Better Test=Better Flow

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2025 Diarrhoea Stats

Row Labels	Count of Organism Desc
Adenovirus type 40/41	50
Aeromonas sp	55
Astrovirus	79
Campylobacter sp.	674
Clost.difficile Toxin AB	206
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Rotavirus	138
Salmonella sp	49
Sapovirus	140
Shigella sp/EIEC	54
STEC	66
Vibrio cholerae	1
Yersinia sp	23
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Grand Total	**14701**

Why did the lab change method?

Testing strategies – Pre- 2022

TARGETED ENTERIC TESTING

Combination of:

- Culture
- ELISA
- Modular PCR

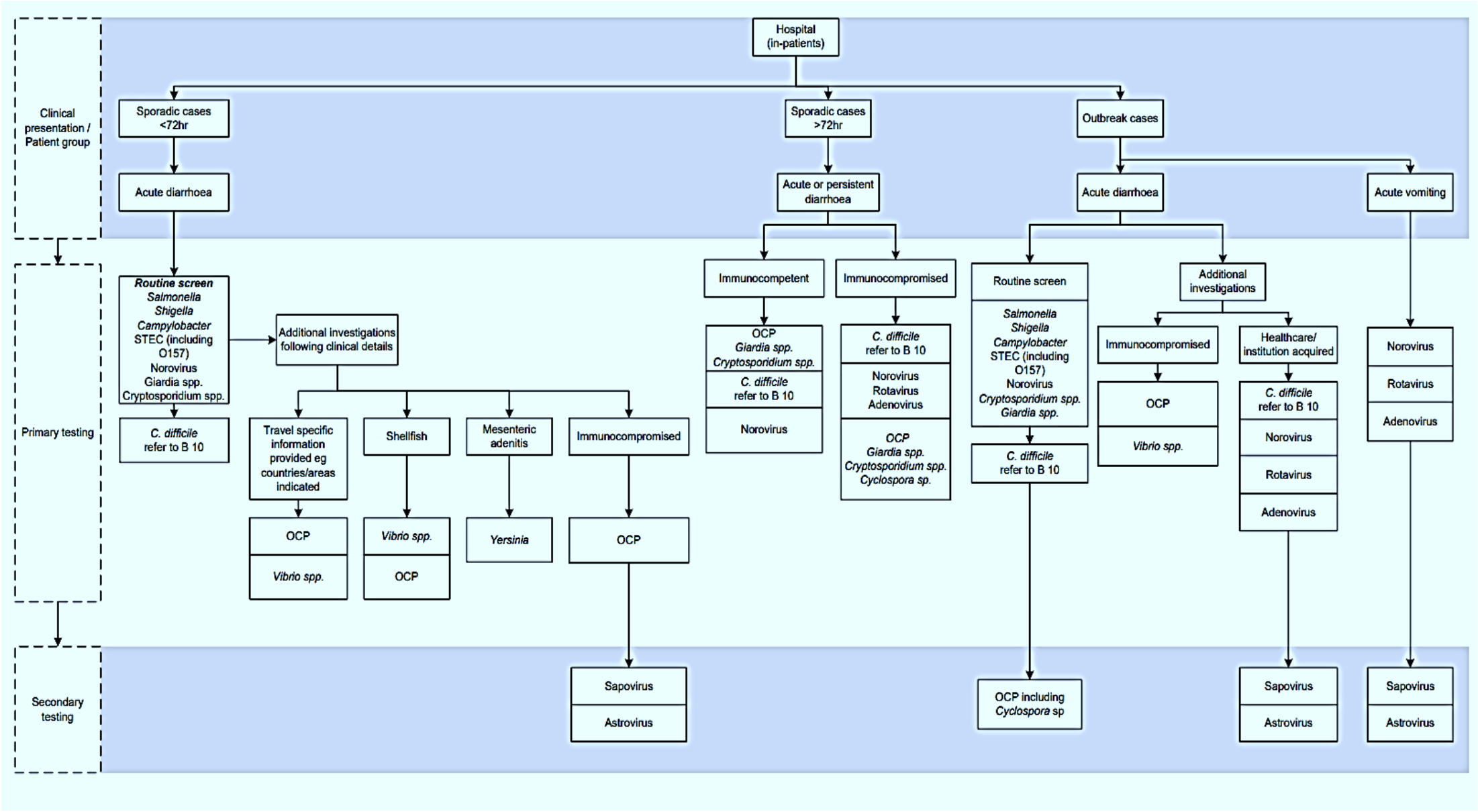
- ***previously adopted by BTH***

UK STANDARDS FOR MICROBIOLOGY INVESTIGATIONS – GASTROENTERITIS (S7)

