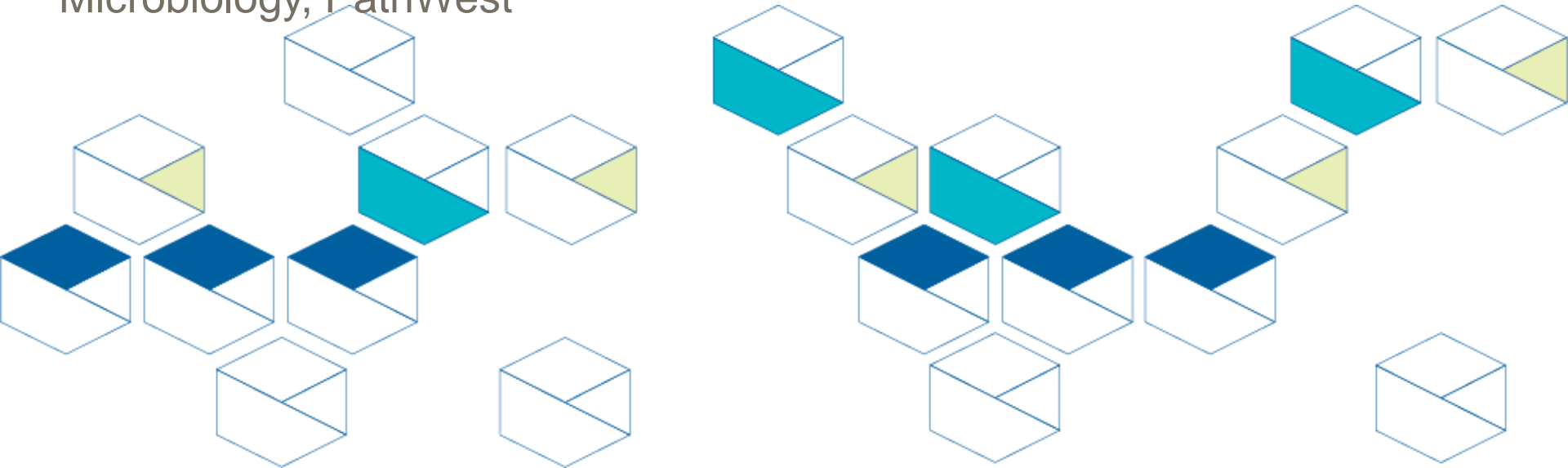




Government of **Western Australia**
South Metropolitan Health Service
Fiona Stanley Fremantle Hospitals Group

SMART Sepsis: Quality Microbiological Sample Collection

Hazel Inglis, SMHS Innovation Hub & Program Management Office
Dr Vida Wardhana, Consultant FSH Emergency Department
Dr Susan Benson, Associate Professor & Consultant Pathologist,
Microbiology, PathWest



