St George Hospital &
Community Health Services

NSW Health
South Eastern Sydney
Local Health District

AUTOMATED PERITONEAL DIALYSIS (APD) CONNECTION AND DISCONNECTION PROCEDURE – CLARIA DIALYSIS MACHINE

1. Purpose	To ensure APD set-up, connection and disconnection procedure is performed according to best practice guidelines reducing the risk of infection and ensuring patient safety
2. Employees it Applies to	Clinical Staff accredited or trained on Peritoneal Dialysis

3. PROCESS
3.1 DEVICES
3.1.1 Equipment

- Trolley
- Claria PD machine with modem
- Drain bag
- Blue clamp
- Micropore tape

3.1.2 Key parts

- Minicap
- Peritoneal dialysis fluid (dialysate)
- Cassette/lines

3.1.3 Key Sites

- Abdominal PD catheter

3.2 PROCEDURE
Note: Attend to patient's COVID – 19 screening and management as per most recent COVID guidelines and recommendation for SGH

Note: APD set-up, connection and disconnection can be performed by (or under the supervision of) accredited staff only. Refer to section 3.3 APD Claria Accreditation or Assessment form

3.2.1 Set – up and Connection
Note: Claria machine set – up can be attended in the PD procedure room for COVID negative patients or in the COVID isolation room using appropriate PPE for COVID positive patients

1. Select the appropriate PD fluid strength by conducting a fluid assessment
2. Perform hand hygiene
3. Identify and gather equipment and key parts for procedure
4. Clean trolley/work surface with detergent
5. Plug machine and modem into power and turn on
6. Confirm that the machine name is the same as patient name.
   a. If not, reset the Patient Activation Code (PAC):
      i. Press stop (red) button twice

    ii.   Press arrow down button until display says 'Reset Activation Code'

    iii.   Press enter button

    iv.   Turn off machine and turn it back on

    v.   Machine will display 'Enter activation Code'

    vi.   Press enter button to change first digit

    vii.   Press arrow up to select the number

    viii.   Once correct number is selected, press enter to lock number, cursor will advance to the next digit

    ix.   Repeat steps vii & viii until the last digit of the activation code is completed and locked

    x.   Press GO (green) button

    xi.   Wait for machine to display 'CONFIRM CONFIGURATION'

    xii.   Press enter button

    xiii.   Wait for machine to display 'Are you First Name LAST NAME'

    xiv.   Press enter button to confirm patient's name

    xv.   Machine will display 'SHARE: CLINIC & BAXTER/SEE USER MANUAL'

    xvi.   Press GO (green) button

    xvii.   Machine Will display 'NEW PROGRAM RECEIVED/REVIEW NEW PROGRAM'

    xviii.   Press enter button repeatedly until machine displays 'IS PROGRAM CORRECT?'

    xix.   Press GO (green) button

    xx.   Proceed to step 7 to enter pre-treatment information

b.   If it is the correct patient and requiring a change in their PD regimen:

    i.   Unlock the program through nurse's menu then turn off the machine

    ii.   Unplug modem from power point to ensure modem is off

    iii.   Disconnect the modem's cable from the machine and turn the machine on

    iv.   Once the machine displays the patient name, press GO (green) button

    v.   Machine will display 'NETWORK COMMUNICATION FAILURE'

    vi.   Press the STOP (red) button three times

    vii.   Machine will display 'PRESS GO TO START'

    viii.   Press arrow down button until machine displays 'CHANGE PROGRAM'

    ix.   Adjust the program as required then confirm

    x.   Proceed to step 9 to continue with machine set – up

c.   If it is the correct patient with correct PD regimen:

    i.   Press GO (green) button to confirm patient name after machine displays 'HELLO First Name LAST NAME.'

