Choosing Wisely is about encouraging conversations between clinicians and patients about low-value care and unnecessary tests and treatments. Having patient representation would also enhance this conversation and enrich the discussions.

To drive practice-change in the ED, it is crucial to engage influential physicians and nurse leaders who can identify unnecessary test ordering, review the medical directives and passionately advocate for the development and implementation of updated ones. Since the intervention involves changing medical directives enacted by nursing teams at the ED, having a nurse champion and a nurse educator on board should be a top priority.

Ideally, the team should include:

- Executive leader
- Physician champion
- Nursing champion
- Nurse educator
- Lab champion
- Medical imaging champion
- Decision support analyst
- Patient safety specialist
- Patient advisor

Achieving consensus among key stakeholder groups

For this intervention to work, key ED stakeholders need to establish initial agreement on three components:

1) Necessary versus unnecessary ED tests, procedures and treatments; guided by evidence and best practices
2) Criteria for applying or updating a medical directive
3) Implementation mechanism

Achieving consensus among physicians working in the ED is particularly important due to variations in their practice, speciality and experience.

Engaging nursing teams

Successful engagement of nursing teams is an essential component in the development and implementation of ED medical directives. ED nurses drive the triage process, enact the applicable medical directives, and partner with physicians to decide on appropriate tests. Nurse managers, educators and frontline nurses must be empowered, not only to collaborate in the development of medical directives, but also to conduct initial and regular assessments of competence and learning needs of staff nurses.

Implementing revised and updated medical directives must be accompanied by education sessions for all nurses. Changes and updates have to be communicated effectively to all nurses through department meetings, orientation, one-on-one conversations, and other communication channels.

Addressing barriers to staff engagement and implementation

Recognizing barriers and obstacles is the first step in overcoming them in the change process. Addressing barriers directly and early in the process can effectively build trust, facilitate change, and reduce resistance. Among the reasons physicians might order unnecessary tests and procedures include: malpractice concerns, patient demands, lack of time, lack of decision-support, availability of new diagnostic modalities, and concerns that missing a test up front might delay diagnosis, care, and/or flow.

Common challenges in the ED:

- Competing priorities in the ED and lack of time and energy
- Unstable staffing levels
- Staff awareness and education
- Providers rejecting the notion that they overuse tests and treatments
- Concerns that missing a test will delay treatment and flow

- Lack of case studies demonstrating similar Choosing Wisely implementation approaches at ED

Recommended Approaches to Addressing Implementation Challenges

Challenge	Approach	Tactic
Culture Change	• Consistent reiteration of the Choosing Wisely core message • Reinforcement of behaviours supporting Choosing Wisely philosophy	• Leading by example and visibly driving change • Creating a communications strategy • Adding Choosing Wisely as an agenda item at different ED department meetings • Establishing accountabilities • Celebrating short term wins and making it your own
Staff Resistance	• Education and awareness • Eliciting staff feedback through an inclusive participatory approach	• Distributing Choosing Wisely materials • Partnering with Choosing Wisely Canada through an awareness campaign • Dedicating time at each regularly scheduled department meeting to discuss Choosing Wisely
Resources	• Building a good case for implementing Choosing Wisely recommendations through robust data collection	• Providing evidence • Creating a sense of urgency • Demonstrating success • Making it fun

Implementing the intervention /Steps to implementing

Identifying unnecessary lab tests orders within medical directives

Outdated medical directives might contain tests that are:

- Not supported by the latest available evidence and best practices or relevant guidelines
- Not necessary for the identified population
- Not appropriate for the provisional diagnosis established

- Duplicative of other tests already received, sometimes through other enacted medical directives

An ideal approach to recognizing over-utilized, inappropriate or unnecessary testing include:

- Monitoring ordering patterns of physicians
- Reviewing medical directives regularly
- Identifying and tracking medical directives enactment habits among nurses

The process should be a comprehensive approach that involves physicians working with nursing and lab champions to examine ED lab utilization data and test-ordering behaviours. The identified tests should then be examined against up to date evidence and best practices.