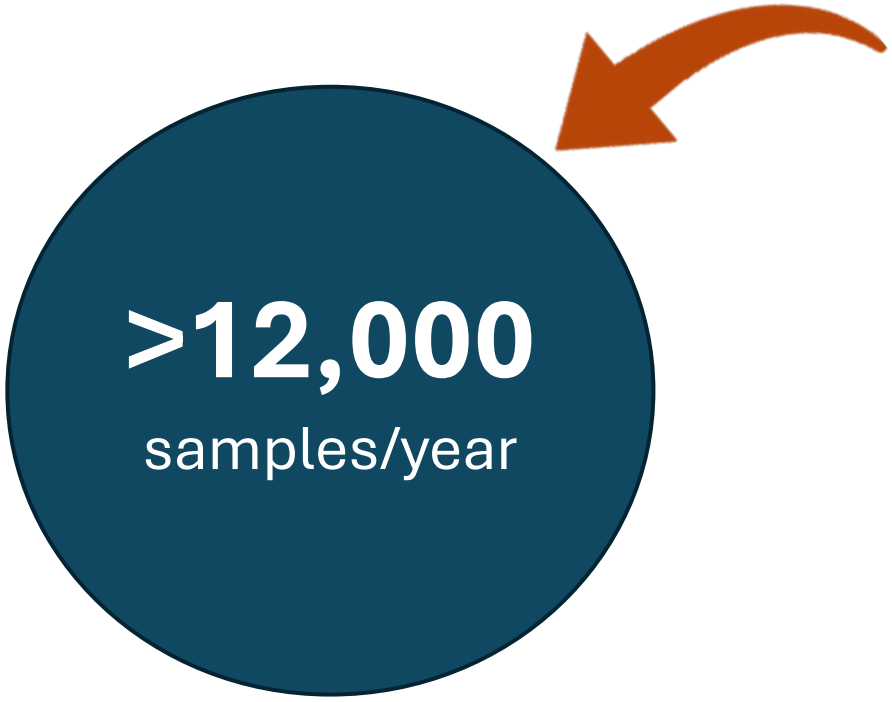
Testing Algorithm: Gastroenteritis in Hospital

S 7 | Issue number: 2.2 | Issue date: 08.10.24

Issued by UKHSA



UK STANDARDS FOR MICROBIOLOGY INVESTIGATIONS – GASTROENTERITIS (S7)



per 450,000 residents in catchment area

"Stool samples are usually collected and referred for investigation in the following situations:

- *when the clinician requires a microbiological diagnosis*
  - *when there is **persistent diarrhoea**/malabsorption*
  - *when there is **blood, mucous** or pus in the stool*
  - *the patient is **systemically unwell***
  - *when there is a history of recent **hospitalisation** or for inpatients as soon as infective diarrhoea is suspected*
  - *when there is a history of **antibiotic therapy***

