

**CURRICULUM VITAE**  
**Professor Sabiha Yusuf Essack**  
*B.Pharm., M. Pharm., PhD*

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<b>NAME:</b> Sabiha Yusuf Essack	<b>POSITION TITLE:</b> Professor – School of Pharmacy & Pharmacology
<b>E-mail:</b> essacks@ukzn.ac.za	Dean – Faculty of Health Sciences

EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Durban-Westville	B. Pharm	1985-1988 (Awarded 1989)	Pharmacy
University of Durban-Westville	M. Pharm	1992-1993 (Awarded cum laude 1994)	Pharmaceutical Microbiology
University of Durban-Westville	PhD	1995-1999 (Awarded 2000)	Pharmaceutical Microbiology

## 1. POSITIONS AND HONOURS

### 1.1 Positions

- Pharmacist Intern, King Edward VIII Hospital 1989
- Pharmacist, KZN Dept of Health (Addington & Wentworth Hospitals) 1990-1991
- Junior Lecturer, Pharmacy Department, UDW 1992 – 1994
- Lecturer, Pharmacy Department, UDW 1995 – 1996
- Senior Lecturer, Pharmacy Department, UDW 1997 - 1999
- Associate Professor, School of Pharmacy and Pharmacology 2000 – 2009
- **Professor, School of Pharmacy and Pharmacology 2010 onwards**
- Head of School of Pharmacy and Pharmacology 2003-4
- **Dean, Faculty of Health Sciences 2005 – to date**
- **Acting Deputy Vice Chancellor and Head, College of Health Sciences Jan-Jul 2010**

- 2010:** Ministerial appointee to the National Health Research Ethics Council (NHREC) (2010-2013)  
 Serve on the (1) Training, (2) Animal Health Research and (3) Complaints and Advisory Disciplinary Working Groups of NHREC
- Appointed Visiting Professor to the University College of Technology and Management, Malaysia, 2010-12
  - Appointed on the Council for Higher Education (CHE) Programme Accreditation Panel
  - Appointed as Higher Education South Africa (HESA) representative on the Professional Body Reference Group of the South African Qualifications Authority (SAQA)
  - Appointed Higher Education South Africa (HESA) and South African Committee of Health Sciences Deans representative on task team synergising accreditation of health professional training programmes between the CHE and the Health Professional Council of South Africa.
  - Finalist for MTN Foundation “Boss of the Year 2010”
  - Appointed Acting Deputy Vice Chancellor and Head of the College of Health Sciences (Jan-Mar 2010)
  - Awarded a grant of £100 000 (2010-11) from Department for International Development, Mobilizing Regional Capacity Initiative (DFID-MRCI) for a project entitled “Institutional Initiatives to Enhance Participation, Access, Retention and Success in African Higher Education: A Multi-Country Study on Good Practice to Inform Policy”
  - Awarded a grant of R25 000 (2010-11) from the UKZN Competitive Research Grant (Teaching & Learning) for a study entitled “Student Success in the Faculty of Health Sciences: the impact of curriculum change, the introduction of innovative teaching/learning methods, and student support services” as co-investigator
- 2009:** Successfully nominated by the Institution of International Education (IIE) to participate in the World Innovation Summit for Education, “a “by invitation only” event that brings together 1,000 leading education figures from more than 50 countries”

