

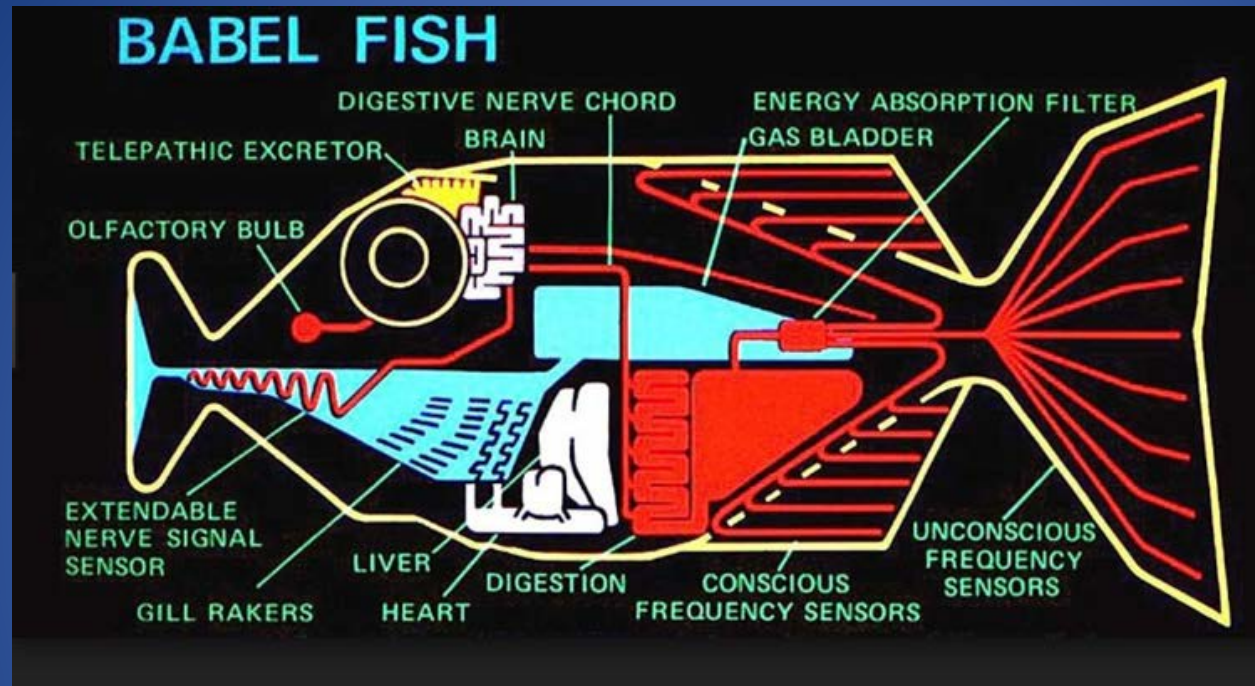
The image shows the interior of a large Gothic cathedral, likely York Minster. The architecture is characterized by high, vaulted ceilings with intricate ribbing and golden finials. The nave is filled with rows of wooden pews, and the floor is a mix of stone and wood. Stained glass windows are visible on the side walls, and the overall atmosphere is one of grandeur and historical significance.

Engaging Clinicians in coding

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Coding

- Coders are from Pluto & Clinicians are from Mercury!
- How do we get to share a language?
 - Make it useful
 - Use it to improve care processes
 - Link up as much data as we can



Coding: Somebody else's problem!

To make it reliable...

Make it easy and useful

80:20 RULE

- 6 months data on discharges
- Ordered by frequency
- Top 850/>5500 accounted for ~80%
- Convert to clinical language
 - linked to ICD-10 code in the background
- Acute diagnoses
- Chronic diagnoses