    ii.   Proceed to step 7 to enter pre-treatment information

d.   For patients without activation code or PD patients from other hospitals, reset the machine:

    i.   Through nurse's menu, unlock the program & choose 'SINGLE USER' on the network mode

    ii.   Turn off the machine and unplug the modem from power point

    iii.   Ensure modem is off then disconnect the modem's cable from the machine

    iv.   Turn the machine on and press the STOP (red) button twice

    v.   Modify the program as required and confirm

        OR use the unlocked program PAC 451 – 8087 – 129

    vi.   Proceed to step 7 to enter pre-treatment information

7.   Enter and complete pre-treatment information:

    a.   Wait until machine displays 'WEIGHT 000.0'

    b.   Enter patient's current weight by pressing arrow up or down buttons to adjust the numbers and press enter to lock the correct weight

    c.   Press the arrow down button, machine will display 'BLOOD PRESURE 000/000'

    d.   Enter patient's current blood pressure (BP) by pressing arrow up or down buttons to adjust the numbers and press enter button to lock the correct BP

    e.   Press the arrow down button until machine displays 'NIGHT CONC 1 0.0'

    f.   Choose the dialysate concentration to sit on the heating pad by pressing arrow up or down buttons to adjust the numbers and press enter button to lock the correct concentration

    g.   Press the arrow down button until machine displays 'NIGHT CONC 2 0.0'

    h.   Choose the dialysate concentration to be connected to the supply lines by pressing arrow up or down buttons to adjust the numbers and press enter button to lock the correct concentration

8.   Press STOP (red) button

9.   Wait for machine to display 'PRESS GO TO START.' Press GO (green button)

10. Wash the blue clamp and dry thoroughly

11. Perform hand hygiene

12. Prepare general aseptic field equipment and key parts at the bedside

13. Use the sharp edge of the blue clamp to open outer pouch of the dialysis bags. DO NOT USE SCISSORS OR KNIVES

14. Check the bag strength, volume, expiry, colour and for leakage

15. Place one dialysate bag onto the heater covering the silver button;

16. Place next bag/s on the cleaned surface;

17. Open the cassette/lines and place on top of the heater bag

18. Press GO. Machine will display "LOAD THE SET"

    a.   Open the cassette door by pulling the lever up. Load the cassette;

    b.   Close the door pushing the lever down;

    c.   Attach line organiser to door;

19. Close all clamps. Attach drain bag to the drain line (line with small blue cap)

20. Press GO. Machine will display "SELF TESTING"

21. After 2 minutes of machine self-test, machine will flash "CONNECT BAGS / OPEN THE CLAMPS"
22. Perform hand hygiene
23. Perform bag connection procedure ensuring all key parts/sites are protected:
    a. Remove cap from the dialysate bag and remove cap from bag line;
    b. Use non-touch connection technique to connect bags:
        i. Red clamp line to heater bag;
        ii. White clamp line to next bag and etc…

24. Break the greenstick seals on the bags
25. Open clamps on lines with connected bags (Leave the clamps closed on unconnected lines)
26. Open clamp on patient line (line with a large blue cap)
27. Press GO to prime the lines. Machine will display "PRIMING"
28. Perform hand hygiene
29. After 10 minutes of machine priming, machine will flash "CONNECT SELF / CHECK PATIENT LINE"
30. Don appropriate PPE as per NSW Health PD2017_013 *Infection Prevention and Control Policy* and COVID-19 Infection Prevention and Control Manual version 1.4 to prepare the patient i.e.
    a. Use non-sterile gloves to expose & secure the PD catheter away from clothing for COVID negative patients, or
    b. Use 'doubled' non-sterile gloves to expose & secure the PD catheter away from clothing for COVID positive patients
31. Remove gloves and perform hand hygiene
32. Don sterile gloves
33. Perform connection procedure ensuring all key parts/sites are protected
    a. Remove the large blue cap from the patient line and remove minicap from the catheter;
    b. Use non-touch connection technique to connect catheter to the patient line;
34. Open the catheter valve
35. To commence dialysis, press the GO button twice until the machine displays 'INITIAL DRAIN'
36. Document the procedure on the APD chart and eMR notes
37. Handover to the next shift