- Nominated by UKZN and short-listed by the DST for the African Union Woman Scientist Regional Award
  - Received the Minara Chamber of Commerce Recognition Award in Academia
  - Elected Senate Representative on the Council of the University of KwaZulu-Natal
  - Appointed onto the Finance Committee of the UKZN Council
  - Appointed onto the Council Membership Committee of Council
  - Served as external evaluator of scientific quality for the Danish Ministry of Foreign Affairs, the Consultative Committee for Development Research in Cooperation with the Danish Council for Strategic Research
  - Serve on the Steering Committee for Development of Inter-College Teaching and Research Programmes in Research Management (Responsible for facilitating the development of the macro-curriculum)
  - Serve on the Steering Committee for Development of Masters in Health Sciences Programme in collaboration with Eduardo Mondlane University, Mozambique (Responsible for facilitating the development of the macro-curriculum)
- 2008:** Appointed Associate Editor of the Southern African Journal of Epidemiology and Infection
- Awarded a grant of \$10 000 from the Centre for the International Exchange of Scholars (CIES) for research into Access, Retention and Success in African Higher Education
  - Invited membership of the Directors Forum of the Higher Education Learning and Teaching Association of Southern Africa (HELTASA), a special interest group focusing on Academic Development and Support in HEIs in South Africa including *inter alia* higher education studies, foundation programmes, technology-assisted learning, professional development of lecturers, curriculum development and student counselling.
- 2007:** Rated "C3 -scientist" by the National Research Foundation (NRF)
- Competitively selected as a South African representative on the African Higher Education Collaborative (AHEC) Grant, a programme of the CIES, a division of the IIE and IIE's Middle East North Africa (MENA) Region Office
  - Represented UKZN at the Council of Higher Education, Higher Education Quality Committee Workshop on Enhancing Quality in Multi-Campus Institutions in Pretoria where I presented the paper entitled *The Importance of Strategic Leadership in Aligning and Integrating College Plans with the Institutional Strategic Planning Framework - The UKZN Experience* which was co-authored by Professor LR Uys.
  - Attended the Comprehensive Systematic Reviews Training Programme of the Joanna Briggs Institute
  - Elected as Chair of the Steering Committee of the South African Committee of Health Sciences Deans
  - Awarded Certificate in Conducting Outcomes-Based Assessments
  - Registered as an Assessor with the South African Pharmacy Council
  - Appointed Director of Pharmcore, a 3<sup>rd</sup> stream income generating company formed in accordance with the UKZN Policy of Self-Funded Teaching Programmes and the UKZN Commercial Initiatives Policy offering courses and programmes determined by market-need.
  - Appointed member of the Quality Assurance Committee of Pharmcore
- 2006:** Appointed Chapter Leader and President of the South African Chapter of the Alliance for the Prudent Use of Antibiotics
- Appointed Visiting Professor to the University College of Technology and Management, Malaysia, 2006-8
  - Nominated by UKZN for the Department and Science and Technology's Distinguished Woman in Science Award
  - Nominated by UKZN for the Academy of Science of South Africa for the Science for Society Gold Medal 2006
- 2005:** Appointed as Dean, Faculty of Health Sciences in the merged University of Kwa-Zulu-Natal
- Awarded an NRF Focus Area Grant to the amount of R495 000 (2005-2007) for a study entitled "Strategies for Containing Antibiotic Resistance"
- 2004:** Appointed on the National Executive of the Pharmaceutical Society of South Africa
- Appointed as technical expert on the Innovation Fund, Technology Advancement Programme of the NRF
  - Awarded an MRC grant to attend the "Week of Ehrlich Excellence" and the "World Conference on Antimicrobial Dosing"
  - Awarded an MRC grant to the amount of R390 000 (2004-2006) for research on a self-initiated research project entitled "Antibiotic Resistance – Strategies for Prevention and Containment based on Risk Factors, Clinical Significance, Infection Control, Pharmaco-economics and Drug Pharmacokinetics and Pharmacodynamics".
- 2003:** Appointed Head of School of Pharmacy and Pharmacology
- Awarded the American Society of Microbiology (ASM) Infectious Disease Fellow Travel Grant to attend the 43<sup>rd</sup> Interscience Conference of Antimicrobial Agents and Chemotherapy (ICAAC) in Chicago
  - Awarded MRC grant to attend a workshop "Bacterial Resistance: Mechanisms, Detection, Pharmacology and Molecular Epidemiology" at the 43<sup>rd</sup> ICAAC.
  - Served as member of the organizing committee for the 23<sup>rd</sup> International Conference on Chemotherapy
  - Served as reviewer on Journal of Antimicrobial Chemotherapy (UK) and Southern African Journal of Epidemiology and Infection
  - Appointed external examiner in Pharmaceutical Microbiology, Makerere University, Uganda 2003-5
- 2002:** Rated "Y-2 -scientist" by the NRF
- Convened the "Antibiotic Resistance Symposium" to disseminate results of the first multi-centre antibiotic resistance surveillance study. The symposium was accredited with CPD points and was attended by national and provincial

Department of Health delegates as well as medical practitioners, pharmacists, policy makers, technologists and academics

