Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Maternal & Newborn Clinical Management System
MN-CMS

eHealth Ireland

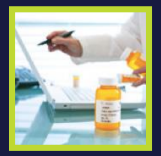
MN-CMS Dynamic Team Response to the COVID 19 Pandemic

Tús Áite do Shábháilteacht Othar
Patient Safety First

2018 Tech EXCELLENCE AWARDS

Delivering eHealth Ireland

Office of the Chief Information Officer



What is MN-CMS ?

The MN-CMS Project is a National **change project** including the design and implementation of an electronic health record (EHR) for all patients in the maternity, gynaecology and neonatology services in Ireland.

Currently fully operational in 4 Hospitals (CUMH, UHK, The Rotunda and The NMH)

Mary Mullins
Change and Transformation Lead

Twitter: @maternalandbaby
Website: www.ehealthireland.ie/MN-CMS

Enhancing MN-CMS for Patient and Staff safety

In keeping with the MN-CMS ethos of

'Patient centred, Clinically led'

the MN-CMS team in close collaboration with the four live hospitals and supported by CernerIrl and the OoCIO have developed and enhanced the system to optimise the management and monitoring of actual and potential Covid-19 cases.

"MN-CMS was good for Covid and Covid was good for MN-CMS"

Dr. Michael Robson

Consultant Obstetrician/ Gynaecologist & MN-CMS Clinical Director

MN-CMS Team Response to the Covid -19 Crisis

Focused view of developments by:

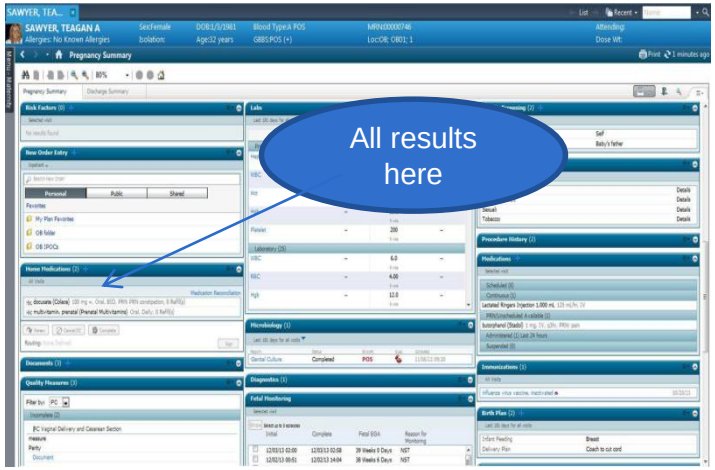
- The Order Comms/Laboratory Lead,
- The Reporting Lead
- The Medications Workstream Representative

Lab results directly into the EHR

Before MN-CMS

Lab tests - mountains of paper - delays or missed results can seriously impact on patient care.

After MN-CMS

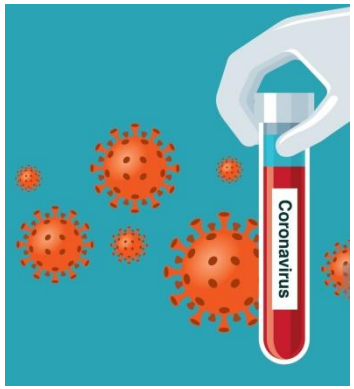


Results immediate to relevant clinicians ensuring abnormal results are actioned appropriately.

Laboratory developments Gwen Malone

MN-CMS dynamically changed to reflect the 4 individual lab systems processes

- Laboratory Information Systems changed
- Standardised electronic test request form
- Order set for optimal Disease management
- Reporting – 50 reports from different sites into 2



Standardisation benefits

- Streamlines and optimises safer workflows for clinical staff across hospitals
- Allows for the prompt collation of data on -
  - testing status
  - test results at hospital level, across multiple hospital and at national level

