PRINTABLE CLINICAL WORKING PACK • POST 2111
Current version — Nov 1, 2026. Update history: https://healthcarefacilityhub.org/does-offset-drain-cut-splash-hospital-handbasin/

1. EXECUTIVE WALK-THROUGH FRAMEWORK & INSPECTION PROTOCOL

Water ICRA Logic • Zero Instrument Requirement

WHY CLINICAL HANDBASIN AUDITS FAIL WITHOUT METHOD

Clinical handbasins are integrated water-and-wastewater systems. Microbes accumulate in faucets, trap reservoirs, and waste piping. When high-velocity water impacts a contaminated surface, splashing aerosolizes pathogens onto surrounding surfaces.

- **Guideline Confusion:** Review of 39 countries (Todarello et al., 2026, *J. Hosp. Infect.*) showed widespread disagreement; only 8 nations consider basin shape.
- **The 30-Fold Difference:** Public Health England (Aranega-Bou et al., 2019, *J. Hosp. Infect.*) established rear-draining offset basins dispersed almost 30-fold fewer CRE bacteria than drain-under-tap sinks under slow drainage.
- **Unit Pattern vs Single Ticket:** One slow sink is a plumbing ticket. An entire wing of slow, pooling sinks is a capital replacement project.

FACILITY INSPECTION METADATA

Facility / Campus:	_____
Clinical Unit / Ward:	_____
Survey Lead & Title:	_____
Inspection Date:	___ / ___ / 2026 Shift: [ ] Day [ ] Evening
Target Cohort:	[ ] Oncology [ ] ICU/NICU [ ] Transplant [ ] Med-Surg

2. THE 6-CHECK CORE DIAGNOSTIC ARCHITECTURE

Standardized Field Execution Rhythm

Inspection Step	Diagnostic Observation	Underlying Peer-Reviewed Evidence	Field Disposition
Check 1: Stream Landing	Run tap at normal pressure. Does column strike drain directly or hit sloped ceramic?	Direct strike generates droplets and aerosols. Offsetting reduces aerosolization.	Flag direct strikes for high-priority splash dampening.
Check 2: Clearance Speed	Time basin clearing after standard wash cycle. Does water evacuate in <3 seconds?	Slow drainage was worst condition in PHE model (30-fold dispersal differential).	Immediate plumbing maintenance ticket to clear waste lines.
Check 3: Pooling / Level	Inspect basin floor post-closure. Standing puddles on flats or around offset drain?	Unlevel offset basins pool standing water, cultivating *Pseudomonas* biofilms.	Check mounting bracket level; log for re-hang or replacement.
Check 4: Bowl Curvature	Evaluate bowl depth and profile: deep curved vs shallow flat surface?	Shallow flat basins produce wider bioaerosol dispersal beyond basin perimeter.	Log shallow profiles into facility capital replacement master spec.
Check 5: 1m Splash Zone	Measure 100 cm radius around rim. Are supplies, charts, or beds present?	PHE study proved droplet splash travels up to 1 metre multidirectionally.	Immediate operational decant: relocate all stored items outside 1 m.
Check 6: Fixture Integrity	Inspect aerators (scaling/debris), drain grates (corrosion), and biofilm stains.	Degraded fixtures and aerator grids trap heavy bacterial biomass.	Log cleaning frequency and replace damaged mechanical covers.

SURVEYOR EXECUTION INSTRUCTIONS

Do not shut down water service or disassemble plumbing. Audit fixtures under real-world clinical usage. Carry a tape measure (for the 1-metre splash perimeter), a stopwatch/phone timer (for drainage clearance), and a torpedo spirit level (to detect out-of-level mounting causing offset drain pooling). Use Sheets 2–6 for recording.

