COVID-19

Practical Advice for Healthcare Professionals (ED and Ward)

www.hse.ie/coronavirus
www.hpsc.ie
Version 3
20th March 2020
When to Suspect COVID-19

• Fever/ Chills
• Cough
• Respiratory tract infection
Based on an early analysis of case series, the most common symptoms are:

**MOST COMMON SYMPTOMS**
- Cough
- Dyspnoea
- Myalgia
- Fatigue
- Fever

**LESS COMMON SYMPTOMS**
- Anorexia
- Sputum production
- Sore throat
- Confusion
- Dizziness
- Headache
- Rhinorrhoea
- Chest pain
- Haemoptysis
- Diarrhoea
- Nausea/vomiting
- Abdominal pain
- Conjunctival congestion.

(BMJ Best Practice)
PROTECTING YOURSELF, YOUR COLLEAGUES AND YOUR PATIENTS

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Know How, When & Why to use PPE

For the latest guidance on PPE please visit the HPSC by clicking here:

HPSC - PPE Guidance
PPE

Know How, When & Why to use PPE

Unnecessary use of PPE will deplete stocks and increases the risk that essential PPE will not be available for you and your colleagues when needed.

It is important for healthcare workers to keep contact with patients who are suspected or confirmed positive with COVID-19 limited to value added interventions.
WHO TO TEST FOR COVID-19?

The criteria for testing is being regularly updated by the Expert Advisory Group (EAG) as the situation evolves:

The current recommendations for assessment and testing pathways can be found at the HPSC [here](https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/algorithms/screening) or

https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/algorithms/screening
Risk assessment for use in a Hospital Setting

Valid: 20th March’20

Please check this website for updates
https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/algorithms/

COVID-19 Assessment and testing pathway for use in a HOSPITAL SETTING

At entry to hospital: Segregate possible COVID-19 and non COVID-19 patients into two Parallel Streams

Criteria for COVID-19 parallel stream:

Recent onset of fever or chills and/or signs or symptoms of respiratory tract infection, which includes cough.

Clinical judgement should be employed when assessing these criteria. Clinicians should be alert to the possibility of atypical presentations in patients who are immunocompromised.

- Patients should wear a surgical mask, if tolerated.
  Rapidly differentiate into need for acute hospital assessment versus discharge to home assessment/testing

Discharge to community

If patient is well and does not need hospital admission, discharge for testing in the community:

- Testing in the community may be arranged through the patient's GP. If the patient does not have a GP, they will be facilitated, as detailed here. Do not use 999 or 112.
- The patient may be driven home by a person who has already had significant exposure, who is aware of the risks and who is willing to drive them. If patient had driven themselves, they may drive home if feeling well enough to drive.
- Patient must remain isolated at home pending test results and symptom resolution. See here for guidance on self-isolation.

Admission to hospital

If patient is ill:

- ISOLATE in a single room if possible
- STANDARD, CONTACT & DROPLET PRECAUTIONS
- See Laboratory guidance for COVID-19 for details on SARS-CoV-2 testing: Combined swab for NASOPHARYNGEAL and OROPHARYNGEAL SAMPLE (one swab to test both is sufficient) or Bronchoalveolar Lavage (BAL) or ENDOTRACHAL ASPIRATE or SPITUM (if produced).
- ADVICE available from the National Isolation Unit (NIU) (adults): 01-850 1122 and CMI (paediatrics): 01-409 0100 as required (ask for ID Consultant on call).
- Continue isolation in a single room while awaiting test results.

Please note background colour coding indicates infection control precautions as per right-hand panel

NIVRL test: Not Detected
- Maintain IPC precautions until discussed with IPC team.
- Maintain IPC precaution

NIVRL/Laboratory to inform clinician and input data on CIDR
- All patient management to be supported by input from ID Clinician/Microbiologist in line with IPC guidance
- PUBLIC HEALTH to input information from COVID-19 case form on CIDR

Version 5.0 Publication date: 20/05/2020
Stage of the Pandemic

- **Containment/ Delay phase**
  - Testing and contact tracing for all patients

- **Mitigation phase**
  - Testing on patients for admission
  - Testing Healthcare workers
Patient arrives in Acute Hospital Setting

Fever and / or signs symptoms of acute respiratory tract infection

NO

Follow non-RTI pathway i.e. usual care pathway

Yes

1. Patient (and any person accompanying ) to apply alcohol gel and surgical mask
2. Follow RTI pathway

Suspect COVID-19 and adhere to IP and C guidance
Co-morbidities associated with increased risk

- Age > 60 years
- Cardiovascular disease
- Hypertension
- Diabetes
- Chronic respiratory disease
- Cancer
- Immunocompromised
The typical timeline of the disease is of a few days of malaise followed by dry cough, fever and dyspnea. The average time from hospital admission to requirement for critical care is 24-48 hours.
HOSPITAL GUIDANCE

Admission Criteria:
• If a patient has a INEWS score of ≥3
• Clinical Judgement
• Home or psychosocial circumstance not suitable for isolation.