3.2.2 End of Therapy and Disconnection

Note: The Claria machine will be by the bedside, hence, don appropriate PPE as per NSW Health PD2017_013 *Infection Prevention and Control Policy* and COVID-19 Infection Prevention and Control Manual version 1.4 to attend to the Claria machine

38. At the end of the therapy, machine will display 'END OF THERAPY'
39. Press arrow down button to check and record "I-Drain volume"
40. Press arrow down button to check and record "Total UF"
    ➢ For patients with negative UF, notify the PD nurses and the renal team

> ➢ For patients with consistently low UF (<300), notify the PD nurses and the renal team

41. Press GO. Machine will flash "CLOSE ALL CLAMPS"

42. Close all clamps on connected bags and patient line

43. Press GO. Machine will flash "CLOSE ALL CLAMPS/DISCONNECT SELF"

44. Perform hand hygiene

45. Don non-sterile gloves (or double gloves for COVID positive patients)

46. Close the PD catheter valve until it clicks

47. Open a new minicap

48. Remove gloves and perform hand hygiene

49. Don sterile gloves

50. Perform disconnection procedure ensuring all key parts/sites are protected:
    a. Disconnect patient line from PD catheter using non-touch disconnection technique
    b. Apply a new minicap on catheter using non-touch technique

51. Secure the catheter in place with tape

52. Press GO. Machine will display 'REMOVE CASSETTE'

53. Dismantle machine by removing cassette from the chamber

54. Press GO. Machine will display 'CONNECTING TO NETWORK'

55. Disconnect all dialysis lines and bags

56. Discard equipment and effluent as per NSW Health PD2020_049 *Clinical and Related Waste Management for Health Services* and COVID-19 Infection Prevention and Control Manual version 1.4

57. Machine will then display "TURN ME OFF"

58. Turn the machine off

59. Perform hand hygiene

60. Remove PPE and gloves

61. Calculate and record 24 hour cumulative UF by adding initial drain volume to total UF volume

    Note: For patients with last fill – subtract last fill volume from initial drain volume before adding to total UF volume

62. Document procedure and PD effluent quality on APD chart and eMR

63. Hand over to the next shift

64. Any APD related concerns must be reported to the PD nurses and/or renal team for review

3.3 APD Claria Accreditation or Assessment form

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Automated Peritoneal Dialysis (APD)
CLARIA Therapy Settings, Connection & Disconnection
Assessment Form

Limitations for Practice:

Enrolled Nurse	Clinical Nurse Educator
Registered Nurse	Nurse Educator
Clinical Nurse Specialist	Clinical Nurse Consultant

Objective:

To ensure APD therapy settings, connection & disconnection procedures are performed according to best practice guidelines reducing the risk of infection and ensuring patient safety.

Background:

1. Competency assessment and training is compulsory for 4S nursing staff prior to attending to APD procedure
2. Nursing staff with no APD exposure must undergo competency training and practice under the supervision of APD competent nurse
3. Assessor may determine the number of practice sessions required prior to competency assessment
4. Simulated APD for practice sessions are acceptable
5. Competency assessment is to be performed on a patient
6. Competency assessment on Claria machine therapy settings is to be carried out by a PD nurse
7. Competency assessment for Claria machine connection and disconnection is to be carried out by an APD competent nurse
8. Repeat competency assessment and training every protocol update and/or every 5 years

Note:

1. Keep the original copy of your completed assessment form for your record.
2. Forward a copy of the completed assessment form to the CNE and PD unit.