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3. THE 6-CHECK CLINICAL WALK-THROUGH INSPECTION CHECKLIST

Detailed Verification Criteria • Fillable Log

Check & Parameter	Standard Field Pass Criteria	Observed Condition / Measured Finding	Disposition
Check 1: Stream Landing *Tap Outlet vs Waste Aperture*	Water column discharges onto sloped ceramic basin wall. Zero direct impact onto waste aperture or drain grate.	Stream hits: [ ] Center Drain [ ] Rear Offset [ ] Side Offset Direct drain strike? [ ] Yes [ ] No Impact distance from drain: _____ cm	[ ] PASS (Offset) [ ] FAIL (Direct) [ ] CRITICAL (ICU)
Check 2: Clearance Speed *Hydraulic Evacuation Rate*	Full drainage volume clears promptly (<3 seconds). Zero standing water head or sluggish swirling in bowl.	Clearing time post-wash: _____ seconds Backwater observed? [ ] Yes [ ] No Trap gurgling / slow draw? [ ] Yes [ ] No	[ ] PASS (<3s) [ ] SLOW (3–8s) [ ] BLOCKED (>8s)
Check 3: Pooling / Level *Post-Tap Closure Inspection*	100% dry drainage post-closure. Zero residual puddles on flat floor sections or surrounding offset aperture.	Standing water puddle? [ ] Yes [ ] No Location: [ ] Basin flat [ ] Around drain [ ] Back ledge Torpedo level reading: [ ] Level [ ] Pitched forward/back	[ ] PASS (Dry) [ ] POOLING [ ] RE-LEVEL REQ
Check 4: Bowl Curvature *Depth and Internal Slope*	Deep contoured bowl profile with continuous slope to waste. Absence of flat shallow floors that reflect droplets.	Bowl depth: [ ] Deep (>18 cm) [ ] Medium [ ] Shallow (<14 cm) Bottom profile: [ ] Curved/Contoured [ ] Flat surface Wall curvature: [ ] Steep [ ] Low-angle slope	[ ] COMPLIANT [ ] DEFICIENT [ ] SPEC CAPITAL
Check 5: 1m Splash Zone *100 cm Radial Envelope*	Zero clinical consumables, sterile packaging, chart holders, or patient beds located within 100 cm of rim.	Items within 1 metre: [ ] Dressings/Gauze [ ] Med prep [ ] Charts [ ] Patient bed Distance to nearest vulnerable asset: _____ cm	[ ] CLEAR (1m) [ ] VIOLATION [ ] DECANT REQ
Check 6: Fixture Integrity *Component Aeration & Biofilm*	Laminar flow device (non-aerated), secure uncorroded drain cover, zero visible biofilm slime or mineral scale.	Aerator present? [ ] Yes [ ] No (Laminar: [ ]) Drain cover: [ ] Clean [ ] Corroded [ ] Missing Visible biofilm discoloration? [ ] Yes [ ] No	[ ] SATISFACTORY [ ] DESCALING [ ] REPLACE PARTS

SURVEYOR ASSESSMENT SUMMARY

Basin Identifier / Room #: _____
Overall Disposition: [ ] Fully Compliant [ ] Maintenance Required [ ] Immediate Decant [ ] Capital Replacement
Notes:
_____

SIGN-OFF & ROUTING

Inspector Signature: _____
Facility Work Order # (if filed): _____
Copy Dispatched to: [ ] Plant Ops [ ] Infection Prevention [ ] Ward Lead