NB Irish Maternity Early Warning System (IMEWS) to be used for women who are pregnant and up to 42 days post-partum
HOSPITAL PROTOCOL: USE INEWS
(for adult \( \geq 16 \) years, non-pregnant patient)

<table>
<thead>
<tr>
<th>Score</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Rate (bpm)</td>
<td>( \leq 8 )</td>
<td>9 - 11</td>
<td>12 - 20</td>
<td>21 - 24</td>
<td>( \geq 25 )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SpO2 (%)</td>
<td>( \leq 91 )</td>
<td>92 - 93</td>
<td>94 - 95</td>
<td>( \geq 96 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspired O2 (Fi O2)</td>
<td>( \leq 90 )</td>
<td>91 - 100</td>
<td>101 - 110</td>
<td>111 - 249</td>
<td>( \geq 250 )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systolic BP (mmHg)</td>
<td>( \leq 40 )</td>
<td>41 - 50</td>
<td>51 - 90</td>
<td>91 - 110</td>
<td>111 - 130</td>
<td>( \geq 131 )</td>
<td></td>
</tr>
<tr>
<td>Heart Rate (BPM)</td>
<td>( \leq 35.0 )</td>
<td>35.1 - 36.0</td>
<td>36.1 - 38.0</td>
<td>38.1 - 39.0</td>
<td>( \geq 39.1 )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACVPU/CNS Response</td>
<td>Alert (A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp (°C)</td>
<td>( \leq 35.0 )</td>
<td>35.1 - 36.0</td>
<td>36.1 - 38.0</td>
<td>38.1 - 39.0</td>
<td>( \geq 39.1 )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The INEWS track and trigger tool is an ADJUNCT to clinical judgement

**Key early signs** of deterioration in all patients are:

- A change in respiratory rate; RR should be counted for a full 60 seconds
- A new requirement for supplemental oxygen or an increasing requirement to sustain SpO2 levels
- New confusion/altered mental status

The amendment of INEWS scores and/or parameters is **PROHIBITED**; what may be amended is the medical response to care
## AMENDED INEWS Escalation & Response Protocol COVID-19 (20\textsuperscript{th} March 2020)

<table>
<thead>
<tr>
<th>Total Score</th>
<th>Minimum Observation Frequency</th>
<th>ALERT</th>
<th>RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 1</td>
<td>12 Hourly</td>
<td>Nurse in charge</td>
<td>Nurse in charge to review if new score 1</td>
</tr>
<tr>
<td>2</td>
<td>6 Hourly</td>
<td>Nurse in charge</td>
<td>Nurse in charge to review</td>
</tr>
<tr>
<td>3</td>
<td>4 Hourly</td>
<td>Nurse in charge &amp; Team/On-call SHO</td>
<td>1. SHO to review within 1 hour</td>
</tr>
</tbody>
</table>
| 4–6         | 1 Hourly                       | Nurse in charge & Team/On-call SHO/Urgent Response Team | 1. SHO to review within hour  
2. Screen for Sepsis  
3. If no response to treatment within 1 hour contact Registrar  
4. Consider continuous patient monitoring  
5. Consider transfer to higher level of care |
| ≥ 7         | ½ hourly                       | Nurse in charge & Team/On-Call Registrar Inform Team/On-Call Consultant/Emergency Response Team | 1. Registrar to review immediately  
2. Continuous patient monitoring recommended  
3. Plan to transfer to higher level of care  
4. Activate Emergency Response System (ERS) (as appropriate to hospital model) |

### CRITICAL CARE REVIEW

**Note:** Single Score triggers

- **Score of 2 HR ≤ 40 (Bradycardia)**  
  - ½ hourly  
  - Nurse in charge & Team/On-call SHO  
  - 1. SHO to review immediately

- **Score of 3 in any single parameter**  
  - ½ hourly or as indicated by patient’s condition  
  - Nurse in charge & Team/On-call SHO  
  - 1. SHO to review immediately  
    2. If no response to treatment or still concerned contact Registrar  
    3. Consider activating ERS
Critical Care NEWS response

• **Critical care review for NEWS ≥ 7**
• Consider critical care advice in deteriorating patient with NEWS ≥ 5
• Do not offer critical care to patients in advance of critical care review
• The final decision on admission to critical care rests with the duty Consultant Anaesthesiologist / Critical Care Physician
Irish Maternity Early Warning System (IMEWS)

- (IMEWS should be used for patients who are diagnosed with Covid19 and are pregnant or who are within 42 days post-partum)

- A clinical decision support tool is available
Irish Maternity Early Warning System (IMEWS)

Escalation Guide

**IMPORTANT**

- If concerned about a woman, escalate care regardless of vital signs.
- Complete a full set of vital signs and record on the IMEWS chart.
- Communicate any triggers to the midwife/nurse in charge.
- Implement the clinical management plans without delay.
- Document the management plan and communication details in the clinical notes.
- Any changes in the standard recording of the vital signs should be written by the doctor in the clinical records.