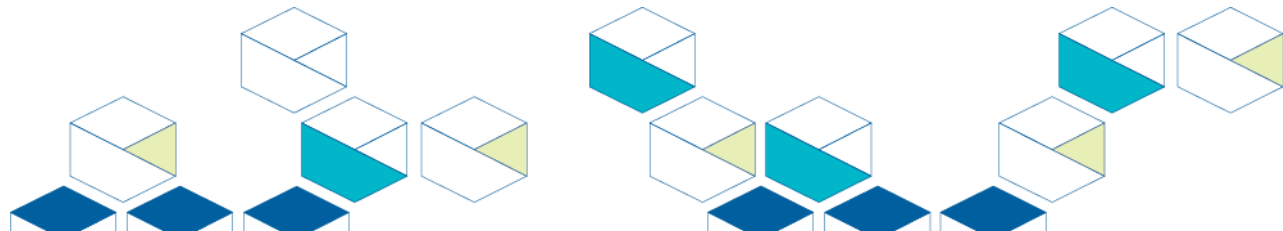
Project Video



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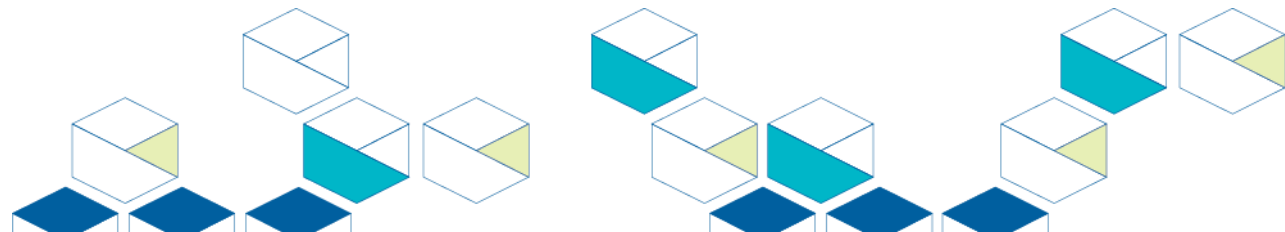


SMART SEPSIS



Background

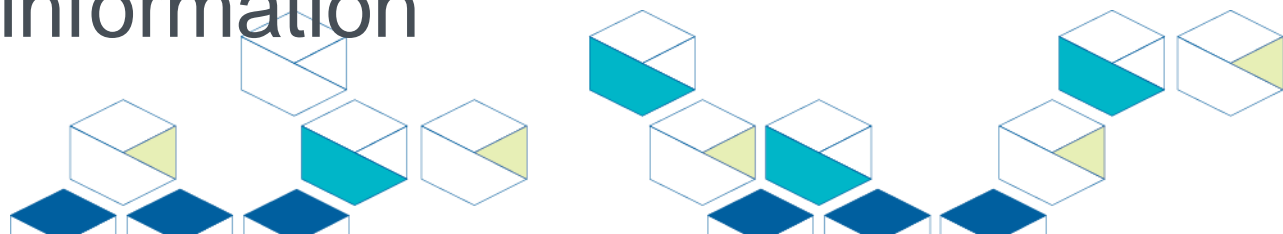
The FSH SMART Sepsis project aimed to assist the hospital and clinicians to achieve best practice microbiology testing and effective care pathways for patients with suspected infections.



Contributing Factors

Completion of a clinician survey (pre project)

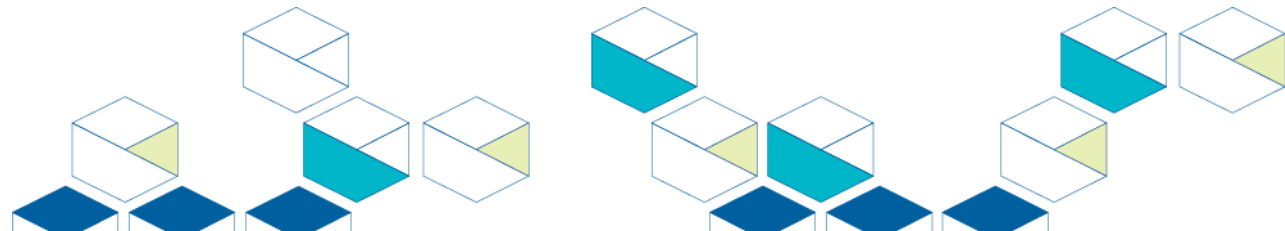
- No microbiology guidelines.
- Gaps in knowledge
- Systems issues;
 - Collection equipment ordered separately
 - Pathology ordering system
 - Quality parameters not monitored / reported
- No patient information



Project Objectives

The overarching SMART sepsis objectives were to;

- Reduce diagnostic errors
- Improve patient outcomes with timely diagnosis
- Reduce misuse of antibiotics
- Reduce diagnostic test costs
- Improve diagnosis and accurate clinical coding



Tools Developed



Specimen Collection for Diagnosis of Sepsis:
MSU, Wound Swabs and Blood Cultures



Short Videos:
MSU, Wound Swabs and Blood Cultures



Specimen Collection for Microbiology
Diagnostic Tests (**Staff Information**)