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Automated Peritoneal Dialysis (APD)
CLARIA Therapy Settings, Connection & Disconnection
Assessment Form

Name:_____ Pay No:_____
Print   Signature

Please initial appropriate box

Action – Therapy Settings and Connection	P1	P2	P3	P4	P5	C
1. Selects appropriate fluid, checking for expiry date, volume and colour						
2. Collects equipment. Cleans machine and trolley						
Claria therapy settings – competency assessment by PD Nurse only						
3. Plugs machine & modem into power and turn on						
4. Knows where to find correct patient activation code and/or PD regime						
5. Confirms the machine name is the same as patient name Note: If not, able to work through different scenarios below:						
Able to reset patient activation code						
Able to change PD regimen if required						
Able to confirm correct patient with correct PD regimen						
Able to reset the Claria machine for patients without activation code patients from other hospital						
Knows how to do manual programming						
6. Press GO to enter pre-treatment information i.e. Weight, BP, dialysate						
7. Presses STOP button then presses GO to start						

Claria competency assessed by PD nurse Name/Signature: **Date:**

8. Washes the blue clamp & performs small handwash	
9. Opens and checks bags. Places one bag of fluid onto the heater	
10. Presses GO to load the set. Loads the cassette correctly	
11. Hangs the line organiser on cassette door	
12. Closes all clamps	
13. Attaches the drain bag correctly	
14. Presses GO to self test	
15. Performs 1 minute handwash	
16. Waits for machine to flash CONNECT BAGS	
17. Connects all lines to bags without contamination	
18. (Note: non-touch connection technique)	
19. Breaks the greenstick seals and opens clamps on lines with connected bags and patient line	

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20.	Presses GO to prime lines					
21.	Exposes catheter – positioning away from clothing					
22.	Performs 1 minute handwash and uses sterile gloves					
23.	Connects patient line to catheter without contamination					
24.	(Note: non-touch connection technique)					
25.	Opens the catheter valve, presses GO twice to commence dialysis					
26.	Documents procedure on APD chart and hands over to the next shift					

Practice 1 (P1) Assessor's name & initial_____Date_____

Practice 2 (P2) Assessor's name & initial_____Date_____

Practice 3 (P3) Assessor's name & initial_____Date_____

Practice 4 (P4) Assessor's name & initial_____Date_____

Practice 5 (P5) Assessor's name & initial_____Date_____

Competent (C) Assessor's name & initial_____Date_____

Action – End of Therapy and Disconnection	P1	P2	P3	P4	P5	C
1. On completion of dialysis – presses arrow down button to check and record I-Drain volume						
2. Presses arrow down button to check and record Total UF Note: Knows how to calculate accumulated UF						
3. Manual drains if necessary (i.e. low or negative UF)						
4. Presses GO to display CLOSE ALL CLAMPS						
5. Closes all clamps						
6. Presses GO to display CLOSE ALL CLAMPS/DISCONNECT SELF						
7. Performs hand hygiene and uses non-sterile (or double) gloves						
8. Closes the PD catheter valve until it locks (click sound)						
9. Opens new minicap						
10. Performs 1 minute handwash, uses sterile gloves and wears PPE						
11. Disconnect without contamination (Note: non-touch disconnection technique)						

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Assessment Form

12.	Applies new minicap without contamination (Note: non-touch technique)					
13.	Secures catheter in place with tape					
14.	Presses GO until Claria machine displays "REMOVE CASSETTE"					
15.	Dismantles Claria machine					
16.	Presses GO until Claria machine displays "CONNECTING TO NETWORK"					
17.	Discards bags and lines appropriately					
18.	Discards PD effluent appropriately					
19.	Turns Claria machine off					
20.	Calculates and records 24 hour cumulative UF					
21.	Documents procedure on APD chart and clinical notes					
22.	Hands over to next shift					

Practice 1 (P1) Assessor's name & initial_____Date_____

Practice 2 (P2) Assessor's name & initial_____Date_____

Practice 3 (P3) Assessor's name & initial_____Date_____

Practice 4 (P4) Assessor's name & initial_____Date_____

Practice 5 (P5) Assessor's name & initial_____Date_____

Competent (C) Assessor's name & initial_____Date_____

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RENAL DEPARTMENT / PERITONEAL DIALYSIS UNIT
SGH WPI 216 Workplace Instruction