Brian O'Sullivan - Reporting Lead

Maternal & Newborn Clinical Management System

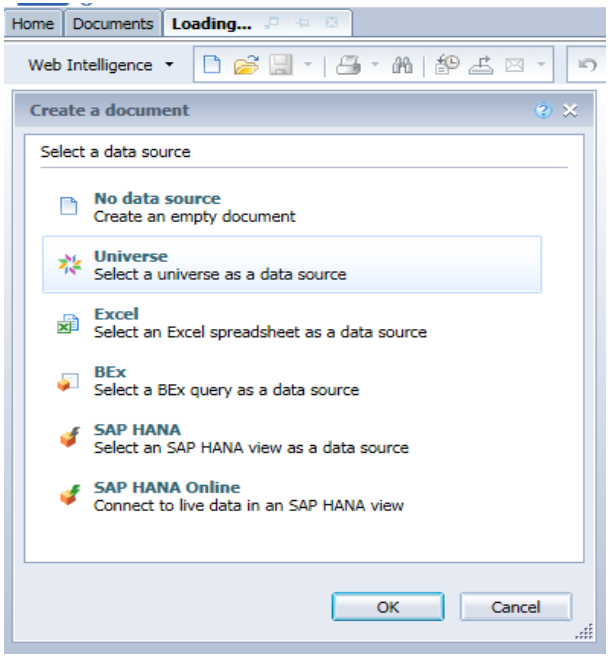
MN-CMS

AIB
AIB
AIB
AIB

How to capture the Data

- Diagnosis
- Problems
- Risk Factors
- Whiteboard

Business Objects



Discern Visual Developer

Business Objects

Coronavirus Infection

Only looking for Code: 287060018

Report Date Range: 01/04/2020 00:00:00 - 14/05/2020 00:00:00

Organization	MRN- Organization	Person Name- Full	Patient Mobile	Patient Home	Diagnosis Description	Diagnosis Confirmation	Diagnosis Date & Time	Diagnosis Ranking	Diagnosis Type	Age- Years (Visit)
Hospital	H1				Coronavirus infection	Confirmed	05/04/2020 00:00:00		DISCHARGE	48
Hospital	H3				Coronavirus infection	Confirmed	06/04/2020 00:00:00		WORKING	36
Hospital	H1				Coronavirus infection	Possible	10/04/2020 00:00:00		WORKING	48
Hospital	H3				Coronavirus infection	Confirmed	10/04/2020 00:00:00		WORKING	30
Hospital	H3				Coronavirus infection	Confirmed	10/04/2020 00:00:00		WORKING	35
Hospital	H3				Coronavirus infection	Confirmed	12/04/2020 00:00:00		WORKING	30
Hospital	H3				Coronavirus infection	Possible	12/04/2020 00:00:00		WORKING	30
Hospital	H3				Coronavirus infection	Confirmed	12/04/2020 14:28:54		DISCHARGE	30
Hospital	H3				Coronavirus infection	Confirmed	14/04/2020 00:00:00		WORKING	27
Hospital	H1				Coronavirus infection	Confirmed	14/04/2020 16:05:10		WORKING	36
Hospital	H3				Coronavirus infection	Possible	15/04/2020 00:00:00		WORKING	40
Hospital	H3				Coronavirus infection	Possible	15/04/2020 00:00:00		WORKING	33
Hospital	H3				Coronavirus infection	Possible	15/04/2020 00:00:00		WORKING	24
Hospital	H3				Coronavirus infection	Confirmed	15/04/2020 00:00:00		FINAL	31
Hospital	H3				Coronavirus infection	Confirmed	17/04/2020 18:01:00		WORKING	34

Discern Visual Developer

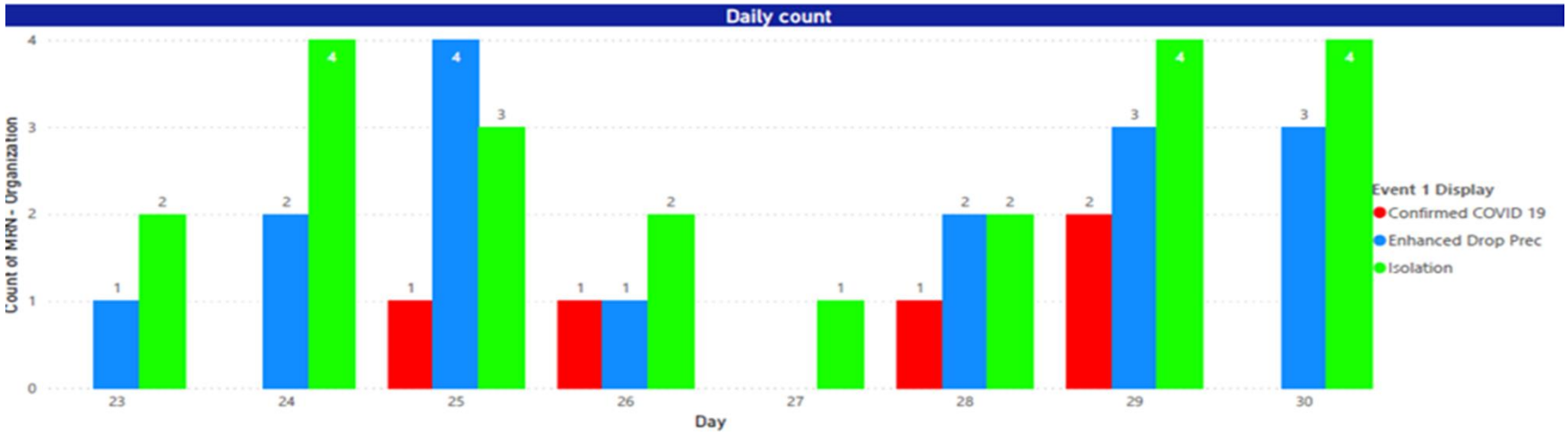
MRN	NAME_LAST	NAME_FIRST	DOB	OTHER
H30			06/03/	Advanced maternal age, IVF, Other: COVID19 - Suspected (a/w test or results)
H30			06/03/	Advanced maternal age, IVF, Other: COVID- 19 - awaiting swab
H30			16/04/	Other: Phoning re. appointment for FMA30 ?to reschedule doe to COVID-19
H30			07/03/	All well, active baby normal LV. See at 34 in view of COVID restrictions.
H30			07/06/	All well, active baby normal LV. See at 34 in view of COVID restrictions. On active iron - recheck at 34 w
H30			31/07/	All well, active baby normal LV. See at 34 in view of COVID restrictions.
H30			06/02/	All well, active baby normal LV. See at 34 in view of COVID restrictions.
H30			01/05/	Growth done today in order to minimise visits - normal - aware plan to minimise the active pushing sta
H30			28/02/	APS (primary - investigations for joint pain) - on LMWH - see with haematology next visit / COVID and F
H06			27/09/	Seen with MH. Only to attend when must attend - COVID discussed - see with
H30			29/10/	All well. Active baby normal LV. Has scan on Monday. Had contact with person who may have been in c
H30			05/03/	Advanced maternal age, Other: Awaiting COVID 19 swab result
H30			12/02/	Video consult COVID 19
H30			24/11/	Other: awaiting COVID swab 23/3/20 so taken today in NMH & CS date deferred to 30/3/20 pending res
H30			23/08/	All well, active baby normal LV. See at 34 in view of COVID restrictions. Heartburn try Omeprazole. Cor

Report	Reporting Tool	Name	Comments
Census Report	Discern Visual Developer	Census	Searches a given location for patients at a certain date/time
Risk Factors	Discern Visual Developer	Corona-Covid in Other	Searches for Covid; COVID; Corona in Other
Problems	Business Objects	Covid-19 - Problem Onset	Based on Problem Onset Date
Problems	Business Objects	Covid-19 - Problem Life Cycle	Based on Problem Life Cycle Date
Diagnosis	Business Objects	Covid-19 - Diagnosis	Based on CODE 287060018
Whiteboard	Business Objects	Covid-19 - Whiteboard with Locations	Based on: Enhanced Drop Prec, Isolation, Confirmed COVID 19 being selected under COMMS
Appointment	Business Objects	CSQL - NMH - Virtual Appointments	Based on: Certain Covid related clinics for one site

