HEALTHCARE FACILITY HUB • QUICK CARD

Basin Splash Quick Card: The 6-Check Clinical Walk-Through & 1-Metre Splash-Zone Rule

FIELD COMPLIANCE ASSET • POST 2111
Current version — Nov 1, 2026. Update history: https://healthcarefacilityhub.org/does-offset-drain-cut-splash-hospital-handbasin/

1. THE GOVERNING LABORATORY & GUIDELINE EVIDENCE

Flinders Univ 2026 Review • PHE 2019 Study (J. Hosp. Infect.)

GUIDELINE INCONSISTENCY (TODARELLO ET AL., 2026)

39-Country Review: Infection control design guidelines for clinical handbasins vary substantially across 39 countries. Only **8 of 39 countries** consider basin shape to improve drainage and minimise splashing.

- **Biofilm Reservoir:** Drains harbor high relative abundances of *Pseudomonas* and *Stenotrophomonas*. A clinical sink is an integrated water-and-wastewater system.
- **Directional Finding:** Offsetting the drain reduces splashing; evidence does not crown a specific offset distance or winning brand.
- **Vulnerable Cohort:** Droplet and aerosol risks concentrate heavily on immunocompromised patients.

THE 30-FOLD LABORATORY DISPERSAL BENCHMARK (PHE, 2019)

Aranega-Bou et al. (2019): Public Health England laboratory model of 12 sinks with traps colonized by carbapenem-resistant Enterobacteriaceae (CRE).

Operating Condition	Dispersal Impact vs Drain-Under-Tap Sink
Slow Drainage	**Almost 30-fold less bacterial dispersal** in rear-draining offset basins vs drain-under-tap sinks.
Fast Drainage (Trap)	Rear drainage and fast drainage **each significantly reduced dispersal** independently.
Pipework Colonization	Under fast drainage with colonized pipes, rear drains still released fewer organisms.

2. THE 1-METRE SPLASH-ZONE RULE: MULTIDIRECTIONAL DROPLET RADIUS

Dispersal Threshold: 100 cm

Laboratory Fact: Contaminated splashes travelled up to 1 metre from the sink in the Public Health England dispersal model.

Splash is multidirectional and largely droplet-mediated. The splash zone is the full 1-metre (100 cm) radial envelope around the basin: counter surfaces, stored supplies, charts, portable equipment, and patient beds. An offset drain cuts droplet generation at the source, protecting every clinical asset within this radius. Moving stored clinical items out of this zone is often the fastest immediate risk reduction available today.

3. THE NO-INSTRUMENT WALK-THROUGH: CHECKS 1, 2, AND 3

Observe Sinks As Actually Used • Water ICRA Rhythms

CHECK 1 STREAM LANDING

Does water hit the drain directly?

Run the tap at normal operating pressure. Watch where the water column impacts the basin bottom.

Direct Strike Alert: If water column hits the drain grate directly, it is in the highest-splash configuration documented. Flag immediately, especially in oncology, ICU, and transplant units.

CHECK 2 CLEARANCE SPEED

How fast does the bowl empty?

Time the bowl clearing following a standard handwash cycle. Does water drain immediately or back up?

Worst Condition: Slow drainage was the worst-performing condition in the dispersal model. A slow drain leaves the trap and drain wet, colonized, and primed for aerosolization.

CHECK 3 STANDING WATER / POOLING

Does water pool post-closure?

After tap shuts, inspect flat floor sections and the periphery of the offset drain for residual water.

The Spec-Sheet Trade-Off: Offset drains on out-of-level basins pool water, converting a splash reducer into a permanent *Pseudomonas* damp-bowl reservoir.

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4. THE NO-INSTRUMENT WALK-THROUGH: CHECKS 4, 5, AND 6

Physical Geometry • Dispersal Envelope • Component Condition

CHECK 4 BOWL DEPTH & CURVATURE

Is the bowl deep or shallow/flat?