Collecting a Midstream Urine Sample to Diagnose
a Urinary Tract Infection (**Patient Guide**)

Blood Culture Video

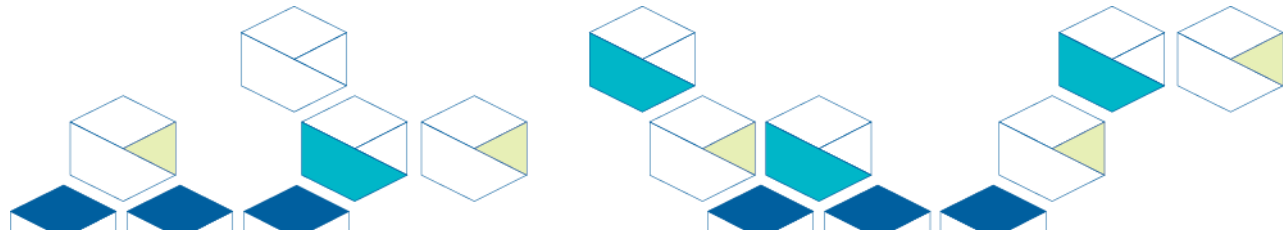


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SMART SEPSIS

Blood Culture Technique



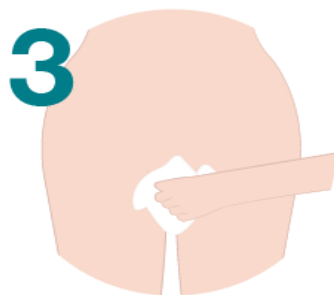
Collecting Mid Stream Urine (MSU) sample to diagnose bladder or urinary tract infection (not for STDs)



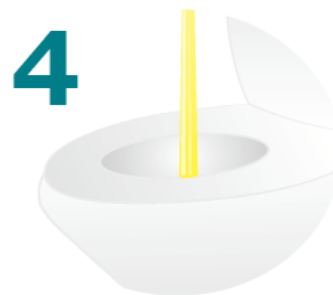
1 Wash your hands.



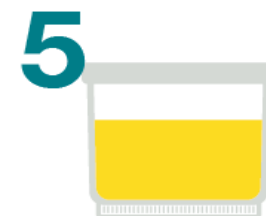
2 Open the container.
Do not touch the inside.



3 Wipe or wash before
passing urine.



4 Pass urine into toilet for
3 seconds, then stop.



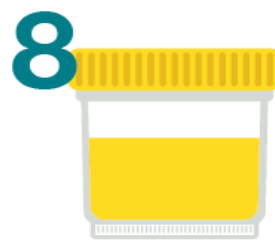
5 Collect the next 10-20ml,
then pass the rest into toilet.



6 Replace the lid.



7 Wash your hands.



8 Take the sample back to your doctor or nurse.



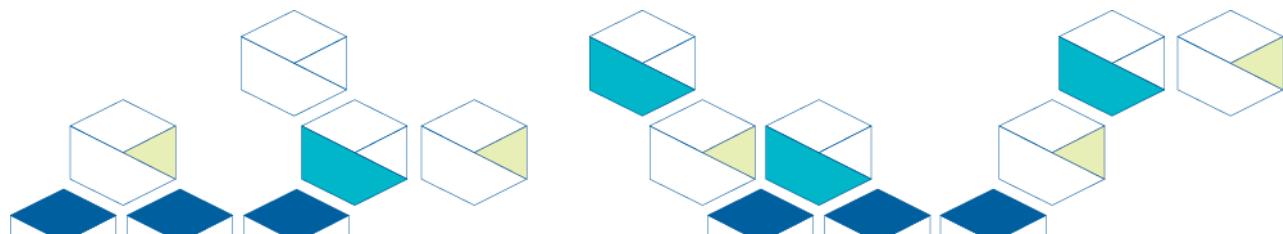
If you are collecting the sample at home – return the labelled specimen to the hospital or specimen collection centre within 4 hours and keep in the refrigerator in the meantime.