- *when a **public health situation** requires sampling to be carried out*

- *when the patient is **immunocompromised***

- *when the patient has **travelled** within 14 days of symptoms onset"*

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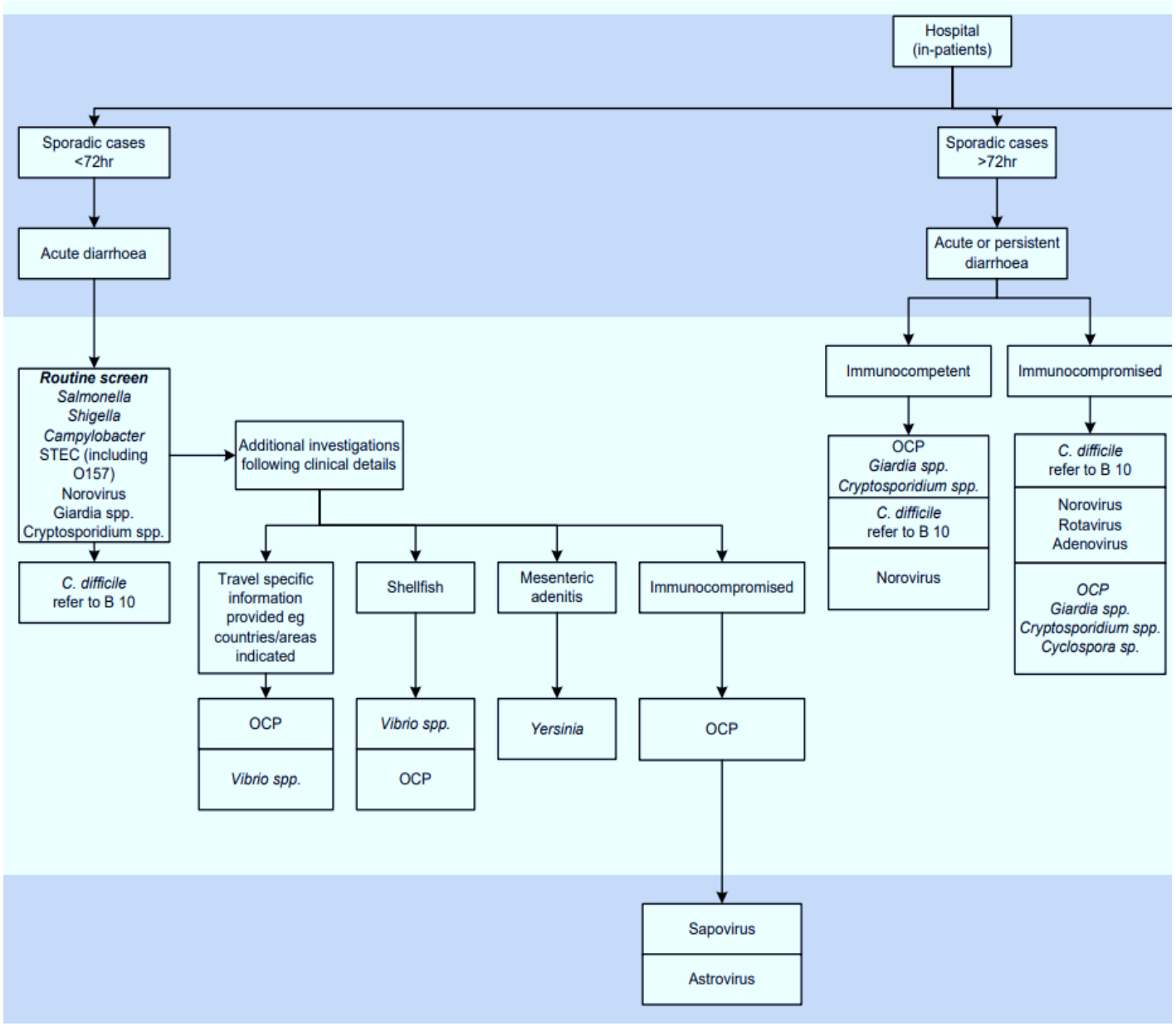

Conventional testing paradigm

Offer tests by pathogen type

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Triage accessions

Viral workflow

Bacterial workflow

Reporting ↔ **Send out for testing**

40% samples: min **2-3 actionable tests**
37% samples: min **3-4 actionable tests**
23% samples: min **4-5 actionable tests**

Appraisal of testing strategies – Pre 2022

40% samples: min **2-3 tests**
37% samples: min **3-4 tests**
23% samples: min **4-5 tests**

TARGETED ENTERIC TESTING

- Combination of culture, ELISA and Modular PCR - ***previously adopted by BTH***
- Modular PCR

CHALLENGE	CONSEQUENCE
☒ Complexity of implementing algorithm in laboratory	Batching and increased TATs
☒ Reliant on adequate provision of clinical details for supplementary tests	Missed or delayed diagnosis
☒ Overall low yield due to low sensitivity and narrow spectrum of pathogen cover	Low cost-effectiveness
☒ Patient status may change (e.g. community to in-patient)	Duplication and delay in testing