- Awarded World Health Organisation Grant as one of 4 international sites commissioned to undertake research on antibiotic use and resistance as part of the WHO's Strategy for the Containment of Antimicrobial Resistance
  - Served as reviewer for Southern African Journal of Epidemiology and Infection
  - Served as reviewer by the National Research Foundation (peer review of research proposals)
  - Awarded the ASM Infectious Disease Fellow Travel Grant to attend the 42<sup>nd</sup> ICAAC held in San Diego
  - Awarded the Wellcome Trust Travel Grant to conduct research visits at the Universities of Bath, Leeds and St Bartholomew's and the Royal London School of Medicine and Dentistry
  - Awarded the MRC Travel Grant and NRF International Science Liaison Grant to participate in the 5<sup>th</sup> International Conference of the Hospital Infection Society (HIS) in Edinburgh and the 42<sup>nd</sup> ICAAC in San Diego.
- 2001:** Awarded an NRF Grant to the amount of R398 000 (2001-2002) for research on "Public Health and Antibiotic Resistance".
- Awarded an MRC grant to the amount of R300 000 (2001-2003) for research on "Antibiotic Resistance Profiles in State Hospitals in Kwazulu-Natal.
  - Awarded a UDW Research Grant to the amount of R145 000 for research on "Antibiotic Resistance Profiles in State Hospitals in Kwazulu-Natal".
  - Awarded WHO and NRF (supplementary) funding to attend short courses entitled "Intensive Course in Epidemiology and Medical statistics" and "Infectious Disease Modelling and its Applications" at the London School of Hygiene and Tropical Medicine
  - Finalist for National Science and Technology Forum (NSTF) Award in the individual category for research and innovation over the past two years
- 2000:** Awarded PhD degree
- Awarded the George McCracken Infectious Disease Fellow Travel Grant to attend the 40<sup>th</sup> ICAAC held in Toronto
- 1999:** Awarded the Wellcome Trust Travel Award in order to attend a workshop (Harnessing Timely and Comprehensive Surveillance Data to Enhance Antimicrobial Drug Discovery) and conference (Developing Effective Therapies to Fight Against Antibiotic Resistance) in London.
- 1998:** Awarded ASM Student Travel Grant on the basis of scientific quality of paper presented at the 38<sup>th</sup> ICAAC held in San Diego.
- Awarded Wellcome Trust, MRC and FRD grants to attend the 38<sup>th</sup> ICAAC.
- 1997:** Awarded the Wellcome Trust Travelling Fellowship to the United Kingdom for research training in molecular biology and biochemistry of antibiotic resistance at St. Bartholomew's and the Royal London School of Medicine and Dentistry.
- Awarded the MRC Overseas Study Grant towards Fellowship abroad.
  - Awarded the FRD International Science Liaison Committee Grant towards Fellowship.
- 1996:** Awarded Eli Lilly Fellowship for Studies Abroad.
- Awarded MRC Bursary for PhD degree.
  - Awarded UDW Research Grant for PhD degree.
- 1994:** Awarded M. Pharm degree *cum laude*.
- Awarded UDW and MRC grants to attend the 3<sup>rd</sup> International Conference of the HIS, London.
- 1993:** Awarded the MRC Bursary for M. Pharm degree.
- Awarded the DAAD Bursary for M. Pharm degree.
  - Awarded Adcock Ingram Bursary to attend the 14<sup>th</sup> Annual Congress of the Academy of Pharmaceutical Sciences in Durban.
- 1992:** Awarded UDW Research Grant for M. Pharm degree.
- 1989:** Awarded the B. Pharm Degree (seven distinctions).
- 1988:** Awarded the Eli Lilly Award for the best final year Pharmacy student.
- Awarded the Noristan Award of Merit.
  - Awarded the Allied Bank Merit Award.
  - Awarded a Merit Bursary from the Office of the Commission of Administration.
- 1984:** Awarded the HOD Matriculation Certificate with distinctions in Physics and Arabic.

## 1.2 Memberships

- President of the South African Chapter of the Alliance for the Prudent Use of Antibiotics
- National Antibiotic Surveillance Forum
- Federation of Infectious Diseases Societies of South Africa
- Islamic Medical Association

## 2. RESEARCH

### 2.1 Research Fields and Focus Areas

- Access, Retention and Success in Higher Education
- Antibiotic Resistance – Strategies for Prevention and Containment based on Surveillance, Risk Factors, Clinical Significance, Infection Control, Pharmaco-economics and Drug Pharmacokinetics and Pharmacodynamics
- Molecular biology/Genetics of Bacterial Resistance to Antibiotics (specifically beta-lactam antibiotics - penicillins, cephalosporins and related compounds) in *Acinetobacter spp.*, *Citrobacter spp.*, *Enterobacter spp.*, *Escherichia coli*, *Haemophilis influenzae*, *Klebsiella spp.*, *Proteus mirabilis*, *Salmonella spp.*, *Staphylococcus aureus* and *Streptococcus spp.*
- Extended-Spectrum Beta-lactamase (ESBL)-Mediated Resistance in State Hospitals
- Nosocomiology and Infection Control
- Antibiotic Resistance Determinants in Agriculture
- Antibiotic Use and Resistance

Established the “Antimicrobial Research Proto-Unit” in the School of Pharmacy and Pharmacology.