Clinicians language

The screenshot shows a 'Select Diagnosis' window with a search bar containing 'celluliti'. The window is divided into two main sections: a list of diagnosis categories on the left and a list of specific diagnosis codes on the right. The categories on the left include 'Diagnoses' (with 'Common' selected), 'Find: celluliti', and various anatomical locations for cellulitis (arm, foot, hand, leg, toes, orbital, preseptal, face, finger and toe, other parts of limb, other sites, trunk, unspecified). The specific diagnosis codes on the right are grouped into three overlapping lists. The first list shows Chronic Kidney Disease (CKD) codes for stages 1 through 4. The second list shows Pneumonia codes, including Bronchopneumonia, Community acquired pneumonia (CAP), Healthcare associated pneumonia (HAP), aspiration, and with consolidation. The third list shows Ischaemic Heart Disease codes, including acute and chronic forms, CABG, stents in situ, and cardiomyopathy. Below these, there are also codes for Dementia, including Alzheimer's disease, atypical or mixed type, and Parkinson's Disease, as well as Vascular dementia codes.

Select Diagnosis

Diagnoses
 Common
 All

Type into the Find field to see filtered diagnoses records. Double clicking a diagnosis record will select that diagnosis.
Press View Diagnoses to see the selected diagnoses

Check:

Find:

Cellulitis arm - left
Cellulitis arm - right
Cellulitis foot - left
Cellulitis foot - right
Cellulitis hand - left
Cellulitis hand - right
Cellulitis leg - left except toes
Cellulitis leg - right except toes
Cellulitis toes - left
Cellulitis toes - right
Orbital Cellulitis
Preseptal Cellulitis
Cellulitis - Orbital
Cellulitis - preseptal
Cellulitis of face
Cellulitis of finger and toe
Cellulitis of other parts of limb
Cellulitis of other sites
Cellulitis of trunk
Cellulitis, unspecified (please specify type in ICR)

(CHRONIC): Chronic Kidney Disease (CKD)
(CHRONIC): Chronic Kidney Disease (CKD)
(CHRONIC): Chronic kidney disease (CKD), stage 2 Kidney damage with mild decreased GFR (60-89 mL/min)
(CHRONIC): Chronic kidney disease (CKD), stage 3 Kidney damage with moderately decreased GFR (30-59 mL/min)
(CHRONIC): Chronic kidney disease (CKD), stage 4 Kidney damage with severely decreased GFR (15-29 mL/min)
Chronic kidney disease (CKD), stage 1 Kidney damage with normal or increased GFR (> 90 mL/min)

Bronchopneumonia
Pneumonia
Pneumonia - Community acquired pneumonia (CAP)
Pneumonia - Healthcare associated pneumonia (HAP)
Pneumonia - aspiration
Pneumonia with consolidation

(CHRONIC): Acute ischaemic heart disease, unspecified
(CHRONIC): Chronic ischaemic heart disease
(CHRONIC): Ischaemic Heart Disease (IHD)
(CHRONIC): Ischaemic Heart Disease - Coronary Artery Bypass Graft (CABG)
(CHRONIC): Ischaemic Heart Disease - Coronary stents in situ
(CHRONIC): Ischaemic cardiomyopathy

Mes (CHRONIC): Dementia
Mes (CHRONIC): Dementia in Alzheimer's disease
Tran (CHRONIC): Dementia in Alzheimer's disease, atypical or mixed type
(CHRONIC): Dementia in Alzheimer's disease, unspecified
(CHRONIC): Dementia in Parkinson's Disease
(CHRONIC): Vascular dementia
(CHRONIC): Vascular dementia, unspecified

Diabetes team

(CHRONIC): Diabetes Type 2 (Ketone Prone)
(CHRONIC): Diabetes insipidus (neurogenic)
(CHRONIC): Glomerular disorders in diabetes mellitus
(CHRONIC): Type 1 Diabetes
(CHRONIC): Type 1 diabetes mellitus With ophthalmic complications
(CHRONIC): Type 1 diabetes with ketoacidosis
(CHRONIC): Type 2 Diabetes
(CHRONIC): Type 2 diabetes mellitus With neurological complications
(CHRONIC): Type 2 diabetes mellitus With ophthalmic complications
(CHRONIC): Type 2 diabetes mellitus With peripheral circulatory complications
Diabetes Type 1 with complications
Diabetes Type 2 with complications
Diabetes insipidus (nephrogenic)
Gestational diabetes
Type 1 diabetes with ketoacidosis and coma

Use the following criteria to search for patients....

