

&DVH 5HSRUW

20,&6 ,QWH

" /PWFMBOE 1SFEJDUBCMF 8BZ GPS .BYJMMBS
8JOEPX 'FOFTUSBUFE \$PSUJDPUPNZ -\$ 5FDIC

\$OEHUW DQG %HUWUDQG 6&&

1DWLRQDO 'HQWDO &HQWUH 6LQJDSRUH 6LQJDSRUH

&RUUHVSRRGLQJ &HQWUH / 1DWLRQDO 'HQWDO &HQWUH QG +RVSLWDO 'ULYH
FDVH UHSRUW

6LQJDSRUH 7@ P..

,QWHUSUHWDWLRQ ,W UHGXFHV WKH FOLQLFDO FKDQFH RI D PHPEUDQH SHUI
QHHG IRU DQ\ DGGLWLRQDO HTXLSPHQW



.HIZRUGV [LOODU\ VLQXV HOHYDWLRQ &DVH 5HSRUW

,QWURGXFWRQ

H LQYROYHG SDWLHQW QHHGHG LPSOD
FRFXUÂ€ 'RWL rix 4 - L r€ 0 FD@ I

0D[LOODU\ VLQXV HOHYDWLRQ DQG DXZPH QHWWRG WKDW DRPH QXUHHO HQDWLR
LQFUHDVH WKH VXEDQWUDO YHUWLFDO SRURD FKPHQ \$IQQ HILU SOOQPHFRU QR PV
LPSODQWYUV QWZDULEHG E\ %R\QH LQ R > @ DQG 7DWXP LQ

> @H VLQXV JHQHUDOO\ D VDIH DQG SWKGLFWOHFRPHHQSDWHRUWHUVDPH ZI@
1HYHUWKHOHVV WKHUH DUH FRPSOLFDFWLRQV QHZG WKR DOORVXUQLEFUDVHQPHYK
H FRPSOLFDFWLRQV LQFOXGH SHUIRUDWLRQV WR SHUIRUPPHPEUDQH ORFDO
KPRUUKDJH LQHFWRQ DFXWRVDDGRPRRQLFVLQXV LVLV FOHQDQVHG DQG GUD
FRSOLFDFWLRQ WKDW DULVHV LV WKH SHUIRUDWLRQV WKH VLQXV 6FKQHLGHULD
PHPEUDQH ZLWK D UHSRUWHG SUHYDOHQFH EHWZHHQ DQG f @

0DLQWDLQLQJ WKH LQWHJULW\ RI WKH VLQXV PHPEUDQH GXULQJ D VLQXV
SURFHGXUH LV HVVHQWLDO LQ DFKLHYLQJ D SUHGLFWDEOH RXWFRPH 3HUIRUDW
VXDQOO\ KDSSHQV GXULQJ HOHYDWLRQ DV WKH PHPEUDQH OLQLQJ LV VWLOO
DWWDFKHG WR WKH PD[LFRUWLRQV DGRXOQG

SRWHQWLDQO\ UHVXOW LQ EDFWHULDO LQHFWRQ FRPSURPLVH RI WKH VLQXV KH
DQG IXQFWLRQ ZLW DWDLQXV ERXQVWUDWLRQV DULVHG DIZDUHQO OHHG DQQHLQ
W PHPEUDQH XUURXQLQJ 6FKQHLGHULDQ PH
SHUIRUDWLRQP 0 WHFKQLTXHV LQFOXGHUHQV DGRWKHSZPHQO ZEWKRW HOH
VWUXPHQWV KIGUDXOLF SUHVXUH DQZDQVHG WR WLRQDWH @ IHQHVWUDWLRQ

\$LP

LQKLV IHQHVWUDWLRQ \$ VXUJLFDO VXFV
IHQHVWUDWLRQ WR FUHDWH D QHJDWLYH

H REMHFWLYH RI WKLV UHSRUW LV WR JSRHFWKHEHIDQGRWHUODVDFQ SUKRXLOFV DSS
WFKQLTXH WHFKQLTXH UHVXOWV LQ D SURHEVWDEOH VOXU DGRPHRQ LQVH FRQQH
DWWDFKHG 6FKQHLGHULDQ PHPEUDQH VIUHQPH WKHUH ZHDROD HQG DRWHICH YDQXVZDO OY
WHFKQLTXH LV XVHG GXULQJ ODWHUDQ ZLWK GRDDWESUHQDQDQGGHWDOLYHVSWKWH
SULQFLSOH RI QHJDWLYH SUHVXUH WRFVLRQVVRVQ OMKWBRHOV DQWRQRORIUWRH
6FKQHLGHULDQ PHPEUDQH VGHFKQLQJ XH LRVQDQGH \$ UHVUEDEOH FROODJHQ P
/DWHUDO ZLQGRZ)HQHVWUDWHG &RUWLQRVW(\$*)&ROKXVHQ 6ZLWJHUODQG ZDV

6FKQHLGHULDQ PHPEUDQH ,PSODQWV ZHUH SODFHG LQ DW DQG ZLWK

VLWH WZR FRQVLGHUDWLRQV IRU WKH SRVLWLRQ RI WKH LDWURJHQLF
IHQHVWUDWLRQ DUH WRyHFRQVWUDWLRQVWKSHYHQW
GHW FRPPXQLFDWLRQ ZLWK WKH ODWHUDO VLQXV ZLQGRZ DQG FORVH
SUR[LPLW\ ZLWKRXW H[WHQVLRQH\QVWKH UHOLHYLQJ LQFLVLRQ
FRQVLGHUDWLRQ GHFUHDVHV WKHHLRFRQGHQWV RI FRPSOLFDWLRQV
FRVLGHUDWLRQ UHVXOW LQ OHVV SRVW RSHUDWLYH GLVFRPIRUW

H /)& WHFKQLTXH LV VLPLODU LQ SULQFLSOH WR WKH QDVDO VXFWRQ
WFKQLTXH GHVFULEHG E\ 8FHU > @ ZKHU D QDVDO VXFWRQ ZDV SODFHG LQWR
WKH LSVLODWHUDO VLGH RI WKH SDVHGQWdV QRVH GXULQJ VLQXV
DSDQWDJH RI WKH /)& WHFKQLTXH LV WKDW LW LV PRUH FRPIRUWDEOH IRU WKH
SDWLHQWV QR LQVWUXPHQWV DOWKHFQVHLV MHQVLWLYH
R VWLPXODWLRQ DQG LQVWUXPHQWDWLRQ LQ WKH QRVH PD\ QRW EH WROHDEO
IRU D FRQVFLRXV SDWLHQW 0RUHRYHU WKHUH LV QR QHHG IRU DQ DGGLWLRQ
VXFWRQ XQLW 2QH VXFWRQ XQLW LV XVHG WKURXJKRXW WKH VXUJHU\ IRU WK
FUHDWLRQ RI D QHJDWLYHXS LGHVVFRQDQ UHPRYDO RI
XUJLHQDQ DGGLWLRQDO VXFWRQ XQLW LV UHTXLUHG IRU WKH QRVH WR
FUDPSHWHQLWHFRQVFLRQWDPLQDWLRQ RI WKH Q XJH`DO WFU