### 2.2 Peer-reviewed publications

1. Holloway, K., Mathai, E., Gray, A., Chandy, S., Essack, S.Y., Gous, A., Joseph, I., Koppikar, G.V., Kotwani, A., Kulkarni, R., Mathai, M., Matthews, J., Pochee, E., Sturm, A.W., Thatte, U., Thomas, K., and Wattal, C. 2011. *Surveillance of community antimicrobial use in resource-constrained settings - experience from five pilot projects*. Tropical Medicine and International Health 16 (2) 152-161 [Co-investigator]
2. Holloway, K., Mathai, E., Gray, A., Chandy, S., Essack, S.Y., Gous, A., Joseph, I., Koppikar, G.V., Kotwani, A., Kulkarni, R., Mathai, M., Matthews, J., Pochee, E., Sturm, A.W., Thatte, U., Thomas, K., and Wattal, C. 2010. *Surveillance of antimicrobial resistance in resource-constrained settings - experience from five pilot projects*. Tropical Medicine and International Health (in press) [Co-investigator]
3. Essack, S.Y., Naidoo, I. and Barnes, G. 2010. *Government Funding as Leverage for Quality Teaching and Learning*. Journal of Higher Education and Management Policy, 22 (3): 1-13. [Principal investigator & author]
4. Bester, L. and Essack, S.Y. 2010. *Antibiotic Resistance via the Food Chain: Fact or Fiction*. South African Journal of Science 106: 1-5. [Principal PhD supervisor]
5. Mocktar, C., Govinden U., Sturm A W and Essack SY. 2009. *Complexity and diversity of beta-lactamase expression in inhibitor resistant Escherichia coli from public hospitals in KwaZulu-Natal, South Africa*. Southern African Journal of Epidemiology and Infection. 24: 29-33.
6. Essa, Z.I., Connolly, C. and Essack, S.Y. 2009. *Staphylococcus aureus from Public Hospitals in Kwa-Zulu-Natal, South Africa – Infection Detection and Strain Typing*. Southern African Journal of Epidemiology and Infection. 24:4-7. [M. Pharm supervisor]
7. Essack, S.Y. and Uys L.R. 2009. *Health Research in South Africa- Are we meeting the need?* South African Journal of Higher Education. 23 (2): 264-274. [co-author]
8. Essack, S.Y., Barnes, G., Jackson, L., Majozi, M., McInerney, P., Mtshali, N., Naidoo, I., Oosthuizen, F. and Suleman, F. 2009. *Maximizing Income via the Higher Education Funding Framework in Health Sciences*. South African Journal of Higher Education 23 (2): 275-292. [Principal investigator & author]
9. Govinden, U., Mocktar, C., Moodley, P., Sturm AW and Essack, S.Y. 2009. *Detection of mutations in the gyrA of clinical Salmonella spp.* African Journal of Biotechnology. 8:3011-3914. [Principal PhD supervisor] Impact Factor=0.456
10. Bester, L and Essack, S.Y. 2008. *Prevalence of antibiotic resistance in Campylobacter isolates from commercial poultry suppliers in KwaZulu-Natal, South Africa*. Journal of Antimicrobial Chemotherapy, 62 (6):1298-1300. [PhD supervisor] Impact Factor=4.038
11. Mocktar C., Govinden U, Sturm A W and Essack SY. 2008. *The effect of mutations in the AmpC promoter region on beta-lactam resistance from an Escherichia coli clinical isolate from a patient in a public sector hospital in Kwazulu-Natal, South Africa*. African Journal of Biotechnology. 7: 2547-2550. [Principal PhD supervisor] Impact Factor=0.456
12. Govinden, U., Mocktar, C., Moodley, P., Sturm AW and Essack, S.Y. 2008. *Characterization of ESBLs in Salmonella spp. at a tertiary hospital in Durban South Africa*. Diagnostic Microbiology and Infectious Disease, 62: 86-91. [Principal PhD supervisor] Impact Factor=2.448
13. Mocktar C, Govinden U, Sturm A W and Essack SY. 2008. *CMY-20, a novel AmpC-type beta-lactamase from South African clinical Escherichia coli isolates*. Diagnostic Microbiology and Infectious Disease, 60: 405-8. [Principal PhD supervisor] Impact Factor=2.448, ISI Citation Count=2

