

Clinical decision support for complex patients: the BMJ Comorbidities Manager

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Agenda

- BMJ Best Practice
- The challenge of caring for patients with comorbidities
- Introducing the Comorbidities Manager from BMJ Best Practice
- Clinical Scenario
- Demo



BMJ Best Practice

BMJ Best Practice is a point of care clinical decision support tool particularly useful for junior doctors, multidisciplinary teams, specialists working outside of their specialty and GPs.

It is uniquely structured around the patient consultation with advice on symptom evaluation, test ordering and treatment approach.

Evidence based, continually updated, practical, accessible.

- Ranked one of the **best clinical decision support tools** for health professionals worldwide*
- **Scored highest** in an independent study of diagnostic decision support tools**

* [JMIR - Providing Doctors With High-Quality Information: An Updated Evaluation of Web-Based Point-of-Care Information Summaries](#)

** [Evaluating online diagnostic decision support tools for the clinical setting](#)



What juniors need to survive

Focusing on what's important to users



Speed – Find answers quickly and accurately



Actionable - Practical information for use at the point of care




Access - Access evidence easily anywhere, anytime



Assurance - Important updates, trusted clinical evidence

Problems with EBM

- Information overload
- Slow pace of change
- The evidence based “quality mark” has been misappropriated by vested interests
- Statistically significant benefits may be marginal in clinical practice
- Inflexible guidelines and technology driven prompts may produce care that is management driven rather than patient centred
- Lack of personalisation of evidence
- Too much mechanical rule following
- No shared decision making
- **Evidence based guidelines often map poorly to complex comorbidity**



An issue underlying many other problems

The problem with ...
Comorbidities

“

Training from medical school onwards, clinical teams, and clinical guidelines, however, all tend to be organised along single disease or single organ lines.

The BMJ - Rising to the challenge of multimorbidity
Frank Atherton, Chief Medical Officer for Wales **et al**



Comorbidities in the acute setting

Most patients in the acute setting have more than one medical condition, but clinical resources only focus on single conditions.

When comorbidities aren't taken into account, patients get **suboptimal care** leading to **worse clinical outcomes**.

Comorbidities also associated with **longer lengths of stay**.

Comorbidities

- One in three adults suffers from multiple chronic conditions
- In the UK, one in three adults admitted to hospital as an emergency have five or more conditions
- People with multimorbidity have poorer functional status, quality of life, and health outcomes, and are higher users of ambulatory and inpatient care than are those without multimorbidity. Also higher mortality
- This all poses a significant problem for health systems
- **But resources for HCPs only focus on single conditions!**

Comorbidities in Wales

A study in 2018 showed that 59.5% of patients in England and Wales with a heart attack had at least 1 of the following long-term health conditions at the time of their heart attack: diabetes, chronic obstructive pulmonary disease or asthma, heart failure, renal failure, cerebrovascular disease (stroke), peripheral vascular disease, or hypertension. (1)

Another study found that “estimates of comorbidity in the community [in Wales] are consistent with previous findings: comorbidity was common, and for some conditions (e.g. COPD and osteoporosis), it was almost ubiquitous”. (2)

1. Hall, Marlous et al. “Multimorbidity and survival for patients with acute myocardial infarction in England and Wales: Latent class analysis of a nationwide population-based cohort.” PLoS medicine vol. 15,3 e1002501. 6 Mar. 2018, doi:10.1371/journal.pmed.1002501

2. Hanlon, Peter et al. “Representation of people with comorbidity and multimorbidity in clinical trials of novel drug therapies: an individual-level participant data analysis.” BMC medicine vol. 17,1 201. 12 Nov. 2019, doi:10.1186/s12916-019-1427-1 5

Junior doctors

“As a junior doctor treating a patient’s acute condition as well as their comorbidities is extremely difficult,

I don’t want to do something that makes something else worse.”



Often forgotten or overlooked



Comorbidities management is complicated and difficult



Lacking confidence in decision making





Senior clinicians

“As a senior doctor, I need to be sure my junior doctors are managing acute conditions and comorbidities correctly.”

X

Juniors often forget to consider comorbidities



Lack time to answer questions



Clear guidance or expert opinion isn't available

Healthcare provider

“As a healthcare provider, I need my healthcare professionals to manage a patient’s comorbidities correctly to reduce length of stay, avoid readmissions and improve quality.”