<table>
<thead>
<tr>
<th>1 YELLOW</th>
<th>2 YELLOWS OR 1 PINK</th>
<th>&gt;2 YELLOWS OR &gt;1 PINK</th>
</tr>
</thead>
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<tr>
<td>Repeat full set of observations on IMEWS after 30 and before 60 minutes.</td>
<td>Call the obstetrician to review. Repeat a full set of observations after 30 minutes.</td>
<td>Call the obstetrician and request immediate review. Repeat a full set of observations within 15 minutes or monitor continuously.</td>
</tr>
</tbody>
</table>

The ISBAR communication tool should be used when communicating information in relation to deteriorating and/or critically ill women.
Initial Investigations for all patients with an INEWS ≥3

- Pulse oximetry
- ABG/ VBG with lactate
- FBC
- U&E, LFT
- PT/ APTT
- CRP
- Troponin
- Serum lactate dehydrogenase
- Serum creatine kinase
- D-dimer
- Ferritin

(BMJ Best Practice)
Initial Investigations (cont.)

- Throat / Nasal Swab (use same swab for both)
- Blood and other Cultures, as indicated
- Viral & bacterial testing
- Imaging
  - CXR
  - CT- consider in patients with suspected pneumonia who have a normal CXR due to greater sensitivity to detect infiltrates
  i.e. not needed for everyone!
Clinical Decision Support tool

(This can be downloaded by clicking here)
Management of patients with pneumonia

The median time from onset of symptoms to hospital admission is reported to be approximately 7 days.

Patients with impending or established respiratory failure should be referred to critical care.

Start supportive care depending on the clinical presentation.
Supportive therapies

- **Oxygen**: give supplemental oxygen with severe acute respiratory infection and respiratory distress, hypoxaemia, or shock.
- Titrate flow rates to reach a target SpO₂ ≥94%
- 88-92% in patients with chronic lung disease
• **Fluids:** Manage fluids conservatively in patients with severe acute respiratory infection when there is no evidence of shock as aggressive fluid resuscitation may worsen oxygenation
Supportive therapies

Symptom Relief

• Give an antipyretic/analgesic for the relief of fever and pain such as paracetamol

• DON’T FORGET VTE PROPHYLAXIS
Antimicrobials

- Consider starting empirical antimicrobials in patients with suspected infection to cover other potential bacterial pathogens that may cause respiratory infection according to local protocols.
- Give within 1 hour of initial patient assessment for patients with suspected sepsis.
- De-escalate empirical therapy based on test results and clinical judgement.
- Some patients with severe illness may require continued antimicrobial therapy once COVID-19 has been confirmed depending on the clinical circumstances.
Respiratory support in the ward setting

- Involve critical care promptly - early intubation is key
- NIV/ HFNO may be used in an isolation room, preferably negative pressure, using airborne precautions (as per WHO guidance), with minimum staff present, otherwise 100% via full non-rebreather mask
- Never put type 1 respiratory patient on BiPAP
- CPAP may have a role (half/full mask/ helmet); in a negative pressure room
- Manual ventilation requires airborne precautions
Managing hypotension in ward setting

• Conservative fluid management strategy is recommended

• Consider peripheral phenylephrine while awaiting critical care input
Experimental Therapies

- Research is being published almost daily on the use of different antivirals for COVID-19 at different stages of disease progression.
- For up to date guidance please see the National Guidance Document at: https://www.hse.ie/eng/about/who/acute-hospitals-division/drugs-management-programme/
- The administration of any antivirals must be by direction of Infectious Disease / Consultant Microbiologist
Summary

• Patient care is straightforward
• IPC & PPE is hard to do right, every time
  – But it is your safe-guard
• Monitor for deterioration
• Early Critical Care input
  – They’ll be busy so use ISBAR & INEWS
Useful Resources

WHO: Clinical management of severe acute respiratory infection when novel coronavirus (nCoV) infection is suspected. Interim guidance 13th March 2020
Publication Click here
https://bestpractice.bmj.com/topics/en-gb/3000168/guidelines

https://www.bmj.com/coronavirus

https://www.hpsc.ie/az/respiratory/coronavirus/novelcoronavirus/casedefinitions/


https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/algorithms/

https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/

WWW.hse.ie/
<table>
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<th>Position and Role</th>
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<tbody>
<tr>
<td>Dr Vida Hamilton</td>
<td>Consultant Intensivist and National Clinical Advisor and Group Lead (Acute Hospitals)</td>
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<tr>
<td>Prof. Colm Bergin</td>
<td>Clinical Lead (Interim), Infectious Diseases, HSE</td>
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<tr>
<td>Dr Yvonne Smyth</td>
<td>Consultant Cardiologist Clinical Co Lead National Acute Medicine Programme</td>
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<tr>
<td>Dr John Bates</td>
<td>Consultant Intensivist Dean, Joint Faculty of Intensive Care Medicine of Ireland</td>
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<tr>
<td>Avilene Casey</td>
<td>Lead for National Deteriorating Patient Recognition &amp; Response Improvement Programme (DPIP)</td>
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<tr>
<td>Dr. Miriam Bell</td>
<td>Deputy Chair, National Early Warning System (NEWS) Guideline Development Group</td>
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<tr>
<td>Ciara Hughes</td>
<td>Programme Manager - Sepsis &amp; DPIP</td>
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