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4. BASIN-BY-BASIN CLINICAL SURVEYOR MASTER LOG

Unit-Level Multi-Fixture Inspection • 10-Basin Multi-Row Register

Basin ID / Room	Drain Position	Clearance Speed	Pooling / Level	Bowl Profile	1m Splash-Zone Contents	Fixture Cond.	Action
Ex: ICU-104	Direct strike (under)	Sluggish (4.8s)	Standing water flat	Shallow (12cm)	Open gauze box (45cm), IV pole (80cm)	Scale on grate	REPLACE
1. _____	[ ] Under [ ] Offset	___ sec [ ] Slow	[ ] Dry [ ] Pools	[ ] Deep [ ] Shallow	_____	[ ] OK [ ] Scale	[ ] Plumb [ ] Cap
2. _____	[ ] Under [ ] Offset	___ sec [ ] Slow	[ ] Dry [ ] Pools	[ ] Deep [ ] Shallow	_____	[ ] OK [ ] Scale	[ ] Plumb [ ] Cap
3. _____	[ ] Under [ ] Offset	___ sec [ ] Slow	[ ] Dry [ ] Pools	[ ] Deep [ ] Shallow	_____	[ ] OK [ ] Scale	[ ] Plumb [ ] Cap
4. _____	[ ] Under [ ] Offset	___ sec [ ] Slow	[ ] Dry [ ] Pools	[ ] Deep [ ] Shallow	_____	[ ] OK [ ] Scale	[ ] Plumb [ ] Cap
5. _____	[ ] Under [ ] Offset	___ sec [ ] Slow	[ ] Dry [ ] Pools	[ ] Deep [ ] Shallow	_____	[ ] OK [ ] Scale	[ ] Plumb [ ] Cap
6. _____	[ ] Under [ ] Offset	___ sec [ ] Slow	[ ] Dry [ ] Pools	[ ] Deep [ ] Shallow	_____	[ ] OK [ ] Scale	[ ] Plumb [ ] Cap
7. _____	[ ] Under [ ] Offset	___ sec [ ] Slow	[ ] Dry [ ] Pools	[ ] Deep [ ] Shallow	_____	[ ] OK [ ] Scale	[ ] Plumb [ ] Cap
8. _____	[ ] Under [ ] Offset	___ sec [ ] Slow	[ ] Dry [ ] Pools	[ ] Deep [ ] Shallow	_____	[ ] OK [ ] Scale	[ ] Plumb [ ] Cap
9. _____	[ ] Under [ ] Offset	___ sec [ ] Slow	[ ] Dry [ ] Pools	[ ] Deep [ ] Shallow	_____	[ ] OK [ ] Scale	[ ] Plumb [ ] Cap
10. _____	[ ] Under [ ] Offset	___ sec [ ] Slow	[ ] Dry [ ] Pools	[ ] Deep [ ] Shallow	_____	[ ] OK [ ] Scale	[ ] Plumb [ ] Cap

PATTERN ANALYSIS DIAGNOSTIC THRESHOLDS

Single Bad Actor (Plumbing Ticket): Isolated fixture with slow drain due to localized hair/soap trap occlusion, or loose mounting bolt causing tilt.
Unit-Wide Failure (Capital Project): >30% of basins on a ward wing share slow drainage (aging communal waste branch) or shallow flat geometry. Triggers wholesale capital refurbishment spec.

SURVEYOR VERIFICATION SIGN-OFF

Total Basins Inspected: _____ Direct Strikes: _____ Sluggish Clear: _____
Pooling Basins: _____ Splash Violations: _____ Capital Tags: _____
Verified by Facility Manager: _____ Date: _____

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5. 1-METRE SPLASH-ZONE INVENTORY & ASSET CLEARANCE REGISTER

Dispersal Containment • 100 cm Radial Boundary Audit

The Aerodynamic Droplet Boundary: The Public Health England model demonstrated contaminated water droplets disperse up to 100 cm (1.0 m) from sink rims. Any item stored within this radius is subject to multidirectional aerosol deposition. Clearance is the fastest non-capital risk mitigation.

Room / Basin ID	Vulnerable Item Identified	Measured Distance	Item Material Risk	Required Move-Out Fix	Status
Ex: ICU-12	Sterile catheter kit / gauze	42 cm from rim	Porous packaging	Relocate to closed wall cabinet >1.2m away	MOVED
1. _____	_____	_____ cm	[ ] Porous [ ] Plastic [ ] Metal	_____	[ ] Pending [ ] Done
2. _____	_____	_____ cm	[ ] Porous [ ] Plastic [ ] Metal	_____	[ ] Pending [ ] Done
3. _____	_____	_____ cm	[ ] Porous [ ] Plastic [ ] Metal	_____	[ ] Pending [ ] Done
4. _____	_____	_____ cm	[ ] Porous [ ] Plastic [ ] Metal	_____	[ ] Pending [ ] Done
5. _____	_____	_____ cm	[ ] Porous [ ] Plastic [ ] Metal	_____	[ ] Pending [ ] Done
6. _____	_____	_____ cm	[ ] Porous [ ] Plastic [ ] Metal	_____	[ ] Pending [ ] Done
7. _____	_____	_____ cm	[ ] Porous [ ] Plastic [ ] Metal	_____	[ ] Pending [ ] Done
8. _____	_____	_____ cm	[ ] Porous [ ] Plastic [ ] Metal	_____	[ ] Pending [ ] Done