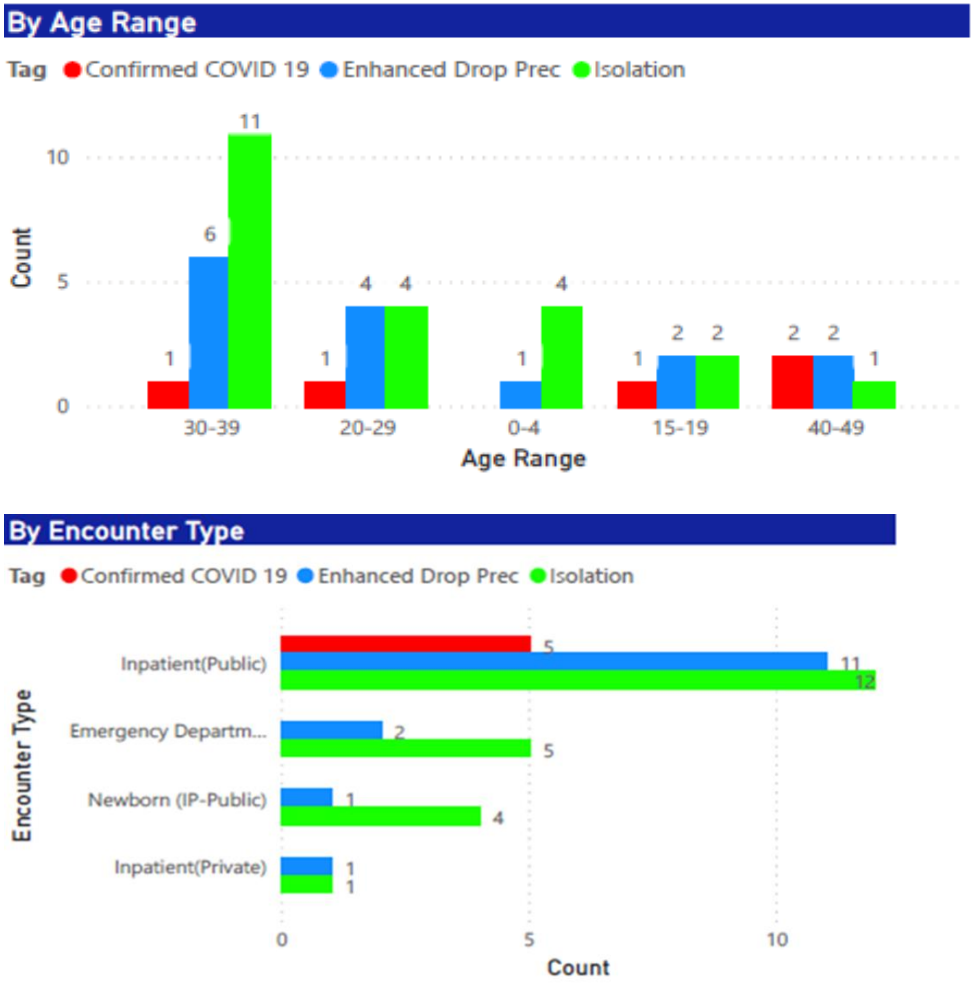
Status Report

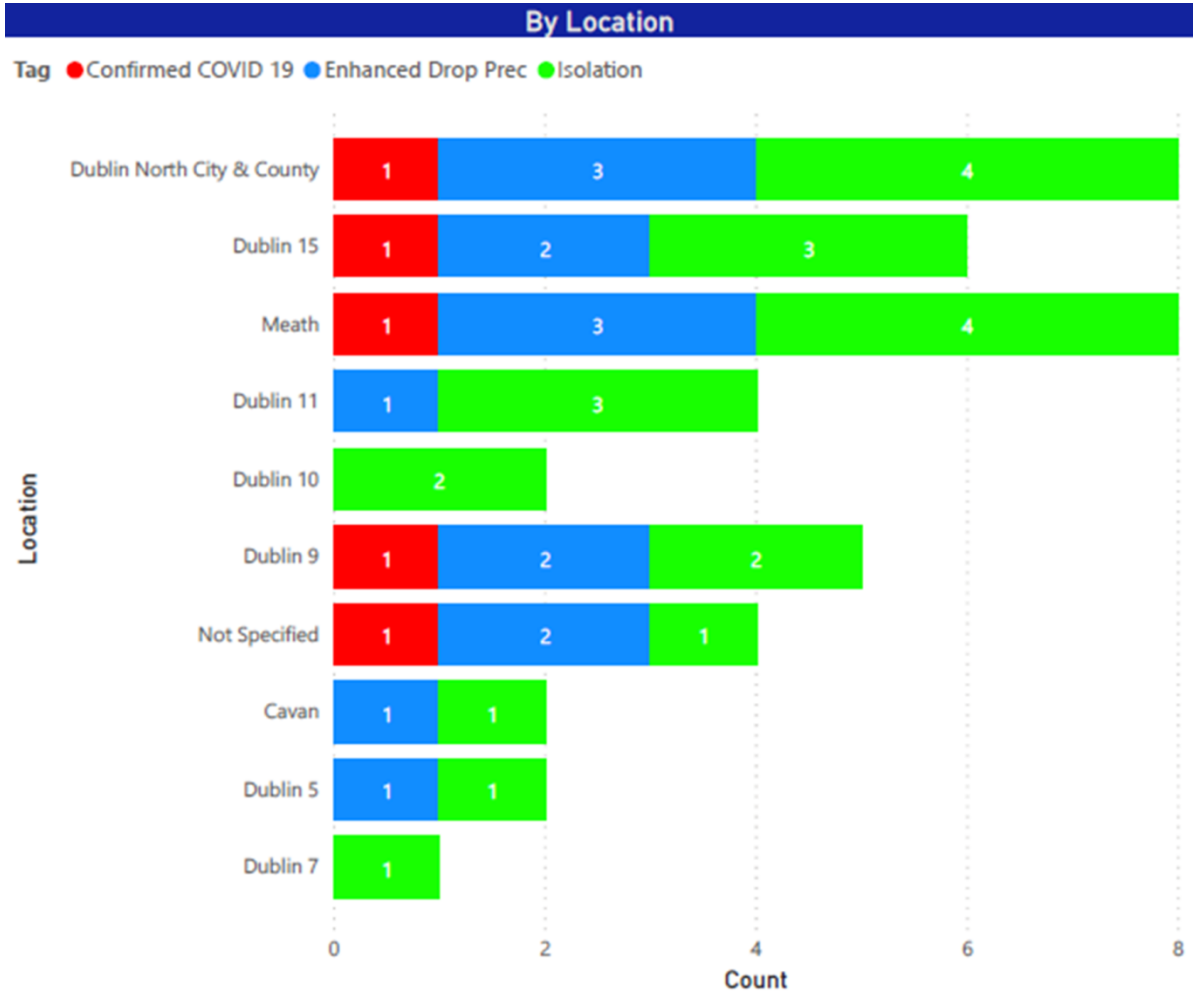
Whiteboard - COVID 19

Confirmed COVID 19	Enhanced Drop Prec	Isolation
5	15	22



Status Report




By Location
Tag
Confirmed COVID 19
Enhanced Drop Prec
Isolation
Location
Dublin North City & County
Dublin 15
Meath
Dublin 11
Dublin 10
Dublin 9
Not Specified
Cavan
Dublin 5
Dublin 7
1
3
4
1
2
3
1
3
4
1
3
2
1
2
2
1
2
1
1
1
1