14. Govinden U, Mocktar C, Moodley P, Sturm A W and Essack SY. 2007. *Geographical evolution of the CTX-M  $\beta$ -lactamase – an update*. African Journal of Biotechnology, 6: 831-839. [Principal PhD supervisor] Impact Factor=0.456, ISI Citation Count=3, Google Scholar Citation Count=1
15. Mocktar C, Govinden U, Sturm A W and Essack SY. 2007. *TEM-145 and TEM-146  $\beta$ -lactamases produced by Escherichia coli isolates from state hospitals in Kwazulu-Natal, South Africa*. African Journal of Biotechnology, 6: 493-496. [Principal PhD supervisor] Impact Factor=0.456
16. <sup>1</sup>\*Bester L.A. and Essack S.Y. 2007. *Antibiotic resistance in Campylobacter isolates from poultry in KwaZulu-Natal*. Southern African Journal of Epidemiology and Infection; 22: 53 (conference abstract). [Principal PhD supervisor]
17. Govinden, U., Mocktar, C., Moodley, P., Sturm A.W. and Essack, S.Y. 2006. *CTX-M-37 in Salmonella enterica serotype Isangi from Durban South Africa*. International Journal of Antimicrobial Agents, 28: 288-291. [Principal PhD supervisor] Impact Factor=2.448, ISI Citation Count=2, Google Scholar Citation Count=6
18. Essack, S.Y. 2006. *Strategies for the Prevention and Containment of Antibiotic Resistance*. South African Family Practice, 48: 51. [Sole author of position paper]
19. Essack, S.Y., Connolly, C and Sturm, A.W. 2005. *Treatment guidelines and antibiotic resistance in South Africa*. South African Medical Journal, 95:865-870. [Principal investigator] Google Scholar Citation Count=1
20. <sup>1</sup>Gray, A. and Essack S.Y. 2005. *Monitoring antibiotic use and resistance – a pilot project in South Africa*. Essential Drugs Monitor, 34: 20 [Co-investigator]
21. Govender, S., Pillay, V., Chetty, D.J., Essack, S. Y. and Govender, T. 2005. *Optimization and characterization of bioadhesive controlled release tetracycline microspheres*. International Journal of Pharmaceutics, 306 (1-2): 24-40. [Provided methodological and analytical expertise on the antimicrobial susceptibility testing aspect of this M. Pharm research project] Impact Factor=2.408, ISI Citation Count=13, Google Scholar Citation Count=16
22. Essack, S.Y. 2004.  *$\beta$ -Lactamases – An Overview*. Southern African Journal of Epidemiology and Infection, 19:106-114. [Sole author of review paper] Google Scholar Citation Count=1
23. Essack, S.Y., Hall, L.M.C. and Livermore, D.M. 2004. *Klebsiella pneumoniae isolate from South Africa with multiple TEM, SHV and AmpC  $\beta$ -lactamases*. International Journal of Antimicrobial Agents, 23: 398-400. [Principal investigator] Impact Factor=2.338, ISI Citation Count=3, Google Scholar Citation Count=5
24. Essack SY. 2002. *Extended-spectrum beta-lactamases: epidemiology, identification, treatment options and strategies to prevent emergence and dissemination*. Southern African Journal of Epidemiology and Infection, 17: 6-11. [Sole author of invited review]
25. Essack SY. 2001 *The development of  $\beta$ -Lactam antibiotics in response to the Evolution of  $\beta$ -lactamases*. Pharmaceutical Research, 18:1391-9. [Sole author of invited review] Impact Factor=2.678, ISI Citation Count=9, Google Scholar Citation Count=12
26. Essack, S.Y., Hall, L.M.C., Livermore, D.M., Mcfadyen, M.L. and Pillay, D.G. 2001. *Complexity and diversity of Klebsiella pneumoniae strains with extended-spectrum  $\beta$ -lactamases isolated in 1994 and 1996 at a teaching hospital in Durban, South Africa*. Antimicrobial Agents and Chemotherapy, 45:88-95. [Principal investigator] Impact Factor=4.390, ISI Citation Count=50, Google Scholar Citation Count=92
27. Essack, S.Y. 2000. *Unprecedented Resistance to  $\beta$ -Lactam Antibiotics Evident in Durban, South Africa - Surveillance-Based Antibiotic Policies Imperative!* Southern African Journal of Epidemiology and Infection, 15:48-50. [Sole author of position paper]
28. Essack, S.Y. 2000. *Laboratory detection of extended-spectrum  $\beta$ -lactamases (ESBLs) – the need for a reliable, reproducible method*. Diagnostic Microbiology and Infectious Disease, 37: 293-295. [Sole author of position paper] Impact Factor=2.448, ISI Citation Count=12, Google Scholar Citation Count=16
29. Essack, S.Y., Hall, L.M.C., Pillay, D.G., Mcfadyen, M.L. and Livermore, D.M. 2000. *Complexity and diversity of extended-spectrum  $\beta$ -lactamase (ESBL)-producing Klebsiella pneumoniae in Durban, South Africa*. In Programme and Abstracts of the 40<sup>th</sup> Interscience Conference on Antimicrobial Agents and Chemotherapy Toronto, Canada, 2000, Poster C1995, p. 121. American Society for Microbiology, Washington DC. (refereed abstract) [Principal investigator]
30. Essack, S.Y. 2000. *Treatment options for extended-spectrum  $\beta$ -lactamase ESBL-producers*. FEMS Microbiology Letters, 190: 181-184. [Sole author of review paper] Impact Factor=2.274, ISI Citation Count=11, Google Scholar Citation Count=15
31. Essack, S.Y., Gounder, P., Jamnadas, S., Naicker, V., Naidoo, K. and Rashid, Z. 2000. *A staphylococcal carrier study among health sciences students trained in hospitals in Durban, South Africa*. Medical Science Research, 28: 135-136. [Sole supervisor of Honours-level research project]
32. Essack, S.Y., Hall, L.M.C., Livermore, D.M. and Pillay, D.G. 1998. *TEM-62 and TEM-63, novel  $\beta$ -lactamases isolated in South African nosocomial Klebsiella pneumoniae isolates*. In Programme and Abstracts of the 38<sup>th</sup> Interscience Conference on Antimicrobial Agents and Chemotherapy San Diego, California, 1998, Paper C9, p. 71. American Society for Microbiology, Washington DC. (refereed abstract) [Principal investigator]