Avoidable readmissions



Longer length of stay for patients



Increased and unwarranted costs

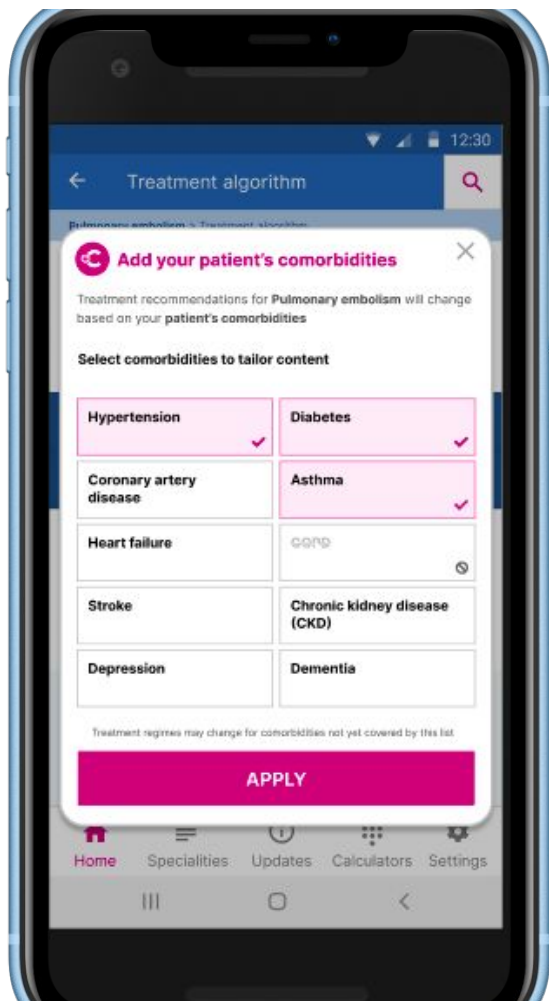


BMJ Best Practice Comorbidities Manager

Add the patient's comorbidities to an existing management plan and get a tailored plan instantly.

Supports healthcare professionals to treat the whole patient when managing acute conditions.

Treat with confidence to improve patient outcomes.



+ Combinations

512
combinations per topic

+ Add your patient's comorbidities

Treatment recommendations for Pulmonary embolism will change dependent on your patient's comorbidities

Select comorbidities

<input type="checkbox"/> Hypertension	<input type="checkbox"/> Diabetes
<input type="checkbox"/> Coronary artery disease	<input type="checkbox"/> Asthma
<input type="checkbox"/> Heart failure	<input type="checkbox"/> COPD
<input type="checkbox"/> Stroke	<input type="checkbox"/> Chronic kidney disease (CKD)
<input type="checkbox"/> Depression	<input type="checkbox"/> Dementia

Please remember that treatment regimes may change for comorbidities not yet covered by this list.

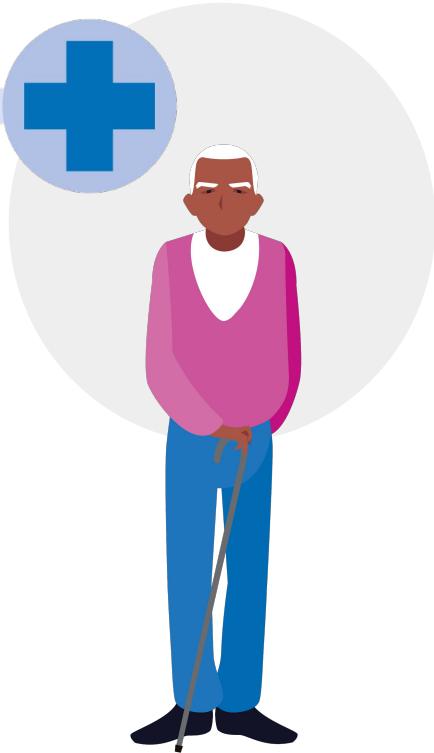
CLOSE

>38,000
across 75 topics

25,600
Across 50 topics

The only CDS tool
designed to address
comorbidities

Clinical scenario



Patient presents

An 82-year-old man comes to the Emergency Department on Friday evening with cough and shortness of breath.

He is coughing up green, purulent sputum. These symptoms have been going on for three days and are getting worse.

The patient has a history of COPD and is an ex-smoker. He also has type 2 diabetes which is controlled on diet and metformin.

On examination, he has wheezes and crackles throughout his chest. He normally takes salmeterol one puff twice daily and salbutamol one puff as required.