1
1
0
2
4
6
8
Count

Information Learnt

Start Date	End Date
Monday 1 February 2021	Sunday 28 February 2021

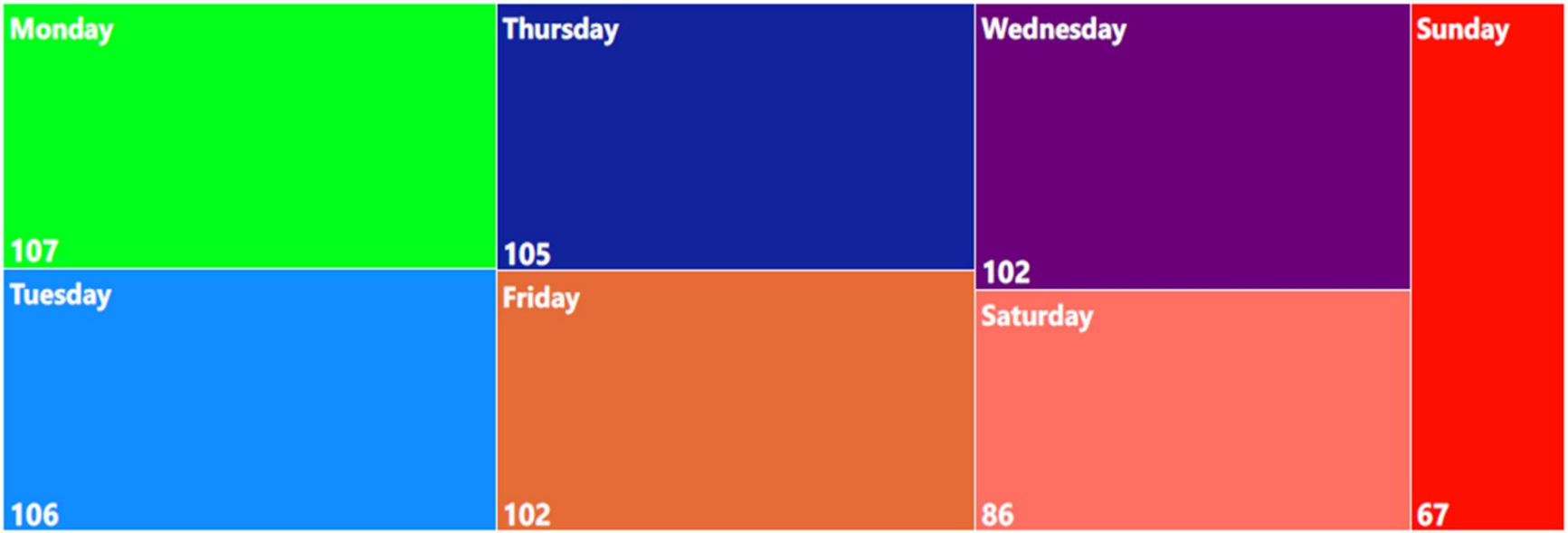
C-Sections: 46	Live Births: 113	Female: 57
Operative Vaginal: 17	Still Birth: (Blank)	Male: 56
Spontaneous Vaginal: 49	Not Recorded: (Blank)	Indeterminate: (Blank)

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Maternal & Newborn Clinical Management System
MN-CMS