Endorsed by: Medical Advisory Group
Date Revised: 09 Aug 2017

Compiled by: SMART Sepsis PCG
Revision Due: 09 Aug 2018

Date of Issue: 09 Aug 2017
Version: 1.0

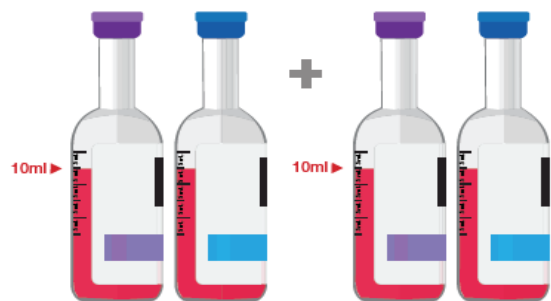
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Specimen Collection for Microbiology Diagnostic Tests

Appropriate indication and sample quality is critical. Collect prior to antibiotics wherever possible. Record on specimen container the patient name, UMRN, DOB, collection site (blood culture and wound swab), date and time of collection. Optimal laboratory analysis is dependant on clinical information provided with the request.

Blood Culture*



1. Appropriate indication: **Suspected blood stream infection.** Avoid unnecessary repeat testing e.g. if 2-3 sets were taken already in the previous 48-72 hours.
2. Equipment: Minimum 2 sets of bottles (i.e. 4 bottles), gloves, tourniquet, skin antiseptic.
3. **Collect minimum of 2 sets** (3 if endocarditis suspected); samples can be taken immediately after each other but must be collected from 2 separate venepuncture sites. **No need to wait for temperature spike.**
4. **Aseptic technique is critical.**
5. **Volume of blood: 10ml/bottle** i.e. draw 20mls for 1 set. Avoid under or overfilling.
6. Alcohol swab top of bottles and inoculate aerobic (blue) first, then anaerobic (purple).
7. **Repeat collection steps 3-7 for second and if indicated third blood culture set.**

*These recommendations apply to adults only.

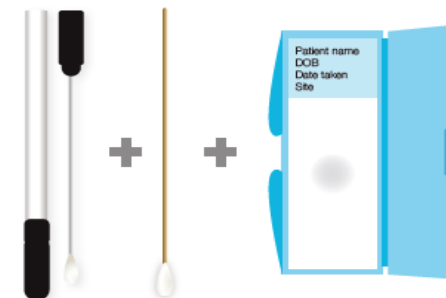
Urine Midstream Microscopy and Culture



1. Appropriate indication: **Only test if patient has urinary symptoms or specific clinical indication.** Do not use the test as a "test of cure".
2. **Provide the patient with instructions on how to collect the specimen.** If self collection is likely to be difficult due to cognitive or physical impairment – offer assistance or consider using an in-out catheter.
3. Avoid contamination by cleaning area before.
4. **Sample required is a midstream urine*:** Pass the first 20mls of urine into the toilet or pan; stop and collect the next 20 mls into the yellow top specimen container.
5. Send to laboratory without delay (<4hours max).
 - Patients with indwelling catheters wherever possible remove the existing catheter. This may be sufficient to resolve the infection without further testing. If indicated collect a midstream urine sample post removal or sample from the newly inserted catheter.

*First void sample is required for the diagnosis of sexually transmitted infection (chlamydia / gonorrhoea).

Wound Swab Microscopy and Culture



1. Appropriate indication: **Only test if clinical suspicion of infection. Do not test sites that just need cleaning.** Do not swab dry sites.
2. Equipment: 1 x dactron swab with carrier containing charcoal gel, 1 x cotton swab on wooden stick, 1 x glass slide and case +/- dressing pack with saline for cleaning.
3. If required **clean the surface of the site with normal saline** to remove colonising surface organisms that may contaminate the sample.
4. **Collect the purulent material from the wound using the plastic dactron swab then insert into the carrier tube with charcoal gel.**
5. **Use the wooden swab stick to collect more clinical material which is then smeared (1-2 cm diameter circle) in the centre of the clear section of the glass slide (frosted side up).** Place in slide carrier.
6. Ensure **swab, slide container and request form identifies the specific anatomical site the sample was taken from and the form has relevant clinical history** ("swab", "burn" or "infection" is insufficient).