Ticking these boxes will show patients that meet EITHER criteria.

For example, selecting "Admitted within last 4 hours" and "Flagged for Critical Care Outreach" will display all patients admitted in last 4 hours AND all the patients flagged

- | | | | |
|---|--|---|---|
| <input type="checkbox"/> Flagged for Critical Care Outreach | <input type="checkbox"/> Flagged for Acute Pain Audit | <input type="checkbox"/> Observations Due | <input type="checkbox"/> At Risk OBS |
| <input checked="" type="checkbox"/> Chronic Diabetes | <input type="checkbox"/> Blood Sugar Due | <input checked="" type="checkbox"/> High Risk Blood Sugar Level (Current) | <input type="checkbox"/> High Risk Blood Sugar Level (48 Hours) |
| <input type="checkbox"/> Category 2-4 / Unstageable Skin | <input type="checkbox"/> Very High Risk Nutrition Score (≥ 5) | <input type="checkbox"/> Cannula Inserted | <input type="checkbox"/> Cannula Check Overdue |
| <input type="checkbox"/> Section 2 Notifications | <input type="checkbox"/> Section 5 Notifications | <input type="checkbox"/> AKI Incomplete | <input type="checkbox"/> SCR Needs Uploading |
| | | | <input type="checkbox"/> Severe Sepsis |

Renal Team

(CHRONIC): Chronic Kidney Disease (CKD)
(CHRONIC): Chronic Kidney Disease (CKD)
(CHRONIC): Chronic kidney disease (CKD), stage 2 Kidney damage with mild decreased GFR (60-89 mL/min)
(CHRONIC): Chronic kidney disease (CKD), stage 3 Kidney damage with moderately decreased GFR (30-59 mL/min)
(CHRONIC): Chronic kidney disease (CKD), stage 4 Kidney damage with severely decreased GFR (15-29 mL/min)
(CHRONIC): Chronic kidney disease (CKD), stage 1 Kidney damage with normal or increased GFR (> 90 mL/min)



Find: dialysis



(CHRONIC): Arteriovenous fistula for dialysis
(CHRONIC): End Stage Renal Failure - dialysis dependant (Haemodialysis)
(CHRONIC): End Stage Renal Failure - dialysis dependant (Peritoneal dialysis)

Find: renal transplant

(CHRONIC): Renal transplant - altruistic donor
(CHRONIC): Renal transplant - live emotionally related donor
(CHRONIC): Renal transplant - live related donor
(CHRONIC): Renal transplant - non heart beating donor
(CHRONIC): Renal transplant - unspecified donor
(CHRONIC): Renal transplant status

Selecting Register details below will show patients on the given registers (for the selected hospital/ward/consultant combination) as well as patients who meet the other filter criteria. For example, selecting "Admitted within last 4 hours" and "Renal" Register Type, will display all patients admitted in last 4 hours AND all patients under the Renal Register Type

Register Type  Select Registers 


Specialty  Inpatient Referrals Teams 

All Inpatient Referrals for this Specialty

ONLY include patients registered to particular GP Practice

Diagnosis  Patient Prescribed Antibiotics?

Historic Diagnoses



Renal 2

Admission Path Micro/Histo Radiol Oth Invs Procs Diags Ward Round Notes FU/Disch SCR Preview eDN NEWS 1 SIRS 2+ GLUC -

Main Conditions Being Investigated

Remove Add

Main Conditions Being Treated

Incl in eDN Details Chronic

- Severe Sepsis
- Acute kidney injury with acute cortical necrosis
- AKI requiring intermittent haemodialysis

Remove Add Add Detail Up Down

Heart Failure COPD COPD Bundle Agreed

Co-morbidities / Chronic Conditions

Incl in eDN Being Details Treated

- Depression - Recorded: 06-AUG-2015
- Alcohol dependant - Recorded: 13-FEB-2013
- Alcohol Abuse - Recorded: 19-AUG-2008
- Asthma - Recorded: 19-AUG-2008