ASSET VULNERABILITY MATRIX (PHE LABORATORY MODEL)

Category	Dispersal Impact	Mitigation Rule
Open Consumables	Gauze, dressings, tongue depressors.	Strict 1-metre zero-storage perimeter. Store in sealed overhead bins.
Medical Devices	IV poles, infusion pumps, monitors.	Maintain >100 cm separation or install cleanable impervious splash guard.
Patient Care Zone	Patient bed, bedside tray, linen hamper.	Re-orient patient bed headwall >1.5m away from clinical handwashing sink.

WARD LEAD MOVE-OUT VERIFICATION

"I confirm that all clinical supply racks, chart holders, and medication prep trays within the 1-metre splash envelope of the basins listed above have been audited, and high-risk consumables have been decanted to compliant secondary storage locations."

Ward Lead / Clinical Nurse Specialist: _____
Infection Prevention Nurse: _____ Date: _____

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6. OUT-OF-LEVEL POOLING & HYDRAULIC DIAGNOSTIC WORKSHEET

The Spec-Sheet Trade-Off • Biofilm Colonization Risk

The Flinders Group Biofilm Warning: Research by Todarello et al. notes offset drains eliminate direct stream strike, but can create a severe pooling problem when installed out of level. Residual standing water converts the basin floor into an incubation zone for high relative abundances of *Pseudomonas* and *Stenotrophomonas*.

STEP-BY-STEP LEVEL & DRAWDOWN DIAGNOSTIC

- **Step 1: Visual Dryness Check:** Allow basin to sit untouched for 10 minutes post-handwash. Inspect floor using penlight for standing meniscus or puddle.
- **Step 2: Torpedo Spirit Level Measurement:** Place level across basin rim (front-to-back and side-to-side) and across internal floor flat section. Record bubble deviation.
- **Step 3: Timed Drawdown Test:** Pour 1.0 litre of clean water along perimeter. Time complete discharge to zero standing puddle. Standard: <3.0 seconds.
- **Step 4: Puddle Area Mapping:** If water pools, record puddle diameter and location (e.g., surrounding offset aperture, front lip, side corner).

PLUMBING & LEVEL DIAGNOSTIC LOG

Basin ID / Room:	_____
Rim Level (Front-Back):	[ ] Level [ ] Pitched forward [ ] Pitched back
Rim Level (Left-Right):	[ ] Level [ ] Low left [ ] Low right
1-Litre Drawdown Time:	_____ seconds (Threshold: <3.0s)
Standing Puddle Size:	Diameter: _____ cm Depth: _____ mm
Biofilm Presence:	[ ] None [ ] Visible film [ ] Discolored ring

7. REMEDIATION DECISION LOGIC FOR OUT-OF-LEVEL BASINS

Correction vs Re-Mount vs Replacement

Diagnostic Finding	Root Engineering Cause	Required Corrective Intervention	Follow-Up Rhythm
Bracket Sag / Tilt	Loose wall anchors or un-shimmed wall carrier bracket.	Plumber resets mounting carrier; shims bracket to true level; re-torques hardware.	Re-test drawdown 24h post-adjustment.
Manufacturing Floor Flat	Casting defect: flat or concave ceramic floor trap.	Cannot be adjusted on bracket. Mark basin for replacement with contoured curved bowl.	Log on facility replacement schedule.
Waste Branch Backpressure	Partial trap occlusion or undersized waste tailpiece.	Mechanically snake waste branch; clear trap; descale tailpiece pipework.	Weekly timed clearance check.
Heavy Biofilm Slime Ring	Persistent standing water pooling over multiple months.	Enforce Australian twice-daily detergent wash down; mechanical debridement.	Daily infection control monitoring.