Testing strategies - Post 2022

PAN-ENTERIC PCR TESTING – *implemented by BTH in 2022*

A single actionable test (single process) for all samples that tested for the 24 most relevant pathogens

Viruses

- Adenovirus 40/41
- Astrovirus
- Enterovirus
- Norovirus GI
- Norovirus GII
- Rotavirus A
- Sapovirus

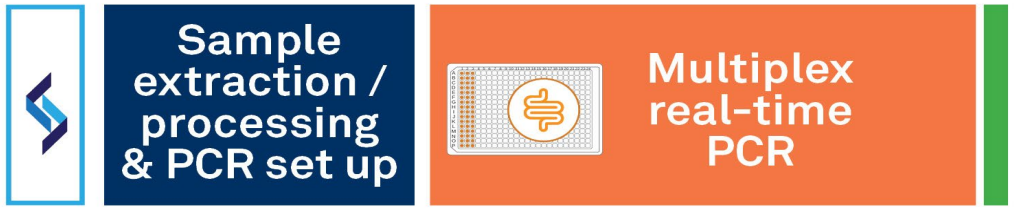
Parasites

- *Cryptosporidium* spp.
- *Entamoeba histolytica*
- *Giardia lamblia/intestinalis*

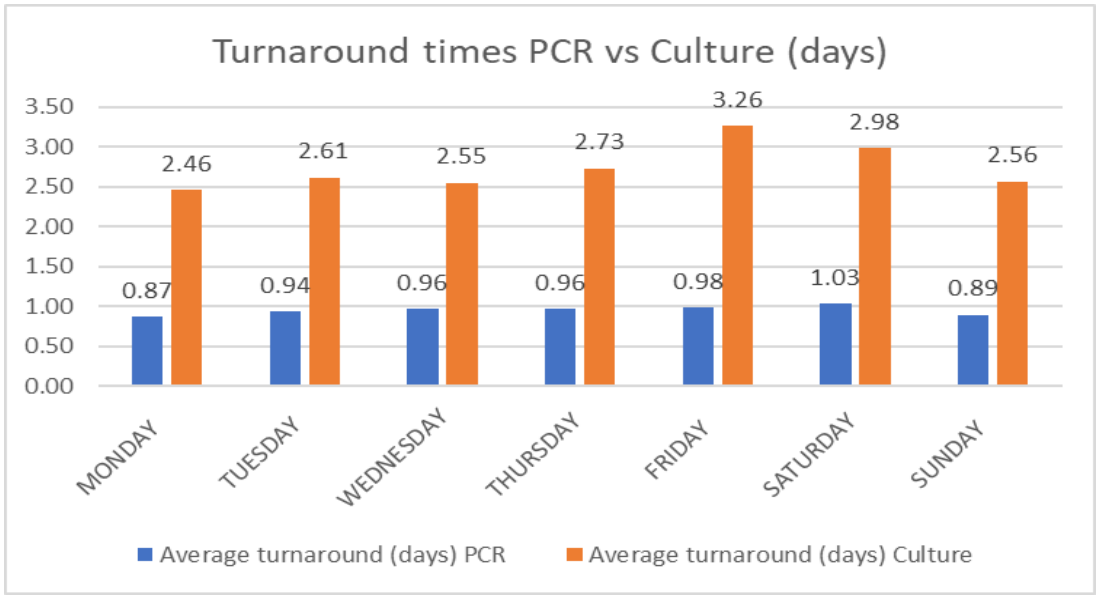
Bacteria

- *Aeromonas* spp.
- *Campylobacter* spp.
- *Clostridioides difficile (TcdA/B)*
- *E. coli - eaeA*
- *E. coli* Labile Toxin (LT)
- *E. coli* Stable Toxin (ST)
- *E. coli- stx-1*
- *E. coli- stx-2*
- *E. coli- 0157:H7*
- *Salmonella* spp.
- *Shigella* spp. / EIEC
- *Vibrio cholerae*
- *Vibrio* spp.
- *Yersinia* spp. *(excl. Y. pestis & Y. pseudotuberculosis)*