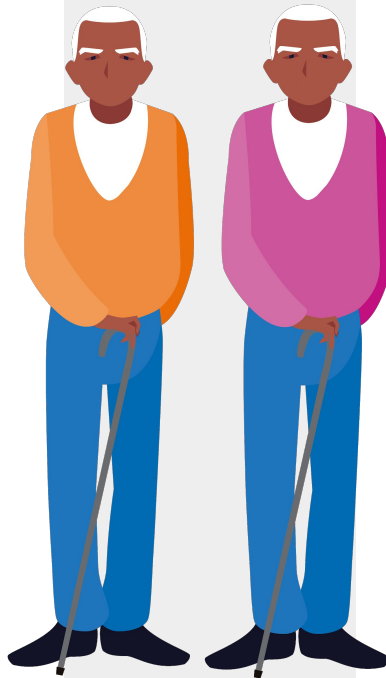
Clinical scenario A (doctor is using a guideline that deals with single conditions only)

COPD managed correctly but diabetes missed
Standard treatment given for an infective exacerbation of COPD.

This includes

- short-acting bronchodilator
- systemic corticosteroid
- oxygen
- antibiotic therapy

No monitoring or management of patient's diabetes.



Clinical scenario B (CM used)

COPD and diabetes managed correctly
Treatment given for an infective exacerbation of COPD. His diabetes is actively managed.

This includes

- short-acting bronchodilator
- systemic corticosteroid – but with careful monitoring in light of his comorbidity
- oxygen
- antibiotic therapy

In light of his diabetes, the doctor also

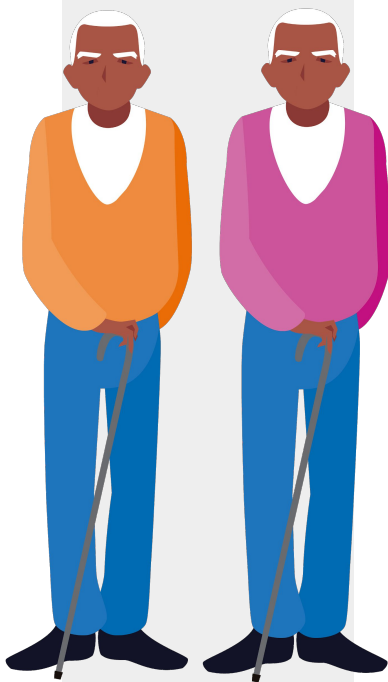
- reviews his diabetes medication
- monitors and manages his blood glucose during the hospital admission
- checks the patient's feet

Clinical scenario A (doctor is using a guideline that deals with single conditions only)

COPD managed correctly but diabetes missed

Standard treatment given for an infective exacerbation of COPD. No monitoring or management of patient's diabetes.

- ✗ **No careful management of his diabetes** when taking corticosteroids
- ✗ **No regular blood glucose checks**
Develops hyperglycemia and renal impairment
- ✗ **No review of his diabetes medication**
Metformin not reviewed & he is likely to need insulin – this does not happen. The patient should stop the metformin as he is developing significant renal impairment.
- ✗ **No check of the patient's feet**
Develops a small pressure ulcer on his left heel



Scenario B (CM manager used)

COPD and diabetes managed correctly

The patient receives appropriate treatment for his COPD – he starts to improve, and his diabetes remains well controlled.

- ✓ **Careful management of his diabetes** when taking corticosteroids
- ✓ **Diabetes medication reviewed**
Metformin stopped and patient given insulin
- ✓ **Systemic corticosteroid administered**
Careful monitoring in light of his comorbidity
- ✓ **Monitoring and management of his blood glucose during the hospital admission**
- ✓ **Patient's feet checked**
Measures taken to prevent pressure ulcers occurring

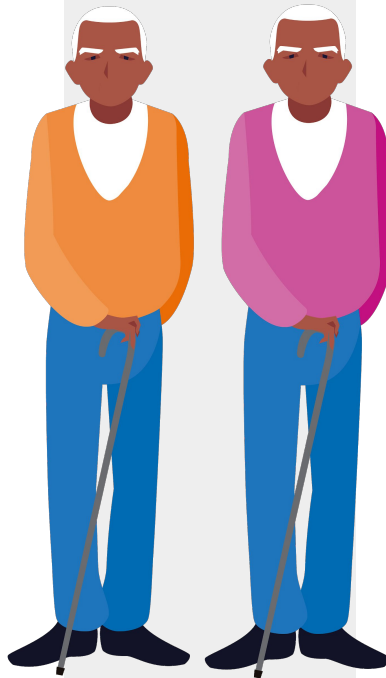
Clinical scenario A (doctor is using a guideline that deals with single conditions only)
COPD managed correctly but diabetes missed

He is now seriously unwell - with uncontrolled diabetes, renal impairment and a pressure ulcer

He is admitted to the high dependency unit.