FACILITY PLUMBER ACTION SIGN-OFF

Work Performed: [ ] Bracket Re-Level [ ] Wall Shims Installed [ ] Trap Cleaned [ ] Deemed Defective Ceramic
Post-Work Drawdown Clearance Time: _____ seconds Standing Pool Eliminated? [ ] Yes [ ] No
Licensed Plumber Signature: _____ License #: _____ Date: _____

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8. KEEP VS. REPLACE ACTION PROTOCOL & TECHNICAL SPEC SHEET

Operational Levers vs Capital Procurement Standards

TRACK 1: OPERATIONAL LEVERS FOR KEPT BASINS (IMMEDIATE)

Where existing basins cannot be capital-replaced this fiscal year, facility managers must pull all three operational risk levers:

- **Lever 1: Restore Drainage Clearance Speed:** Sluggish drains are the single highest risk state in laboratory literature (30-fold dispersal differential). Clear branch lines, remove trap debris, and replace scaled tailpieces to restore prompt evacuation (<3 sec).
- **Lever 2: Strictly Clear the 1-Metre Splash Zone:** Remove all consumable dressings, gauze, tongue depressors, charting stations, and clinical supplies within 100 cm of basin rims. Dispersal is multidirectional droplet travel.
- **Lever 3: Twice-Daily Detergent Cleaning Protocol:** Adopt Australian infection control guideline recommendation (cited by Flinders review) mandating handbasin cleaning up to twice daily with detergent to disrupt *Pseudomonas* biofilms.

TRACK 2: CAPITAL REPLACEMENT SPECIFICATION (PROCUREMENT)

When tendering new clinical handbasins, mandate these 5 peer-reviewed criteria over manufacturer sales claims:

- **Spec 1: Offset Drain Positioning:** Drain aperture positioned away from vertical faucet discharge. Water column must not strike drain opening directly (aligning with UK design guidance).
- **Spec 2: Deep Curved Bowl Profile:** Specify deep bowls with continuous curvature. Explicitly disqualify shallow, flat-bottom basins associated with wider bioaerosol dispersal.
- **Spec 3: Rapid Hydraulic Evacuation:** Engineered continuous-slope floor evacuating wash water in <3 seconds to avoid wet trap standing time.
- **Spec 4: Rigid Level Installation Tolerance:** Installation specification requires verified zero-pooling spirit-level mounting to eliminate post-closure damp bowls.
- **Spec 5: Peer-Reviewed Citation Standard:** Base tender approvals on *Journal of Hospital Infection* reviews (Todarello 2026, Aranega-Bou 2019), not proprietary vendor marketing brochures.

9. FORMAL CAPITAL / MAINTENANCE ACTION DISPOSITION

Facility Committee Approval Record

Unit / Ward	Basins Audited	Immediate Maintenance Tickets	1m Splash Decant Actions	Capital Replacement Schedule
_____	Total: _____	Drain clearing: [ ] Re-leveling: [ ]	Items relocated: _____	[ ] FY26 Q4 [ ] FY27 Q1 Count: ___
_____	Total: _____	Drain clearing: [ ] Re-leveling: [ ]	Items relocated: _____	[ ] FY26 Q4 [ ] FY27 Q1 Count: ___
_____	Total: _____	Drain clearing: [ ] Re-leveling: [ ]	Items relocated: _____	[ ] FY26 Q4 [ ] FY27 Q1 Count: ___

FACILITY OPERATIONS APPROVAL

Facility Manager: _____
Date: ___ / ___ / 2026 Work Order Batch ID: _____

INFECTION PREVENTION APPROVAL

Infection Prevention Director: _____
Date: ___ / ___ / 2026 ICRA Committee Review: [ ] Approved