Better Test for the lab and Clinical decision makers



Example: 24 samples / run



Syndromic testing paradigm

Universal sample prep

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Multiple targets across viral, bacterial and parasitic pathogens (no reflex)

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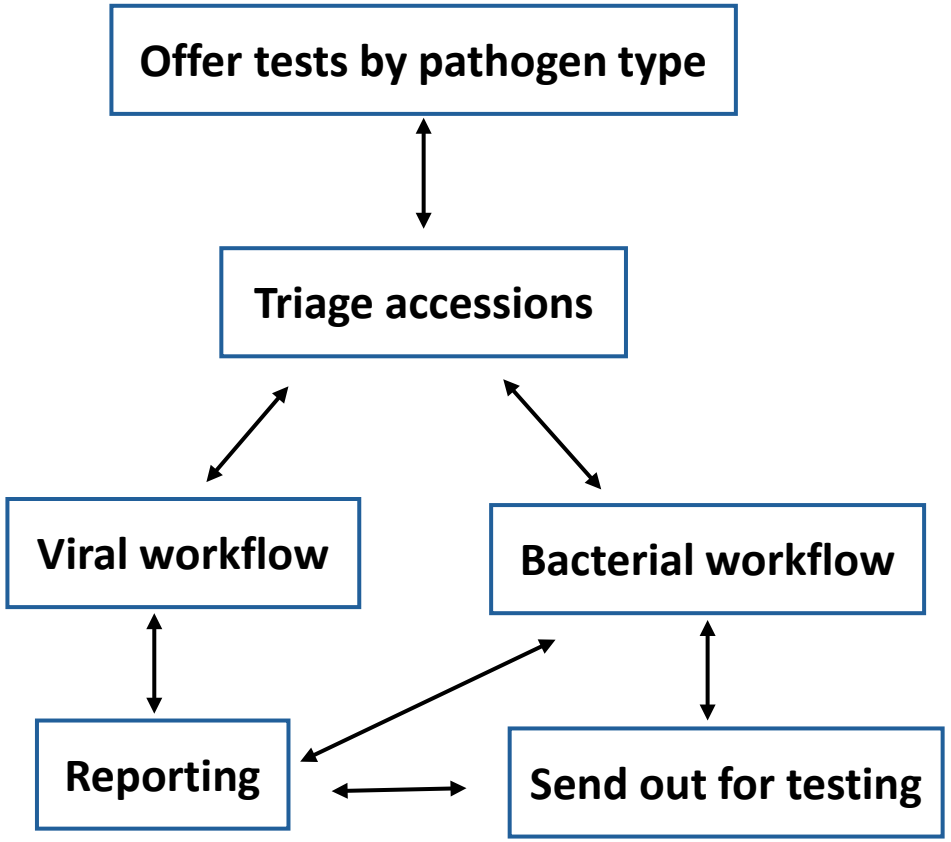
Faster, actionable results across syndromic panels