Here he receives corrective treatment for

- COPD
- hyperglycemia
- renal impairment
- pressure ulcer



Scenario B (CM manager used)
COPD and diabetes managed correctly

The patient's COPD has now improved.

His diabetes remains well controlled.

The hospital plans to discharge him within 48 hours.

Clinical scenario A (doctor is using a guideline that deals with single conditions only)
COPD managed correctly but diabetes missed

Corrective treatment in progress
on HDU

The patient has now stabilised

COPD has improved

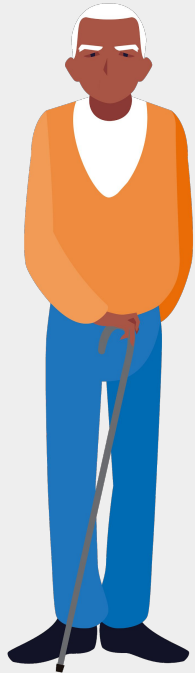
Blood glucose and renal
function are slowly returning to
normal

He still has a small pressure
ulcer.



Scenario B (CM manager used)
COPD and diabetes managed correctly
The patient goes home





Clinical scenario A (doctor is using a guideline that deals with single conditions only)
COPD managed correctly but diabetes missed

The patient returns to the main ward.

He continues to receive treatment and close monitoring of his COPD and diabetes as he continues to recover.



Clinical scenario A (doctor is using a guideline that deals with single conditions only)
COPD managed correctly but diabetes missed

The patient goes home...



Clinical scenario A has resulted in...



- Discomfort and distress for the patient and
- Considerable increase in costs for the healthcare provider

This increased cost is related to

- The number of bed days and the type of bed days. In this scenario, the extra cost in bed days adds up to **£3,810**
- Treatment of the foot ulcer*. This includes clinic attendances, podiatry, prescribing, imaging, hospital outreach, NHS transport, and orthotics & district nurse visits. In this scenario the extra cost is **£6,760**

How common is this problem?

- Diabetes is a comorbid condition in 10-20% of patients with COPD
- In Wales, 70 000 people with COPD

Remember - this is just **one** comorbidity added to **one** condition.

One in **three** patients admitted to hospital as an emergency will have **five** or more conditions

References

Parappil A, Depczynski B, Collett P, Marks GB. Effect of comorbid diabetes on length of stay and risk of death in patients admitted with acute exacerbations of COPD. *Respirology*. 2010 Aug;15(6):918-22.

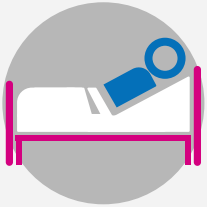
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<https://gov.wales/sites/default/files/publications/2018-12/respiratory-health-delivery-plan-2018-2020.pdf>

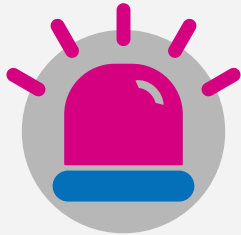
Hip fracture



Hypertension



60% of patients with hip fracture also have hypertension



65,000 hip fracture admissions annually (Eng, Wales, NI)



Consequences: hypotension, falls, heart failure

BMJ Best Practice

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Try the new **Comorbidities tool** ✕

Add your patients' comorbidities and get an instant, tailored management plan.



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 Comorbidities o

BMJ Best Practice - Comorbidities

- Stop and **think** – engage clinicians
- Single diseases vs comorbidities
- Improve quality of patient care, ensure patient safety, drive patient centred care, avoid complications, save costs

BMJ Best Practice Comorbidities Evaluation

Thank you for volunteering to take part in the evaluation of BMJ Best Practice Comorbidities in partnership with NHS Wales. You have access to the Comorbidities Manager from today until 17th June 2022.

- Full details on the evaluation and how to access can be found here: www.bmj.com/company/comorbidities-wales/
- Tell us what you think of the comorbidities manager by completing this short survey: www.smartsurvey.co.uk/s/Comorbiditiesforwales/
- If you have any questions regarding the evaluation please email elibrary@wales.nhs.uk