Start Date	End Date
Monday 1 February 2021	Sunday 28 February 2021

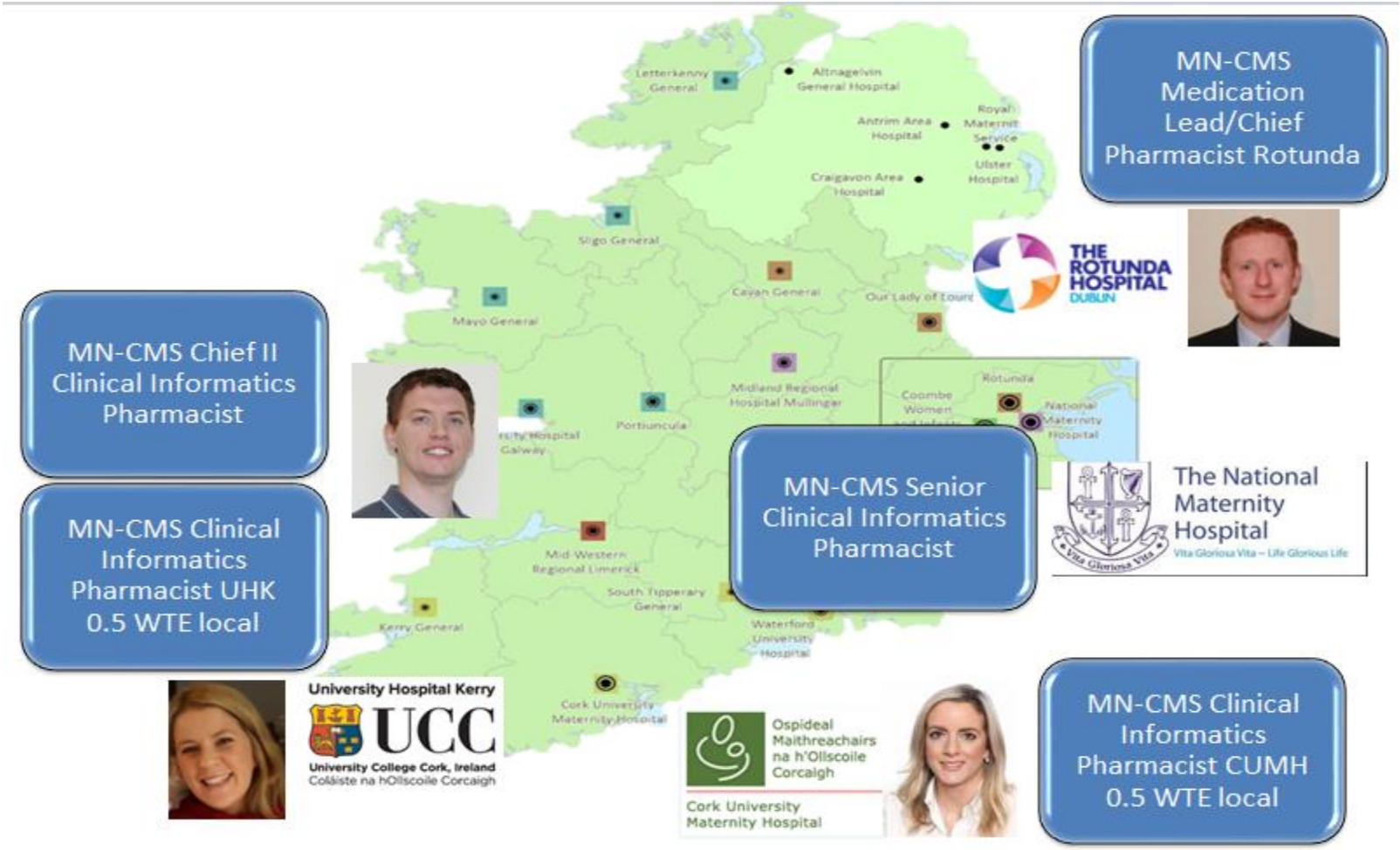
Delivery by Day



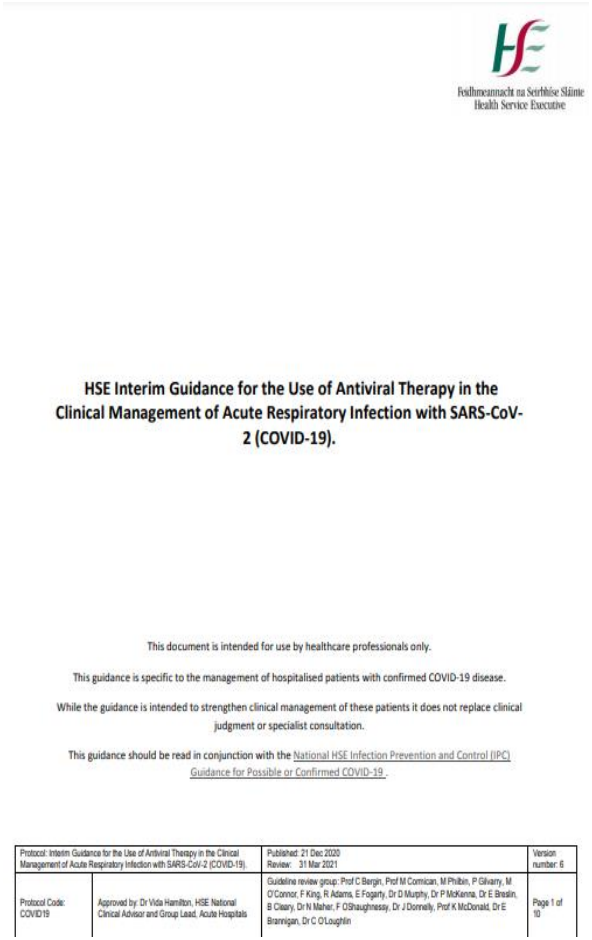
Conclusion

- Standardised Approach
- Data available

The Medication WorkStream Response



Evolving Antiviral Therapy Guidance



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

HSE Interim Guidance for the Use of Antiviral Therapy in the Clinical Management of Acute Respiratory Infection with SARS-CoV-2 (COVID-19).

This document is intended for use by healthcare professionals only.

This guidance is specific to the management of hospitalised patients with confirmed COVID-19 disease.

While the guidance is intended to strengthen clinical management of these patients it does not replace clinical judgment or specialist consultation.

This guidance should be read in conjunction with the National HSE Infection Prevention and Control (IPC) Guidance for Possible or Confirmed COVID-19 .

Protocol: Interim Guidance for the Use of Antiviral Therapy in the Clinical Management of Acute Respiratory Infection with SARS-CoV-2 (COVID-19).		Published: 21 Dec 2020 Review: 31 Mar 2021	Version number: 6
Protocol Code: COVID19	Approved by: Dr Vida Hamilton, HSE National Clinical Advisor and Group Lead, Acute Hospitals	Guideline review group: Prof C Bergin, Prof M Cormican, M Phibin, P Gilvarry, M O'Connor, F King, R Adams, E Fogarty, Dr D Murphy, Dr P McKenna, Dr E Breslin, B Cleary, Dr N Maher, F OShaughnessy, Dr J Donnelly, Prof K McDonald, Dr E Brannigan, Dr C O'Loughlin	Page 1 of 10

09/09/2020
Version 5.0

24/04/2020
Version 3.0

13/03/2020
Version 1.0

21/12/2020
Version 6.0

19/06/2020
Version 4.0

30/03/2020
Version 2.0

Section 1: Key Recommendations

- **Remdesivir**: The HSE recommends that the use of remdesivir for the management of COVID-19 should be primarily in the setting of an ethically approved clinical trial.

  However, it is acknowledged that there is an absence of universal access to clinical trials. If treatment is being considered outside of a clinical trial, it must only be initiated after consultant-level discussion in a multidisciplinary setting with patient engagement.