Add Detail Add / Review Up Down

Inpatient Registers

*Aki Register - Aki Checklist
Started: 22-SEP-2017 (Nephro)
Renal - Aki/Ckd Under Investigation
Started: 24-SEP-2017

Add / Review Registers

Add / Review Inpatient Referrals

Check List

- VTE Risk Assessment
- Diagnosis
- Co-morbidity Review
- Allergies
- Medications
- Follow-Up Plan
- Pathology Ack
- Radiology Ack
- Nurse Notes Complete
- Med unfit
- Sign Off

AMTS N/A

Doctor eDN Complete

on [] []

by [] []

on [] []

Full DN Required

Discharge Status [] [] CoC WB Notes VTE Medication Clinical Desktop Clinical Audit Save and Close Close Save

Dementia flag for Board rounds on wards – also excludes requirements for AMTS assessment

Select Diagnosis

Diagnoses

Common

All

Type into the Find field to see filtered diagnoses record record will select that diagnosis.
Press View Diagnoses to see the selected diagnosis
Check to enter a free text diagnosis

Find: dementia

- (CHRONIC): Dementia
- (CHRONIC): Dementia in Alzheimer's disease
- (CHRONIC): Dementia in Alzheimer's disease,
- (CHRONIC): Dementia in Alzheimer's disease,
- (CHRONIC): Dementia in Parkinson's Disease
- (CHRONIC): Vascular dementia
- (CHRONIC): Vascular dementia, unspecified

Bed	Cons	Patient	OBS	Glu	Nut	Wat	Fal	Can	Clerk Stat	Path	Rad	VTE Done	Allergy Done	AMTS Done	Dx Done	TTO Done	eDN Done	Status	V F	
1	RONDM	VMP (F) 81	0	6.7	1	28	!	0	✓	✓	Img	✓	!	✓	✓	✓	P	✓	LoS: 10	
2	MCGG	GLT (F) 73	3		0	15	!	0	✓	Rep 93h 3m	✓	✓	!	N/A	✓			✗	LoS: 8	
3	MCGG	DGP (F) 91	✗			10	!	19	!	0	✓	✓	Reg	✓	!	✓	✓	✓	✗	LoS: 31
4	RONDM	AW (F) 90	1			5	!	10	!	1	✓	✓	✓	✓	!	✓	✓		✗	LoS: 3
5	RONDM	PWR (F) 81	2		1	16	!		1	✓	✓	✓	✓	!	N/A	✓			✗	LoS: 10
6	MCGG	MB (F) 87	0			5	!	22	!	0	✓	✓	✓	✓	✓	✓	✗	✗	✓	LoS: 8
7	MCGG	JC (F) 91	3		2	15	!		0	✓	✓	✓	✓	!	✿	✓	✗	✓	✗	LoS: 19
8	RONDM	LG (F) 95	!	7		2	!	18	!	1	✓	✓	✓	!	✓	✓			✗	LoS: 3
9	KESS	JL (F) 88	2	4.3	2	10	!		0	✓	✓	Img Rep 1h 5m	✓	!	✓	✓			✗	LoS: 2
10	MCGG	LAF (F) 86	2	6.1	!	6	!	18	!	1	✓	Rep 69h 20m	Sch	✓	!	✿	✓		✗	LoS: 34
11	HARMX	EMG (F) 89	1		2	15	!		0	✓	Rep 49h 35m	✓	✓	!	✿	✓			✗	LoS: 3
12	ALIJA	SMH (F) 80	0		1	19	!		1	✓	Rep 49h 49m	Img	✓	!	✿	✓			✗	LoS: 5
13	MCGG	MFS (F) 83	0	6.4	!	4	!	17	!	1	✓	Rep 49h 18m	Img	✓	!	✿	✓		✗	LoS: 6

Automate to use data collated elsewhere

- AKI
- Sepsis
- Severe Sepsis
- Diabetes
 - Type 1
 - Type 2
 - 'Brittle'
 - Ketone prone
- Sepsis screen
- AKI alert
- Diabetes alert
- ECHO

Sepsis

NEWS Score = 10 (as at 09-Oct-2017 00:50)