Increasing awareness and educational activities

To achieve the best possible outcomes, the above activities have to coexist simultaneously with educational and administrative interventions that can improve awareness and communication. Evidence shows that continuous education of clinicians can significantly improve appropriate utilization.[3]

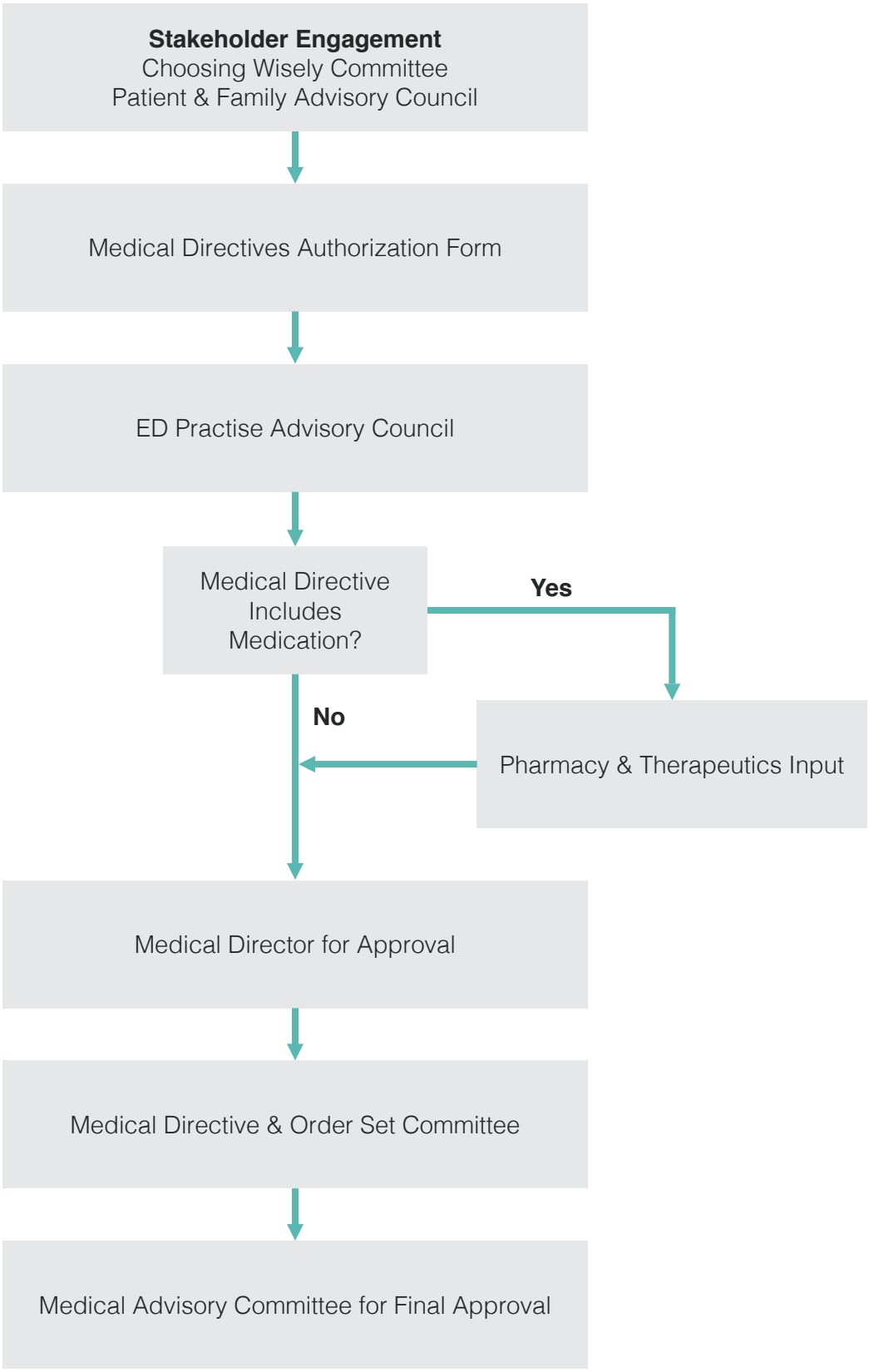
In addition to having regular educational sessions and access to relevant materials, interventions in the form of one-on-one conversations with clinicians have proved helpful. Nurse educators can use educational feedback strategies to effectively raise awareness on unnecessary test-ordering patterns and behaviours. The face-to-face approach also includes discussions about unintended negative consequences of inappropriate testing on patient care and the health care system in general. The strategy has been one of the most efficient and successful intervention in reducing overutilization in ED.