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<sup>1</sup> \* = Non-SAPSE/ISI

33. <sup>1\*</sup>Essack, S.Y., Ally, F.B., Paraw, A. and Pather, P. 1996. *Perception of the Pharmacist*. South African Pharmaceutical Journal, 63: 45-46. [Sole supervisor of Honours-level research project]
34. Essack, S.Y., Badat, A.H., Barmania, Z. and Naidoo, R. 1995. *Immunisation Status in Informal Settlements in South Africa*. Medical Science Research, 23: 287. [Sole supervisor of Honours-level research project]
35. Essack, S.Y., Alexander, D.M. and Pillay, B. 1995. *Synergism of piperacillin/lithium clavulanate in Enterobacter aerogenes producing multiple  $\beta$ -lactamases*. Medical Science Research, 23: 17-18. [Principal investigator]
36. Essack, S.Y., Alexander, D.M. and Pillay, B. 1994. *A "novel" plasmid-mediated, class I-type  $\beta$ -lactamase isolated in Klebsiella pneumoniae in Durban, South Africa*. Medical Science Research, 22: 797-798. [Principal investigator] ISI Citation Count=2, Google Scholar Citation Count=3

## 2.3 Book Chapters

Essack, S.Y. 2010. *Translating Equitable Access into Retention and Success in African Higher Education: The Role and Responsibility of Individual Institutions*. In O'Hara, S. (Ed) Higher Education in Africa: Equity, Access, Opportunity, Institute of International Education, New York, New York.

## 2.4 Dissertation Titles

### • PhD (Health Sciences) (2000)

Characterisation of  $\beta$ -Lactamases in a South African, Nosocomial *Klebsiella pneumoniae* Isolates.  
Supervisors : Professor M.L. McFadyen (SA) and Dr L.M.C. Hall (UK)

### • M. Pharm (awarded *cum laude* in 1994)

Resistance Mechanisms of *Enterobacteriaceae* to  $\beta$ -Lactam Antibiotics as Criteria for Improved Antibiotic Formulations  
Supervisors : Ms D.M. Alexander and Professor B Pillay

## 2.5 Conference Presentations

### 2.5.1 Papers (International)

1. Bester L.A. and Essack S.Y. *Antibiotic resistance via the food chain: Fact or fiction?* Presented at the Joint Infection Prevention and Control Africa Network/International Federation of Infection Control Conference, Cape Town, South Africa, September 2010.
2. Essack, S.Y. *Empowering Faculty and Student Development and Success by Transformational Leadership*. Keynote Address at the conference on Female Higher Education – Trends and Perspectives, Medinah, Saudi Arabia, January 2010.
3. Essack, S.Y., Lingah, T., Mashige, K.P., Mtshali, N., Naidoo, I., Naidoo, P., Oosthuizen, F., Pillay, S. and Suleman, F. *Government Funding as Leverage for Quality Teaching and Learning*. Presented at the OECD Programme on Institutional Management of Higher Education (IMHE) – Quality Teaching in Higher Education, Istanbul, Turkey, October 2009.
4. Essack, S.Y. *Moving Beyond Access to Student Success*. Keynote Address at the 29<sup>th</sup> Annual Conference of the Southern African Association for Counselling and Development in Higher Education, September, 2008.
5. Essack, S.Y. *Treatment Guidelines and Nosocomial Infections – the KwaZulu-Natal Experience*. Presented on my behalf at the Antibiotic Resistance Conference, Kololi, Gambia, November 2007.
6. Govinden U, Essack S.Y, Mocktar C, Moodley P, Sturm A.W. *Characterisation of ESBLs in Salmonella spp. at a tertiary hospital in KwaZulu-Natal*. Presented at the Antibiotic Resistance Conference, Kololi, Gambia, November 2007.
7. Bester L.A. and Essack S.Y. *Susceptibility patterns of Campylobacter and Salmonella from food animals in KZN*. Presented at the Antibiotic Resistance Conference, Kololi, Gambia, November 2007.
8. Essack, SY. *Strategies for the Containment of Antibiotic Resistance in Developing Countries – Lessons from South Africa*. Presented at the World Conference on Dosing Anti-Infectives, Nurnberg, Germany, September 2004.
9. Gray AL, Essack SY. *Methods for AMR Surveillance in Communities – lessons from the Durban site*. Presented at the 2<sup>nd</sup> International Conference on Improving Use of Medicines, Chiang Mai, Thailand, April 2004.
10. Essack, S.Y., Livermore, D.M., Hall, L.M.C. and Pillay, D.G. *TEM-62 and TEM-63, Two Novel Beta-Lactamases Isolated in South African Klebsiella pneumoniae Isolates*. Presented at the 38<sup>th</sup> Interscience Conference on Antimicrobial Agents and Chemotherapy, San Diego, September, 1998.