Evaluate physical curvature. Shallow basins correlate with significantly wider bioaerosol dispersal beyond bowl rims.

Replacement Record: Existing bowl geometry cannot be remolded on the wall; log shallow profiles to drive the next capital replacement spec.

CHECK 5 1-METRE SPLASH-ZONE CONTENTS

What sits within 100 cm of basin?

Map everything inside droplet radius: medication supplies, chart holders, patient beds, and sterile prep surfaces.

Immediate Decant: Splashes hit 1 m. Clearing stored porous items, dressings, and medical charts out of the 1-metre zone eliminates contamination vectors today.

CHECK 6 AERATOR & DRAIN CONDITION

Component scaling and biofilm?

Inspect tap outlet and waste cover: damaged, scaled, or aerated fittings, corroded grates, and visible discoloration.

Maintenance Entry: Log aerator condition, drain cover integrity, and cleaning frequency for infection prevention committee oversight.

5. SURVEYOR-GRADE DOCUMENTATION: UNIT PATTERN VS SINGLE TICKET

Aggregate Clinical Ward Findings

Inspection Field	Field Surveyor Standard (Record Exactly)	Clinical Risk Evaluation
1. Basin Location	Room #, department, clinical function (e.g., ICU, NICU, med-surg, clean utility).	Immunocompromised patient proximity determines intervention priority.
2. Drain Position	Directly beneath faucet discharge vs rear/offset positioning (measure offset cm).	Direct alignment generates maximum droplet splash and bioaerosol dispersal.
3. Clearance Speed	Prompt clearance (<3 sec) vs sluggish clearing vs standing backwater.	Slow drainage gives back the offset advantage (PHE 30-fold dispersal risk).
4. Pooling / Level	Zero pooling vs standing puddles around drain/basin floor after tap shuts.	Identifies out-of-level installation; flags damp biofilm incubation site.
5. Bowl Geometry	Deep curved contours vs shallow flat basin profile.	Shallow bowls produce wider droplet trajectory outside the fixture.
6. 1m Radius Contents	Inventory of medical supplies, dressings, charts, monitors, patient beds within 1 m.	Mandates immediate operational clearance or relocation of vulnerable items.
7. Fixture Condition	Aerator presence/scaling, drain cover corrosion, visible bio-film discoloration.	Direct mechanical ticket vs clinical cleaning protocol adjustment.

6. FACILITY ACTION PROTOCOL: KEPT BASINS VS REPLACEMENT SPEC

Evidence-Based Levers

PROTOCOL A: BASINS YOU ARE KEEPING (3 LEVERS)

- **1. Restore Drainage Speed:** Clear trap obstructions, snake branch lines, and descale waste pipes. Sluggish drains represent the highest bacterial dispersal state.
- **2. Clear the 1-Metre Splash Zone:** Establish a rigid zero-storage boundary 100 cm around basin rim. Relocate chart racks, clean linens, gauze, and supplies.
- **3. Enforce Twice-Daily Detergent Cleaning:** Follow Australian guideline standards (cited by Flinders review) requiring handwashing basin cleaning up to twice daily with detergent to disrupt surface biofilm.

PROTOCOL B: BASINS YOU ARE REPLACING (SPEC LIST)

- **1. Offset Drain Position:** Stream must not strike waste aperture directly. Align with UK design principles (non-discharge into waste opening).
- **2. Deep Curved Bowl Profile:** Explicitly reject flat, shallow basins in tender documents. Specify deep contoured profiles that suppress aerosol escape.
- **3. Prompt Drainage Hydraulic Capacity:** Size waste lines to prevent standing water during continuous clinical washing cycles.
- **4. Level Installation Tolerance:** Require verified spirit-level tolerance on mounting brackets so offset bowls drain 100% dry without post-use pooling.
- **5. Citation Standard:** Cite Journal of Hospital Infection reviews (Todarello 2026, Aranega-Bou 2019), not manufacturer sales brochures.