- 0** Temperature between 36 and 38 C **37 C**
- 1** Heart Rate > 90/min **140 /min**
- 1** Respiratory Rate > 20/min **22 /min**
- 0** NOT acutely altered Mental State **Alert**
-
- ?** WCC > 12 x 10⁹/L in last 6 hours Yes No No Result
- ?** WCC < 4 x 10⁹/L in last 6 hours Yes No No Result
- 0** Enter Blood Glucose (mmol/L) High (>33.3) Diabetic

SIRS Score = 2 (+)

- Could they have an infection?** Yes No Don't Know
- Currently treating for Severe Sepsis?** Yes No Don't Know

Outcome:

Patient currently being treated for Severe Sepsis - Checklist is not required.
Screening is complete

SEVERE Sepsis Checklist

	Yes	No	No Result
Lactate > 2.5 mmol/L	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urine Output < 0.5 mL/kg/hr for 2 hours or has an AKI Alert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Systolic BP < 90 mmHg (or decrease in patient's normal Systolic BP > 40 mmHg)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
New need for oxygen to keep SpO ₂ > 90 %	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
INR > 1.5 or APTT > 60s	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Platelets < 100 x 10 ⁹ /L, Billirubin > 34 umol/L	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Outcome:

Patient currently being treated for Severe Sepsis - Checklist is not required.
Screening is complete

View Obs

View Orders

Order Sepsis Bloods

View Results

Save and Close

Close

Save

Critical care outreach / Microbiologists

- View of Hospital possible for all with severe sepsis of High NEW score

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Chronic Conditions

- Co-morbidity diagnoses
- Reviewed each admission
- Any newly entered chronic conditions pull through
 - In order to improve care!

Co-morbidity review

NEWS **6** SIRS **2+** GLUC **7.7**

Check List

- ok VTE Risk Assessment
- ok Diagnosis
- ok Co-morbidity Review
- ok Allergies
- X Medications
- X Follow-Up Plan
- X Pathology Ack
- ok Radiology Ack
- X Nurse Notes Complete
- ok Med unfit
- X Sign Off

AMTS N/A

Select Diagnosis

Diagnoses : Chronic All

Find:

- 1st degree heart block
- 2:1 Heart Block (2nd Degree heart block)
- 2nd degree heart block
- AAA non rupture
- Acute ischaemic heart disease, unspecified
- Acute kidney injury, unspecified
- Acute myeloblastic leukaemia (AML)
- Acute subendocardial myocardial infarction
- Acute transmural myocardial infarction of anterior wall
- Acute transmural myocardial infarction of inferior wall
- Addison's disease (Primary adrenocortical insufficiency)
- Age-related Macular Degeneration (AMD) dry
- Age-related Macular Degeneration (AMD) wet
- Alcohol dependant
- Alcoholic liver disease - Cirrhosis
- Alcoholic liver disease, unspecified
- Allergic purpura (Henoch Schonlein)
- Alzheimer's disease
- Angina
- Angiography - 1 vessel disease
- Angiography - 2 vessel disease
- Angiography - 3 vessel disease
- Angiography - Left main stem stenosis
- Ankylosing spondylitis
- Aortic (valve) regurgitation (AR)
- Aortic Stenosis (AS)

Current Co-morbidities

Current Co-morbidities	Treated
Acute kidney injury, unspecified - Recorded: 27-SEP-2017	<input checked="" type="checkbox"/>
Chronic Kidney Disease (CKD) - Recorded: 27-SEP-2017	<input checked="" type="checkbox"/>
Oedema, unspecified - Recorded: 27-SEP-2017	<input type="checkbox"/>
DIABETES - Recorded: 08-APR-2014	<input type="checkbox"/>
Hypertension - Recorded: 13-FEB-2013	<input type="checkbox"/>
Obesity BMI>30 - Recorded: 19-JUL-2017	<input type="checkbox"/>
Type 2 Diabetes - Recorded: 13-FEB-2013	<input type="checkbox"/>