### 2.5.2 Papers (National)

11. Essack, S.Y. and Suleman, F. *Treatment Guidelines and Nosocomial Infections – the KwaZulu-Natal Experience*. Presented at the 21<sup>st</sup> Annual SAAHIP (South African Association of Hospital and Institutional Pharmacists) Conference Drakensburg, KwaZulu-Natal, March 2008. Received the Sandoz Award for best paper. Also presented at the Department of Health Colloquium on Infectious Diseases
12. Essack, S.Y. and Uys, L.R. *The Importance of Strategic Leadership in Aligning and Integrating College Plans with the Institutional Strategic Planning Framework - The UKZN Experience*. Presented Council of Higher Education, Higher Education Quality Committee Workshop on Enhancing Quality in Multi-Campus Institutions, Pretoria, May 2007.

13. Essack, S.Y. *Teaching and Learning for Retention and Success – A Personal and Professional Health Sciences Perspective*. Presented at the 1<sup>st</sup> Teaching and Learning Conference of the University of KwaZulu-Natal, September 2007.
14. Essack, S.Y., Connolly, C. and Sturm, A.W. *Treatment Guidelines for Infections are Contingent on Antibiotic Resistance Profiles – Results from a Multi-centre Surveillance KwaZulu-Natal*. Presented at the 19<sup>th</sup> Annual SAAHIP Conference, Wilderness, Eastern Cape, March 2006
15. Essack, SY. *Promiscuous Bacteria and the Post-Antibiotic Era*. Presented at the 18<sup>th</sup> Annual SAAHIP Conference, Drakensburg, KwaZulu-Natal, March 2004 (Pearl presentation).
16. Gray AL., Essack, SY, Deedat F., Pillay, T., van Maasdyk J and Sturm AW. *Developing a Method for Antimicrobial Use and resistance Surveillance – Durban Pilot Project*. Presented at the 18<sup>th</sup> Annual SAAHIP Conference, Drakensburg, KwaZulu-Natal, March 2004.
17. Essack, S.Y. *Containment of Antibiotic Resistance – African Imperatives*. Presented at the 24<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Durban, September 2003.
18. Essack, S.Y. and Sturm, A.W. *A multicentre surveillance study in KZN reveals inappropriate STGs and resistance to all antibiotics on the EDL*. Antibiotic Resistance Congress, Durban, October 2003.
19. Essa, Z.I., Sturm, A.W and Essack, S.Y. Comparison of Detection Methods for Methicillin Resistance in *Staphylococcus aureus* (Young Scientist Presentation). Presented at the 24<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Durban, September 2003.
20. Essack, S.Y., Alexander, D.M. and Pillay, B. *Two "Novel"  $\beta$ -Lactamases Isolated in Nosocomial Pathogens*. Presented at the 6th Annual Symposium of the Natal Branch of the South African Society for Microbiologists, Durban, October 1993.
21. Essack, S.Y., Alexander, D.M., Pillay, B. and Veltman, A.M.  *$\beta$ -Lactamases - A Synergistic Resistance Mechanism in Gram-Negative Bacteria*. Presented at the 14th Annual Congress of the Academy of Pharmaceutical Sciences, Durban, June 1993.