  Patients (or their relevant person, by phone) should be adequately informed about the uncertain efficacy and potential toxicities, and given an opportunity to indicate their values and preferences.

  See **Section 2** for further information.

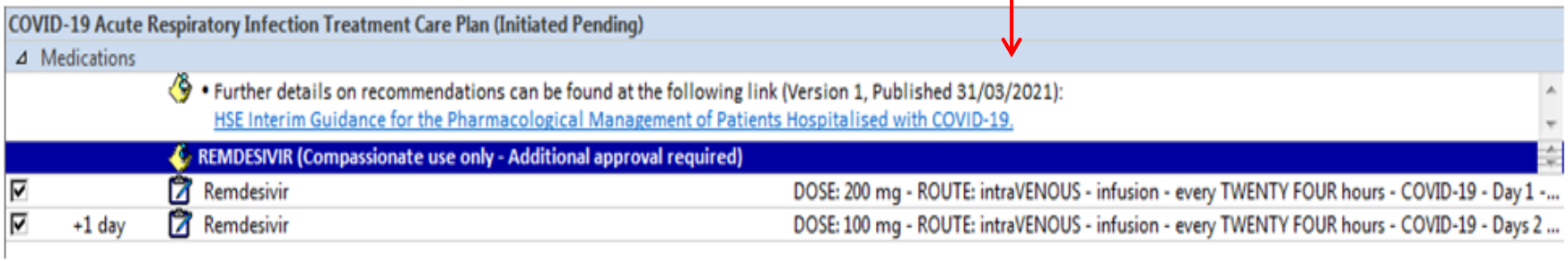
- **Lopinavir/ritonavir:** Not recommended as a therapeutic agent outside of clinical trials due to evidence indicating a lack of benefit in patients hospitalised with COVID-19.

- **Hydroxychloroquine**: Not recommended as a therapeutic agent outside of clinical trials due to evidence indicating a lack of benefit in patients hospitalised with COVID-19.

  Azithromycin: Not recommended in combination with hydroxychloroquine in the context of COVID-19 due to its lack of proven clinical efficacy and safety concerns in COVID-19.

Prescribing Clinical Decision Support

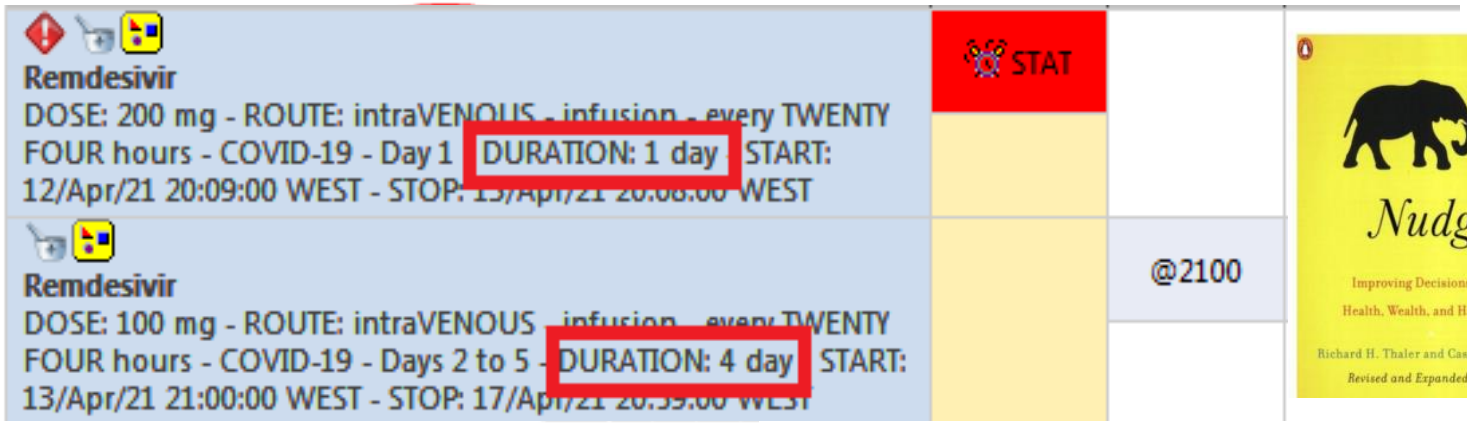
Hyperlink to current National Guidelines



Prescribing Clinical Decision Support

- Enhanced adherence to national guidelines/standardisation of patient care

Duration of Treatment for Patients Treated Outside of a Clinical Trial
The HSE recommends a total duration of 5 days of remdesivir. Available evidence has shown no incremental benefit of 10 days treatment over 5 days. See COVID-19 ERG *Rapid Evidence Review* for "Clinical evidence for the use of antivirals in the treatment of COVID-19 v14" for further information (available from: http://www.ncpe.ie/research/covid-19/).



Medically Vulnerable Patient Alert

- HSE/HPSC issued guidance identifying the extremely medically vulnerable

What do we mean by extremely medically vulnerable?*

1. People aged ≥ 70 years
2. Solid organ transplant recipients
3. People with specific cancers:
    a. people with cancer who are undergoing active chemotherapy or radical radiotherapy for lung cancer
    b. people with cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma who are at any stage of treatment
    c. people having immunotherapy or other continuing antibody treatments for cancer
    d. people having other targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or PARP inhibitors
    e. people who have had bone marrow or stem cell transplants in the last 6 months, or who are still taking immunosuppression drugs
4. People with severe respiratory conditions including cystic fibrosis, severe asthma and severe COPD.
5. People with rare diseases and inborn errors of metabolism that significantly increase the risk of infections (such as SCID, homozygous sickle cell).
6. People on immunosuppression therapies sufficient to significantly increase risk of infection.
7. Women who are pregnant with significant heart disease, congenital or acquired.