Note: Blood, urine and wound swabs are used to diagnose infection NOT infection control screening tests.

Quality Indicators

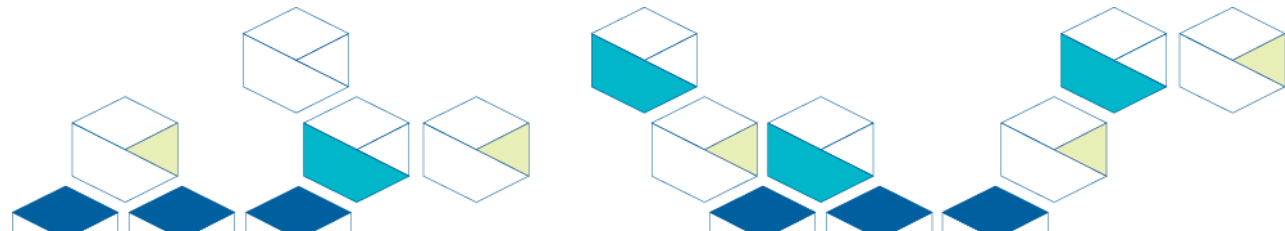
Suggested specific targets;

- 75% of patients that have blood cultures have more than 1 set collected (defined as same day)
- Blood culture contamination rates < 3% with goal to achieve best practice of 0.6%
- Blood culture bottle fill rates (9.5 – 10.5mls / bottle)
- 80% mid-stream urine samples < 10 epithelial cells
- 95% of wound swabs collected as per guidelines (correct swab used with slide smear sufficient for microscopy) > 90% of wound swabs are labelled with specific site