100% samples: **1 actionable test**

Better Test for the lab and Clinical decision makers

Conventional testing paradigm



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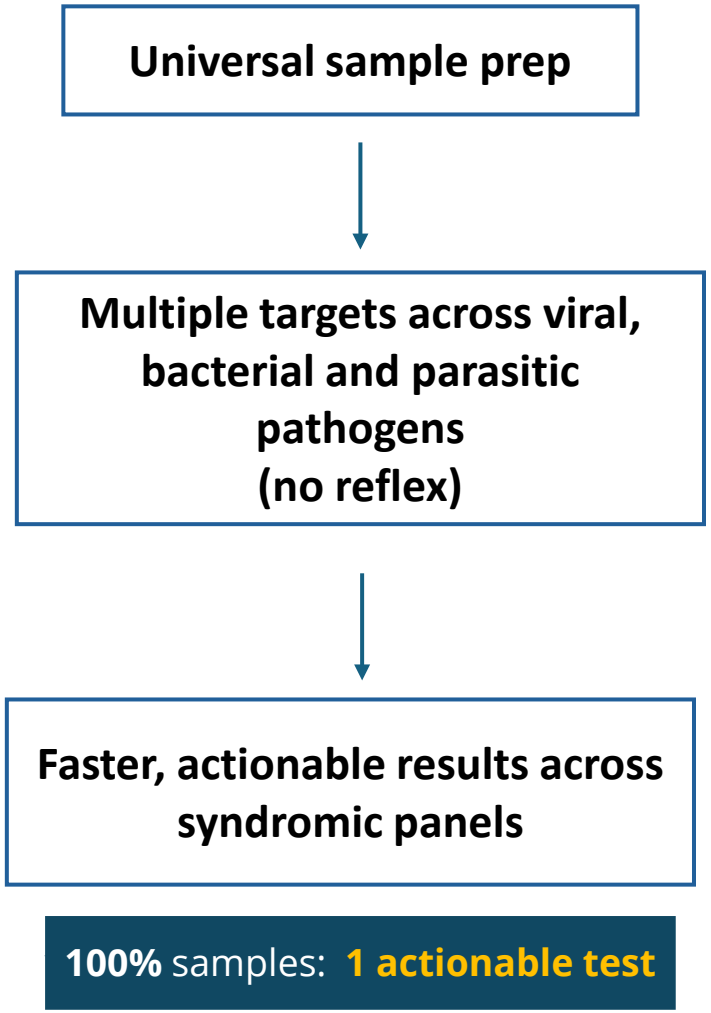
Better Test

Better Flow

Syndromic testing paradigm



100% samples: **1 actionable test**

BETTER FLOW

If patient develops diarrhoea

Proper placement

IPC precaution

Stool sample

Improved Patient Management

Patient Admission Management

- All patients presenting on admission with diarrhoea (Bristol Stool Chart 5-7) stool samples are referred for testing with Pan-Enteric Detection kit.
- At this point symptomatic patients are placed in side-room isolation awaiting result.
- Of the 24 pathogens routinely tested, IPC are interested in the following targets:
  - Toxigenic C-Diff
  - Norovirus

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(blank)	
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C. Difficile Management – Positive Result

All patients presenting on admission with diarrhoea (Bristol Stool Chart 5-7) stool samples are referred for testing with Pan-Enteric Detection kit.

- ✓ 24-48 hours Cdiff ward round with MDT (Microbiologist, IPCN, Antimicrobial Pharmacits,
- ✓ Continue IPC measures until 48 hours free of symptoms

IF 2 or more cases

- ✓ COHORT
- ✓ Enhanced cleaning- high touch areas
- ✓ Daily Enhanced IPC audit by IPNs
- ▪ Hand hygiene
- ▪ Environmental and equipment cleanliness
- ▪ B-B-E
- ▪ I & O documentation
- ▪ Daily check of stool chart
- ▪ Risk assess 1 day prior to completion of treatment

Reinforce IPC Best Practices

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Norovirus Management – Positive Result

All patients presenting on admission with diarrhoea (Bristol Stool Chart 5-7) stool samples are referred for testing with Pan-Enteric Detection kit.

IF 2 or more cases

- ✓ COHORT
- ✓ Enhanced cleaning- high touch areas
- ✓ Daily Enhanced IPC audit by IPNs
  - Hand hygiene
  - Environmental and equipment cleanliness
  - B-B-E
  - I & O documentation
  - Daily check of stool chart
- ✓ Continue IPC measures until 48 hours free of symptoms

Reinforce IPC Best Practices

NEGATIVE RESULTS

What’s Next

Patient-centred approach

- Clinician further risk assess – Factors that might be the cause of diarrohea
- Integrate clinical pathway
  - ✓ Refer to Gastro Team
  - ✓ Refer to a Nutritionist
  - ✓ Review Medication
  - ✓ History of travel 14 days prior to symptom onset
- Continue nursing in the SR if available
- Remove from the SR if needed for another patient with infection

Reinforce IPC Best Practices

Summary

Better Test (Multiplex Faecal PCR)

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Rapid Turnaround Time

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Improved Infection Control

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Detection of Co-infections

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Reduced Unnecessary Testing and Antibiotic Use

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Better Patient Flow


Thank You