*For any essential/key worker advice should be sought from Occupational Health who can give specific advice on individual conditions

Medically Vulnerable Patient Alert

Anakinra
Abatacept
Adalimumab
Apremilast
Azathioprine
Baracitinib
Belimumab
Canakinumab
Certolizumab
Ecolizumab
Etanercept
Golimumab
Hydroxychloroquine
Infliximab
Ixekizumab
Mycophenolate
Prednisolone
Rituximab
Sarilumumab
Secunkinumab
Tocilizumab
Tofacitinib
Ustekinumab

List of medications prescribed within the Obstetric Population that classify patient as Medically Vulnerable

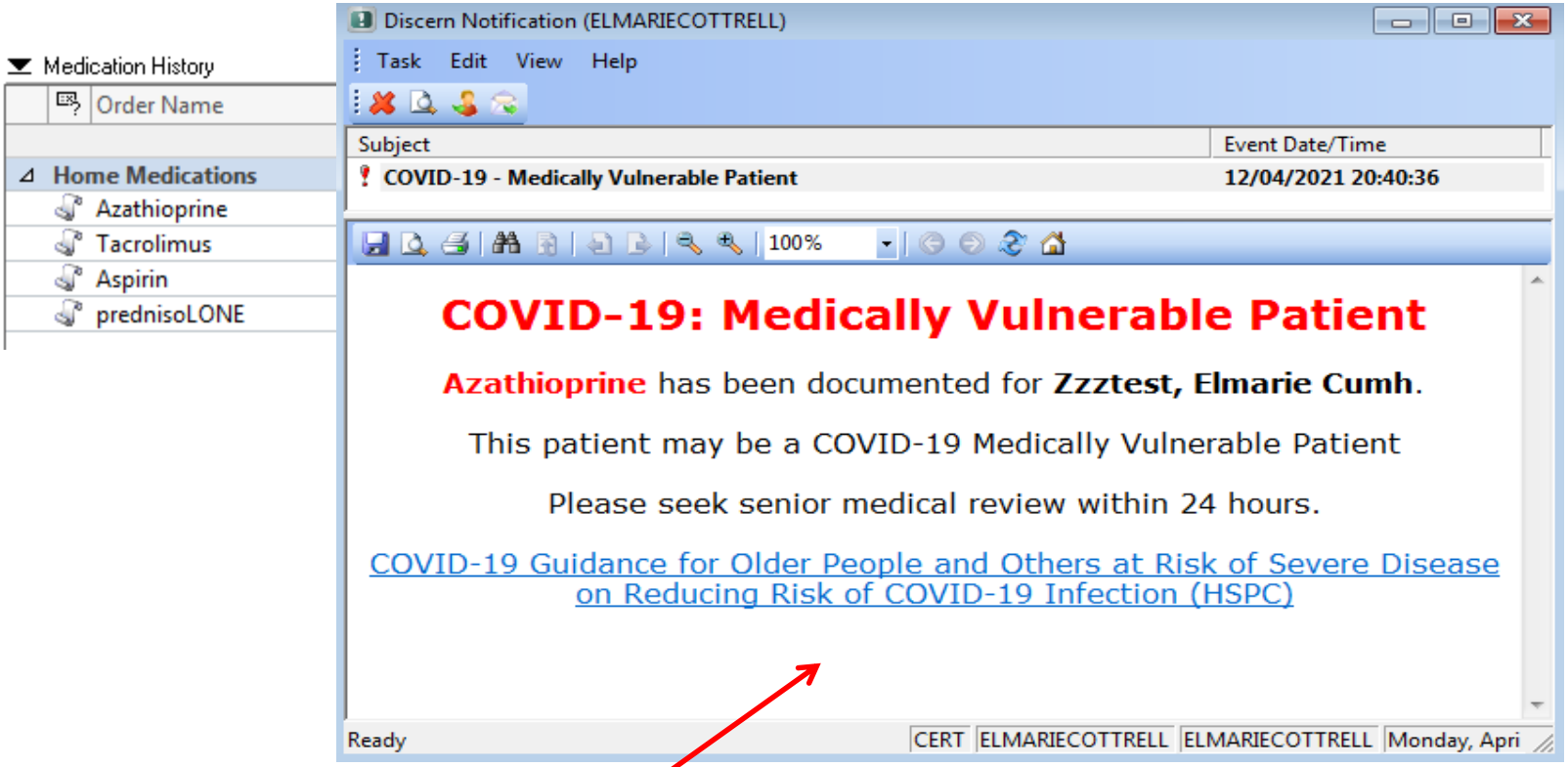
Development of an EKM rule using Discern Expert to create an alert based on the patient's documented medication history

Alert fires identifying Medically Vulnerable Patients to MN-CMS user

EKM Rule = Expert Knowledge Modules

```
- <EM:ExpertModule moduleName="PHA_DRUG_COVID_VULNERABLE" xmlns:EM="http:///com.cerner.expert/expertmodule/1.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xmi="http://www.omg.org/XMI" xmi:version="2.0">
  - <information>
    - <runtimeInformation title="PHA_DRUG_COVID_VULNERABLE" reconcileDate="2020-04-16T10:00:34.000+0100" reconcileFlag="3" validtionType="PRODUCTION"
```

Medically Vulnerable Patient Alert



Hyperlink to current National Guidelines

Electronic Transfer of Prescriptions

Guidance for prescribers and pharmacists on legislation changes to facilitate the safe supply of medicines during the COVID-19 pandemic

- Emergency amendments made to The Medicinal Products (Prescription and Control of Supply) and the Misuse of Drugs Regulations on the 3rd April 2020
- Allows for electronic transmission of a prescription via **Healthmail** to a community pharmacy