Reviewed Show Ended

Last Reviewed / Amended

Review Date	Reviewer	Reviewed As
27-SEP-2017 08:20:39	WARD, Helen, Dr	Inpatient
19-JUL-2017 09:36:52	THAKUR, Sachin, Dr	Inpatient
19-JUL-2017 09:36:43	THAKUR, Sachin, Dr	Inpatient

Chronic conditions linked to care processes

- COPD
- Heart Failure
 - Echo
 - Manual flag
- ESRF
 - Dialysis
 - Renal transplant
- Learning difficulties
- Parkinson's
- Dementia
- Vasculitis

Echo LVF HFSN

nt: No Patient Event Chosen

ed Order

Test Date Scanned By Reported By

at Apply) Consultant

Thoracic Transoesophageal Contrast Stress

Clinical Indication

Left Atrial volume ml

Right Heart

TAPSE mm

TR Pressure Drop mmHg

Est. PA Systolic mmHg

inc. RA Pressure

BSA

Height m Weight kg BSA

Aorta

Aortic Annulus mm

Sinus of Valsalva mm

Sino-tubular Junction mm

Proximal Asc. Aorta mm

Aorta

Aortic Doppler

Peak Aortic Velocity m/s

Peak Pressure Drop mmHg

LVOT Velocity m/s

Aortic Stenosis

Diastole mm Fractional Shortening %

Systole mm Volume Diastole ml

Thickness mm Volume Systole ml

Thickness mm Ejection Fraction %

/ Function

Mild left ventricular failure
Mild-moderate ventricular failure
Moderate ventricular failure
Moderate-severe left ventricular failure
Severe left ventricular failure

g Complete

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Diagnosis Filter

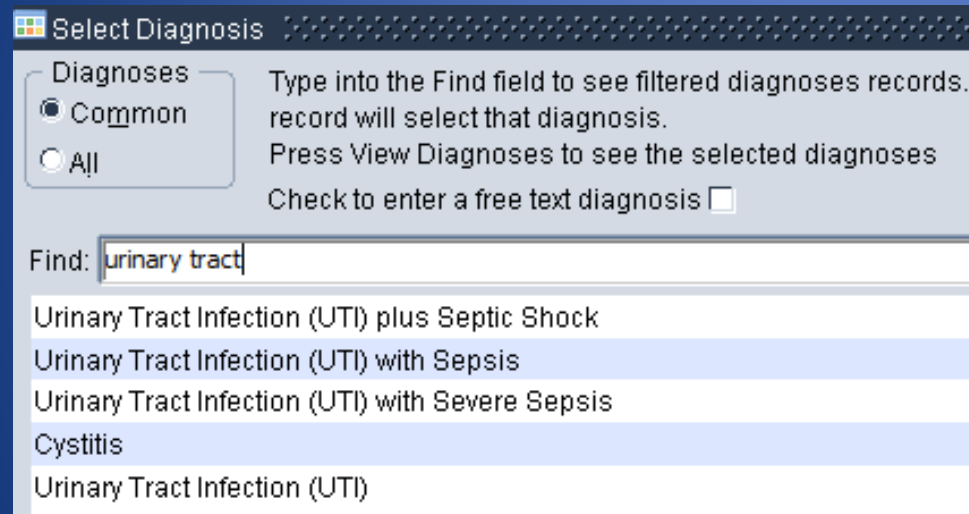
Find %

Description
Fractured Neck of Femur
Left Ventricular Failure

Find OK Cancel

Diagnosis

High adjusted mortality



Select Diagnosis

Diagnoses

Common

All

Type into the Find field to see filtered diagnoses records.
record will select that diagnosis.

Press View Diagnoses to see the selected diagnoses

Check to enter a free text diagnosis

Find:

- Urinary Tract Infection (UTI) plus Septic Shock
- Urinary Tract Infection (UTI) with Sepsis
- Urinary Tract Infection (UTI) with Severe Sepsis
- Cystitis
- Urinary Tract Infection (UTI)

Not finished

- Iterative process
- Ongoing feedback from specialties
- Linking procedures to chronic diagnoses
- Linking Acute diagnoses to ongoing chronic diagnoses
- Thanks to CHKS for the invite
 - It has re-invigorated our efforts!

THANK YOU
QUESTIONS?