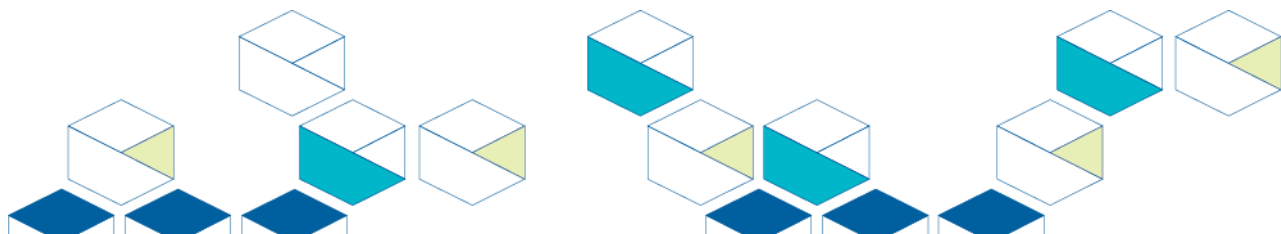
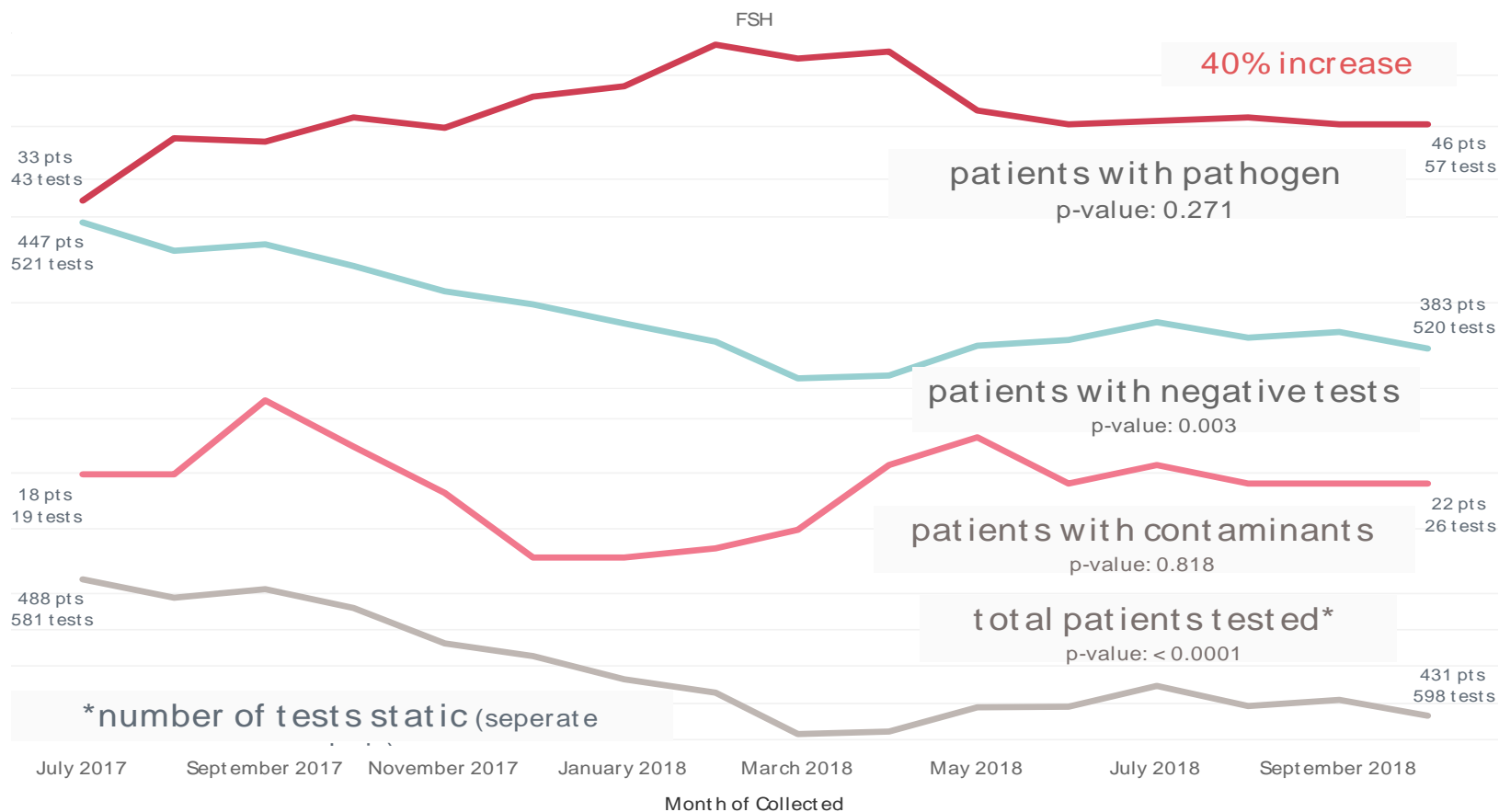
Implementation FSH ED

- Education – Videos shown to nurses and all doctors, reinforced by educators
- Videos made available on FSH Hub, FSH ED home page and website
- MSU posters placed in all patient toilets