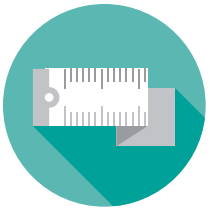
Changes to medical directives and ordering patterns

The first step to revise, update or create a medical directive involves stakeholder engagement. Representatives from each health care profession who will be effected by the medical directive must be involved in the development. An information service representative should also be involved to assess and advise on system impact. The originator of the medical directive is responsible for developing an educational program designed to educate staff on the medical directive.

Medical directives must reflect evidence-based practice or best practice. Proposed medical directives must be submitted for review and go through an approval process. Please see Appendix 1 as an example of a medical directive manual created by NYGH.

Medical Directives Approval Process





Measuring your performance

1) Outcome Measures:

To capture and track the high-level improvement you are trying to achieve:

- Percentage reduction of rates of ED lab tests conducted per 1,000 ED visits
- Percentage reduction of patients who received one or more ED lab tests per 1,000 ED visits
- Difference in volumes for an identified test, or a group of tests, in the time period before Choosing Wisely implementation and the time period after Choosing Wisely implementation

2) Process Measures:

To capture and track the process and steps leading to the desired outcome:

- Percentage of ED staff engaged in the Choosing Wisely campaign
- Percentage of medical directives revised/updated
- Number of newly developed medical directives
- Number of education sessions targeting medical directives and choosing wisely

3) Balance Measures:

To capture and track any possible negative or unintended consequences of the intervention.

Percentage of visits that had an add-on request note attached to the order.

Sustaining early successes

Updating and implementing changes to ED medical directives with concurrent educational and awareness campaign will significantly improve the chance of reducing the utilization of unnecessary and inappropriate testing in ED. To sustain this early success, several steps should be taken to ensure that the practice change will be maintained:

- Medical directives must be updated regularly (every 2-3 years)
- Annual review of the implemented medical directive should be conducted by the ED leadership to assess appropriateness and relevancy
- Medical Directives Committee must perform random monthly audits to evaluate the utilization and appropriateness of medical directives

- ED tests utilization data should be analysed and reported regularly to monitor overall performance
- Continuous support of ED staff through providing the right education, tools and resources
- Establishing passionate Choosing Wisely leaders
- Celebrating success
- Frequent profiling of Choosing Wisely activities

References

1) Federation of Health Regulatory Colleges of Ontario (FHRCO). Website http://www.regulatedhealthprofessions.on.ca/orders,-directives,-delegation.html (Accessed February 10,2017)
2) Ivana Lapić, Dunja Rogić. Laboratory Utilization in The Emergency Department – Are The Requested Tests Patient-Oriented? SIGNA VITAE 2015; 10(SUPPL 1): 81-83
3) Miyakis, S., Karamanof, G., Liontos, M., & Mountokalakis, T. D. (2006). Factors Contributing to Inappropriate Ordering of Tests in an Academic Medical Department and The Effect of an Educational Feedback Strategy. Postgraduate Medical Journal, 82(974), 823–829. http://doi.org/10.1136/pgmj.2006.049551

Resources

QI Resources

1) HQO: http://qualitycompass.hqontario.ca/portal/getting-started#.VqJNBsd6wUg
2) IHI: http://www.ihi.org/resources/Pages/HowtoImprove/default.aspx

Appendix 1 - North York General Hospital Medical Directive Manual

Cardiorespiratory Investigations and Interventions for Adult Patients in the Emergency Services Program