PSI-The Pharmacy Regulat
Medical Council
Health Service Executive

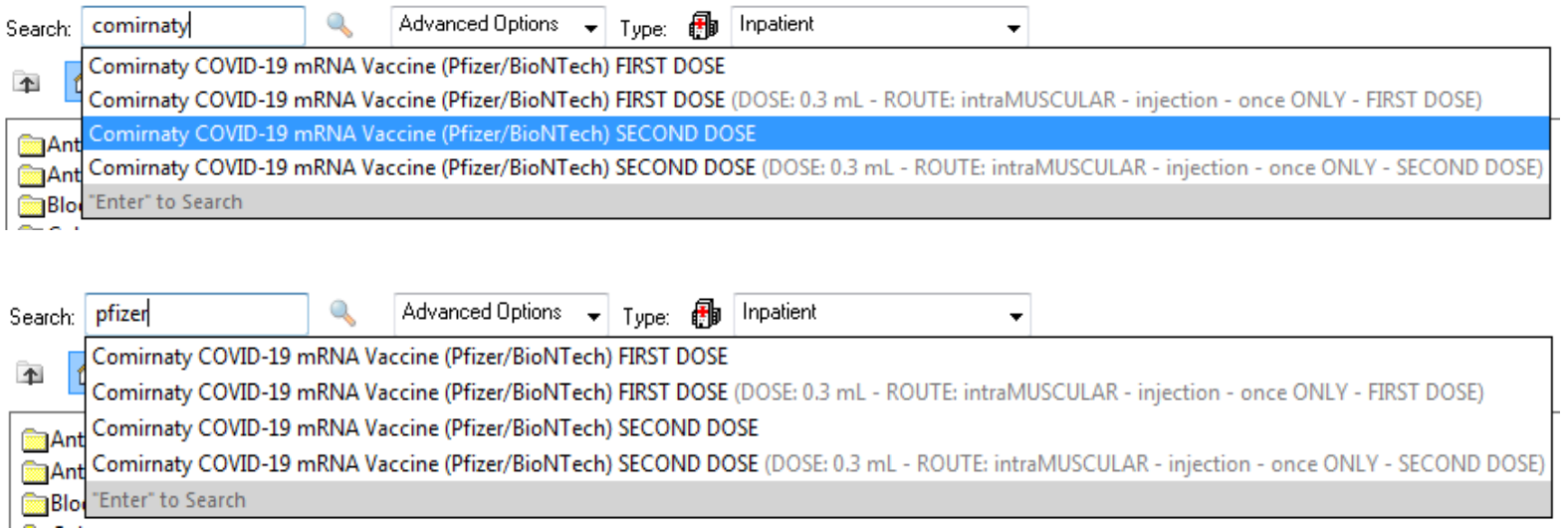
Under the Covid-19 Emergency Provisions, the **National electronic prescription transfer system** will permit the transfer of a prescription between the prescriber and dispensing pharmacy by electronic means. Users are issued with a healthmail account (@healthmail.ie email account) and this will allow them to communicate patient identifiable clinical information with clinicians in primary and secondary care.

Electronic Transfer of Prescriptions

- Addition of national Healthmail Contacts to local hospital Microsoft Outlook Address Book
- Interim solution – generate pdf prescription from MN-CMS and attach directly to email

Vaccine Build

- New primary for each vaccine
- Separate synonym created to distinguish between first and second dose
- Ability to record in patient's Medication History

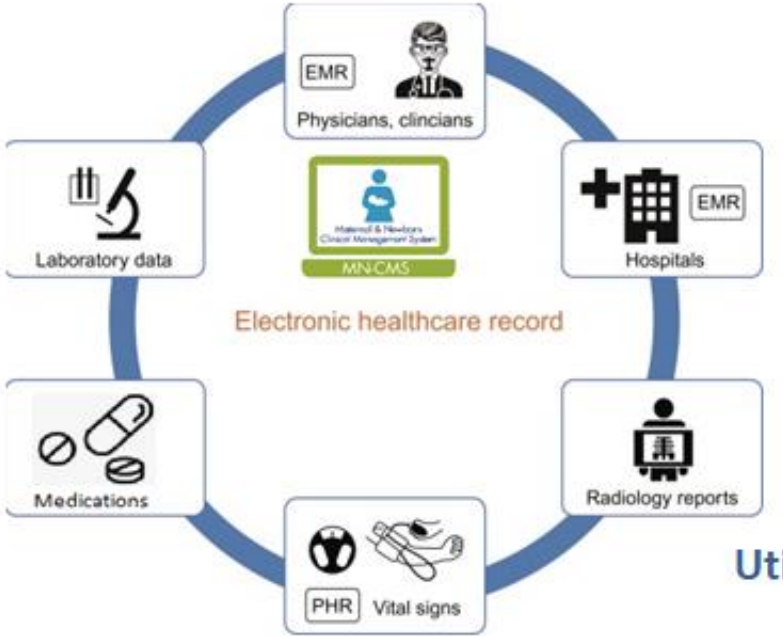


Vaccine Build

- Care Plan developed to allow documentation around vaccination of patients
- Allows for 'Future Ordering' of second dose

	PLEASE SELECT THE APPROPRIATE ORDER FROM THE LIST BELOW	
	Pfizer	
	FIRST DOSE	
☐	COVID-19 mRNA Vaccine (Pfizer/BioNTech) (Comirna...	DOSE: 0.3 mL - ROUTE: intraMUSCULAR - injection - once ONLY - FIRST DOSE
	SECOND DOSE	
☐	COVID-19 mRNA Vaccine (Pfizer/BioNTech) (Comirna...	DOSE: 0.3 mL - ROUTE: intraMUSCULAR - injection - once ONLY - SECOND DOSE
	AstraZeneca	
	FIRST DOSE	
☐	COVID-19 Vaccine (AstraZeneca) (Vaxzevria COVID-19...	DOSE: 0.5 mL - ROUTE: intraMUSCULAR - injection - once ONLY - FIRST DOSE
	SECOND DOSE	
☐	COVID-19 Vaccine (AstraZeneca) (Vaxzevria COVID-19...	DOSE: 0.5 mL - ROUTE: intraMUSCULAR - injection - once ONLY - SECOND DOSE

Data



Utilise combined data sets

Pregnancy Outcomes

Data

Pregnancy Outcomes

COVID exposed v Non-exposed

Covid-19 and stillbirth: What does the latest research say about possible complications?

New warnings from HSE and obstetricians will add to concerns of expectant mothers

Fri, Mar 5, 2021, 15:46 | Updated: Fri, Mar 5, 2021, 15:57

Kevin O'Sullivan
Environment & Science Editor

5

Most pregnant women who get Covid-19 have mild to moderate symptoms and the r their baby is low. File photograph: iStock.

Vaccinated v Non-vaccinated

Covid-19 guidelines for pregnant women to be updated

Evidence shows risk of virus to foetus causing stillbirth in six of seven reported cases

Mon, Apr 12, 2021, 20:17

Paul Cullen Health Editor

Six cases of Covid placentitis stillbirths and miscarriage may be linked to B117 variant

Questions