4. Cross References	COVID-19 Infection Prevention and Control Manual version 1.4 NSW Health PD2017_013 *Infection Prevention and Control Policy* NSW Health PD2020_049 *Clinical and Related Waste Management for Health Services* SESLHDPD/271 *Aseptic Technique*
5. Keywords	Peritoneal Dialysis, Automated PD, Connection and Disconnection, Claria APD
6. Document Location	SGH-TSH Business Rule Webpage
7. External References	1. Bannister, K. (2014). The influence of peritoneal dialysis systems and solutions on the incidence of peritonitis and catheter-related infections. The KHA-CARI Guidelines – Caring for Australasians with Renal Impairment [cited 2014 June]; Available from: http://www.cari.org.au/Dialysis/dialysis%20peritonitis/dialysis_peritonitis.html 2. Brown, E. A., Blake, P. G., Boudville, N., Davies, S., de Arteaga, J., Dong, J., Finkelstein, F., Foo, M., Hurst, H., Johnson, D. W., Johnson, M., Liew, A., Moraes, T., Perl, J., Shroff, R., Teitelbaum, I., Wang, A. Y., & Warady, B. (2020). International Society for Peritoneal Dialysis practice recommendations: Prescribing high-quality goal-directed peritoneal dialysis. *Peritoneal dialysis international : journal of the International Society for Peritoneal Dialysis*, 40(3), 244–253. https://doi.org/10.1177/0896860819895364 3. Li PK-T, Chow KM, Cho Y, et al. (2022) ISPD peritonitis guideline recommendations: 2022 update on prevention and treatment. *Peritoneal Dialysis International*, 42(2):110-153. doi:10.1177/08968608221080586 4. Masa Knehtl, Eva Jakopin, Martin Hren, Nina Hojs, Sebastjan Bevc, Robert Ekart, Radovan Hojs (2018). SP530 Comparison Of Continuous Ambulatory Peritoneal Dialysis (CAPD) Versus Automated Peritoneal Dialysis (APD) Considering Treatment Adequacy, Anemia, Inflammation And Mineral Bone Disease. Nephrology Dialysis Transplantation, Volume 33, Issue suppl_1, 1 May 2018, Pages i526–i527, https://doi.org/10.1093/ndt/gfy104.SP530 5. Szeto, C.-C., Li, P. K.-T., Johnson, D. W., Bernardini, J., Dong, J., Figueiredo, A. E., . . . Brown, E. A. (2017). ISPD Catheter-Related Infection Recommendations: 2017 Update. Peritoneal Dialysis International, 37(2), 141-154. doi: 10.3747/pdi.2016.00120 6. Woodrow G, Fan SL, Reid C et al. (2017) Renal Association clinical practice guideline on peritoneal dialysis in adults and children. BMC Nephrology 18:333; https://doi.org/10.1186/s12882-017-0687-2

Approval for: AUTOMATED PERITONEAL DIALYSIS (APD) CONNECTION AND DISCONNECTION PROCEDURE – CLARIA DIALYSIS MACHINE	
Specialty/Department Committee	Committee: Peritoneal Dialysis Committee Dr Franziska Pettit, Staff Specialist Date: 12.05.2022
Department head approval	Prof George Mangos, Department Head Renal Services Date: 12.05.2022
Executive Sponsor – Nurse Manager	Christine Day, Nurse Manager Medicine Date: 19.05.2022
Contributors to WPI	

Revision and Approval History				
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Feb 2019	0	New	(Anna) Claire Cuesta (Peritoneal Dialysis CNC)	Feb 2022
May 2022	1	Review – amended to new version of Claria machine, inclusion of APD accreditation/assessment form and inclusion of COVID assessment and management	(Anna) Claire Cuesta (Peritoneal Dialysis CNC)	May 2027