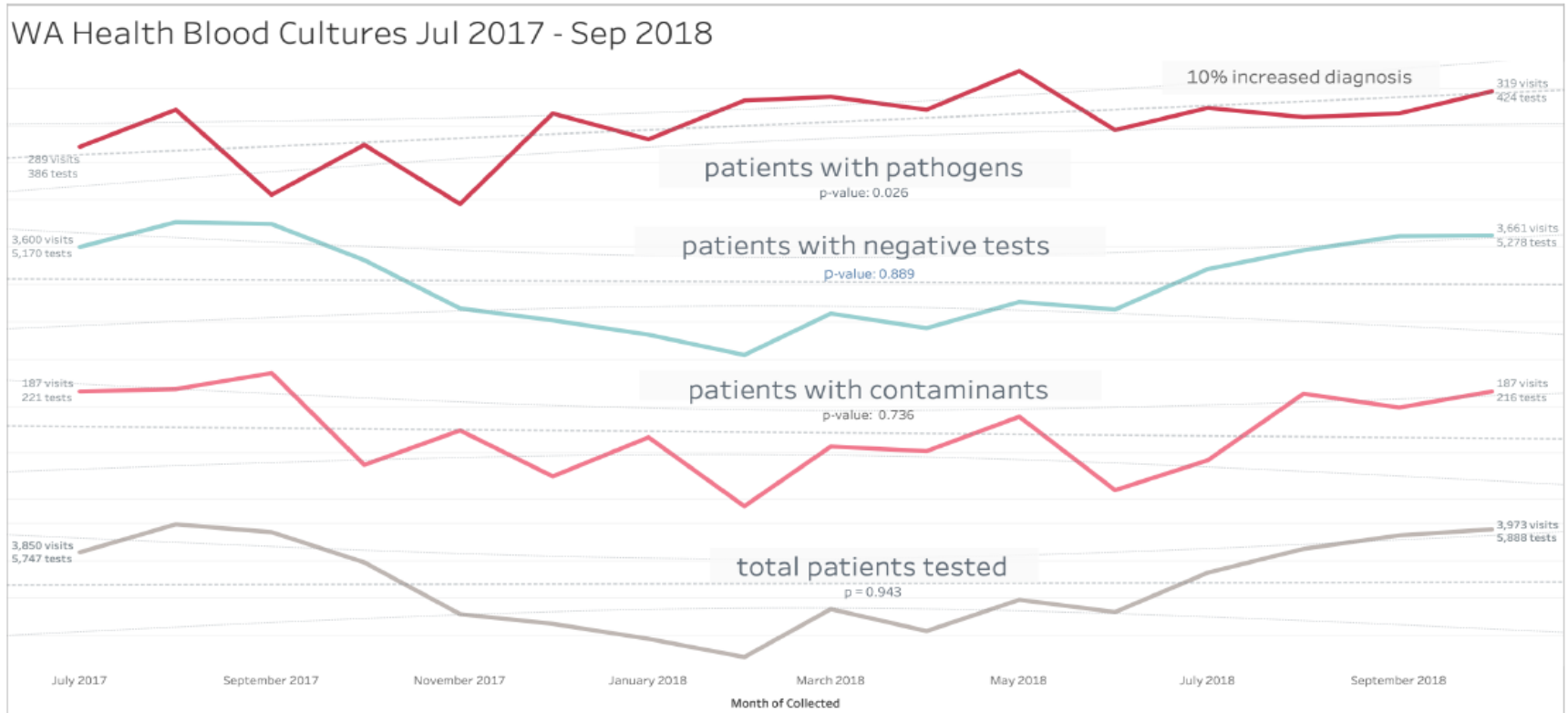


FSH ED Blood Cultures (adults)