NUMBER: **XII-919**

PROGRAM: Emergency Services Program
ORIGINATOR: Clinical Nurse Educator, Emergency Services Program

Medical Directive & Order Set Committee Advisory Committeeee

ORIGINAL DATE REVIEWED: November 18, 2016 Medical
ORIGINAL DATE APPROVED: December 13, 2016

DATE RENEWED: N/A

DATE OF IMPLEMENTATION: December 2016

PHYSICIAN'S ORDER(S):

1) CBC
2) Electrolytes (CO2, Na, K, Cl)
3) Creatinine
4) Urea
5) Random Glucose
6) Capillary Blood Glucose (if signs/symptoms of hypoglycemia present) – also refer to Medical Directive XII-905: Management of Hypoglycemia in Adults
7) Troponin (if cardiac symptoms present)
8) INR (if the patient is on warfarin)
9) Digoxin Level (if suspecting toxicity/reported overdose of medication)
10) Theophylline Level (if suspecting toxicity/reported overdose of medication)
11) Electrocardiogram
12) Saline Lock

Include the following tests if the patient also complains of right upper quadrant or epigastric pain:

1) Lipase
2) ALT
3) ALP
4) Total Bilirubin

Include the following test if patient presents with two or more of the following: temperature < 36ºC or > 38ºC (rectal or oral); tachypnea (respiratory rate > 20/min); tachycardia (HR > 90/min); hypotension (SBP < 90 mmHg); altered level of consciousness:

1) Lactate

Refer to Medical Directive XII-68: Administration of Chewable Acetylsalicylic Acid (ASA) to Adult Patients in the Emergency Services Program.

PERSONS AUTHORIZED TO CARRY OUT THIS DIRECTIVE:
Nurses in the Emergency Services Program

EDUCATIONAL REQUIREMENT:
The nurse will sign off to confirm review of this medical directive.

CONSENT:
All authorized nurses will obtain patient/substitute decision maker (SDM) informed verbal consent prior to initiating orders under the authority of this medical directive.
Note: Consistent with the Health Care Consent Act, 1996; "a treatment may be administered without consent to a person who is incapable with respect to the treatment, if, in the opinion of the health practitioner proposing the treatment,

- there is an emergency; and
- the delay required to obtain a consent or refusal on the person's behalf will prolong the suffering that the person is apparently experiencing or will put the person at risk of sustaining serious bodily harm".

MONITORING REQUIREMENT:
Assess for complications of venipuncture, e.g. hematoma formation (most common). Notify the Emergency Department Physician:

- To review the ECG upon completion
- Of lab results flagged in PowerChart as critical

SITUATIONAL CIRCUMSTANCES REQUIRED:
Adult patients registered to the Emergency Services Program prior to assessment by the Emergency Department Physician, who present with any of the following:

- Known/suspected cardiorespiratory event (collapse/decreased level of consciousness)
- Chest pain (in isolation or with other symptoms). If chest pain is suspected to be musculoskeletal in origin (reported mechanism of injury), perform ECG only (no lab work, no saline lock)
- Two or more of the following: chest pain, palpitations, shortness of breath, diaphoresis, weakness, lethargy, dizziness, syncope, pallor, epigastric pain)

RISK AND MITIGATION STRATEGIES
Risk: Complications of venipuncture, e.g. hematoma formation (most common).
Mitigation Strategy: All nurses implementing the directive are trained in proper venipuncture technique.

Risk: Patient leaves the ED after initiation of the directive but prior to results being reviewed by the MD. Mitigation Strategy: Nurse will notify the Emergency Department Physician of any abnormal lab results.

NO CONTRAINDICATIONS TO THE IMPLEMENTATION OF THE DIRECTIVE (NOT APPLICABLE)

DOCUMENTATION AND COMMUNICATION
Nurses will enter the orders authorized in this medical directive in PowerChart, using a medical directive specific CareSet or Order Set. The Nurse will also document implementation of this medical directive on the ED face sheet (to facilitate MD review of orders initiated), until eCare with CPOE has been implemented in the ED.

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