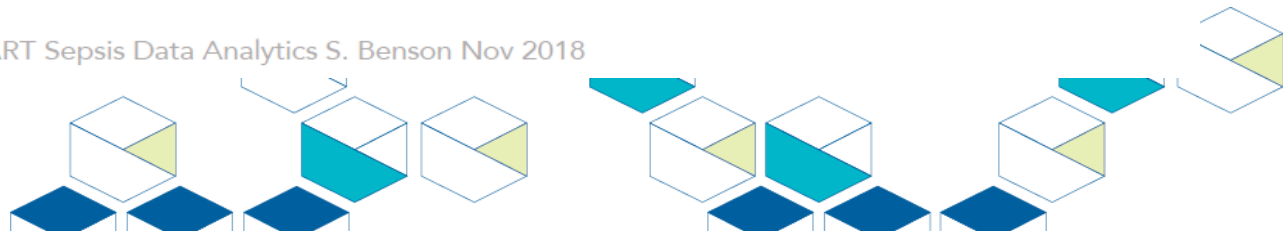
July 2017- Oct 2018



WA Health Blood Cultures



SMART Sepsis Data Analytics S. Benson Nov 2018



Lessons Learned

Key Stakeholders

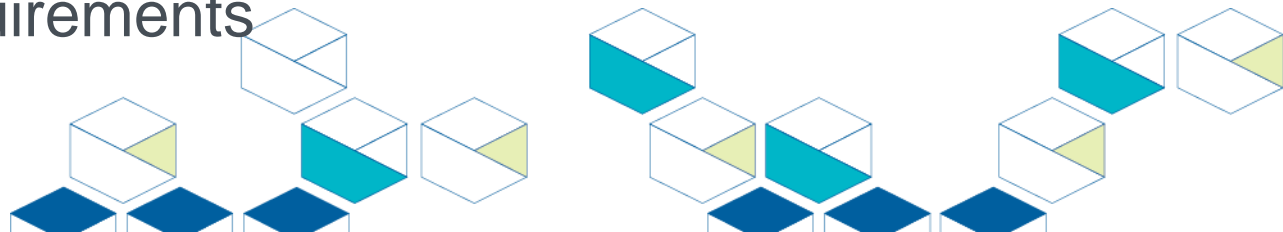
- ❖ Collaboration / cohesiveness / coordination
- ❖ Flexible informal and formal meetings
- ❖ Safe team discussions around identified risks

Organisational Change

- ❖ Time, patience, dedication & teamwork
- ❖ Low Effort Interventions with 3 Depts
- ❖ Philosophy 'Getting it right first time' established the foundations to now expand across SMHS

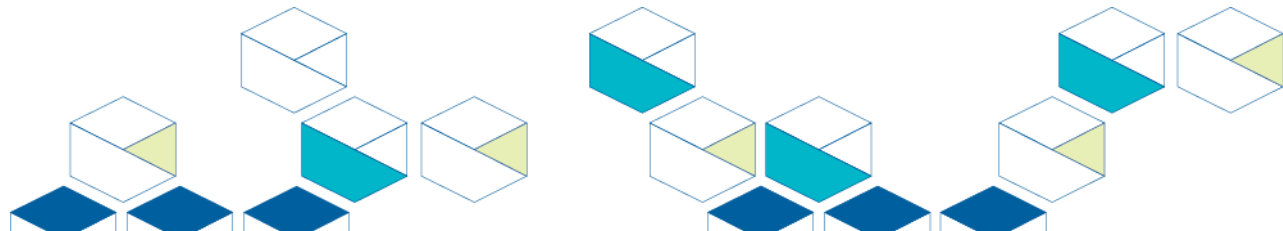
Data Analytics

- ❖ Access data
- ❖ Available expertise
- ❖ Training requirements



Ongoing Sustainability

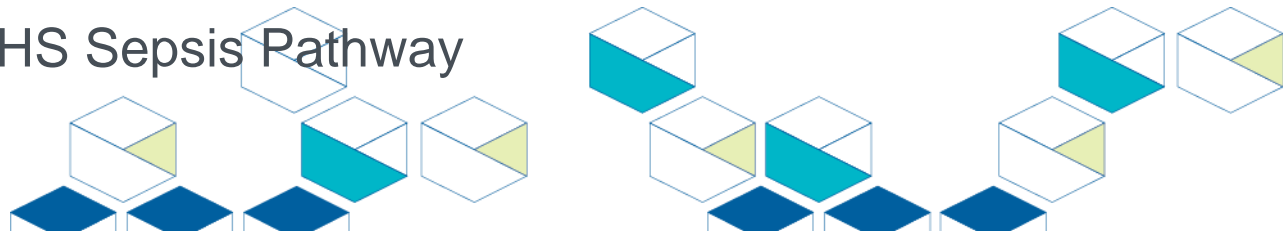
- Quality Indicators
- Monthly Data Reports
- Educational Tools
- Quick Guides
- Champions
- Support



Next Steps

Phase 2 (Key Deliverables):

- Benefit Realisation of Phase 1
- Sepsis Recognition Tool
- Improve Quality Indicators & Transparent Data
- Develop & Implement a SMHS Education Program
- Progress Consumer Involvement
- Development SMHS Sepsis Pathway



Questions