### 2.5.3 Posters (International)

22. Essack, S.Y., Govinden, U., Mocktar, C. & Ramgulam, U. *Rampant Resistance to Beta-Lactam Antibiotics in Previously Susceptible Enterobacteriaceae: the KwaZulu-Natal Experience*. Presented at the 19<sup>th</sup> European Congress on Clinical Microbiology and Infectious Disease, Helsinki, Finland, May 2009.
23. Essack, S.Y. *Magic Bullets and the Nosocomial Nemesis – The KwaZulu-Natal Experience*. Presented at the 2<sup>nd</sup> World Conference on Magic Bullets, Nurnberg, Germany, October 2008.
24. Essack, S.Y. *Treatment Guidelines and Nosocomial Infections – the KwaZulu-Natal Experience*. Presented at the 2008 Annual Conference on Antimicrobial Resistance, Bethesda, June 2008
25. Gray AL, Essack SY, Deedat F, Pillay T, van Maasdyk J, Holloway K Sorensen TL and Sturm AW. *Antimicrobial use and resistance surveillance pilot project – lessons from the Durban site*. Presented at the 2<sup>nd</sup> International Conference on Improving Use of Medicines, Chiang Mai, Thailand, March 2004
26. Essa, Z.I., Essack, S.Y. and Sturm, A.W. *Detection Method for Methicillin-resistant Staphylococcus aureus (MRSA) at State Hospitals in Kwazulu Natal*. Presented at the 23<sup>rd</sup> International Conference on Chemotherapy, Durban, South Africa, June 2003.
27. Moodley, P., Essack S., Gajee, K., Chaggan, M. and Sturm A.W. *Characterization of extended-spectrum beta-lactamase (ESBL)-mediated resistance in Salmonella spp. from Durban, South Africa*. Presented at the 4<sup>th</sup> European Chemotherapy Conference, May 2002.
28. Essack, S.Y., Hall, L.M.C., Livermore, D.M., Mcfadyen, M.L. and Pillay, D.G. *Complexity and diversity of extended-spectrum  $\beta$ -lactamase (ESBL)-producing Klebsiella pneumoniae in Durban, South Africa*. Presented at the 40<sup>th</sup> Interscience Conference on Antimicrobial Agents and Chemotherapy, Toronto, September 2000.
29. Essack, S.Y., Naidoo, S., Govender, P., Ramcharan, S. and Nasrullah, K.B. *Antibiotic resistance determinants in poultry – a pilot study conducted in Durban, South Africa*. Presented at the 9<sup>th</sup> International Congress on Infectious Disease, Buenos Aires, April 2000.
30. Essack, S.Y., Gounder, P., Jamnadas, S., Naicker, V., Naidoo, K. and Rashid, Z. *A staphylococcal carrier study among health sciences students trained in hospitals in Durban, South Africa*. Presented at the 9<sup>th</sup> International Congress on Infectious Disease, Buenos Aires, April 2000.
31. Essack, S.Y. *Treatment options for ESBL-producing Klebsiella pneumoniae Isolated in Durban, South Africa*. Presented at the 9<sup>th</sup> International Congress on Infectious Disease, Buenos Aires, April 2000.
32. Essack, S.Y. Hall, L.M.C., Livermore, D.M and Pillay, D.G. *Genotypic and Phenotypic Diversity amongst South African Nosocomial Klebsiella pneumoniae Isolates producing Extended-Spectrum  $\beta$ -Lactamases*. Presented at the 5<sup>th</sup> Conference of the Federation of Infection Societies, Manchester, November, 1997.
33. Essack, S.Y., Badat, A.H., Barmania, Z. and Naidoo, R. *Immunisation Status in Informal Settlements in Durban, South Africa*. Presented at the 4<sup>th</sup> International Conference of the Community Health Associations of Southern Africa, Sun City – North West Province, July 1996.

34. Smit, J.A., Chetty, D.J., Dangor, C.M., Essack, S.Y and Gray, A. *Pharmacy Curricula in South Africa: Radical Transformation and Challenges*. Presented at the International Conference on the Role of the University in Health Research and Development, Madras, February 1995.
35. Essack, S.Y., Alexander, D.M. and Pillay, B. *Pleiotropism Enhancing Resistance Conferred by TEM-4 and a "Novel", Plasmid-Mediated, Class I-Type  $\beta$ -Lactamase Isolated in Klebsiella pneumoniae in South Africa*. Presented at the 3rd International Conference of the Hospital Infection Society, London, September 1994.

#### 2.5.4 Posters (International + National)

36. Essa, Z.I. and Essack, S.Y. *Staphylococcus aureus from Public Hospitals in Kwa-Zulu-Natal - Infection Detection and Strain Typing*. Presented at the 2008 Annual Conference on Antimicrobial Resistance, Bethesda, June 2008, the Antibiotic Resistance Conference, Kololi, Gambia, November 2007 and at the 2<sup>nd</sup> Joint Congress of the Federation of Infectious Diseases Societies of Southern Africa, Cape Town, 2007.
37. Mocktar C, Govinden U, Sturm A.W. and Essack, S.Y. *Novel inhibitor-resistant  $\beta$ -lactamases TEM-145 and TEM-146, from two Escherichia coli clinical isolates*. Presented the Antibiotic Resistance Conference, Kololi, Gambia, November 2007 and at the 2<sup>nd</sup> Joint Congress of the Federation of Infectious Diseases Societies of Southern Africa, Cape Town, 2007.
38. Essack, S.Y, Connolly, C. and Sturm, A.W. *Treatment Guidelines and Antibiotic Resistance in South Africa*. Presented at the World Conference on Dosing Anti-Infectives, Nurnberg, Germany, September 2004, Opening Conference of the Institute of Infectious Disease and Molecular Medicine, Cape Town, March 2005 and 1<sup>st</sup> Joint Congress of the Federation of Infectious Diseases Societies of Southern Africa, Sun City, July 2005.
39. Ramgulam, U., Sturm, A.W. and Essack, S.Y. *Beta-lactamase-Mediated Resistance in Proteus mirabilis from State Hospitals in Kwazulu-Natal*. Presented at the 23<sup>rd</sup> International Conference on Chemotherapy, Durban, South Africa, June 2003 and the 24<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Durban, September 2003.
40. Govinden, U., Sturm, A.W. and Essack, S.Y. *Beta-lactamase-Mediated Resistance in Acinetobacter spp. from State Hospitals in Kwazulu-Natal*. Presented at the 23<sup>rd</sup> International Conference on Chemotherapy, Durban, South Africa, June 2003 and the 24<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Durban, September 2003.
41. Mocktar, C., Sturm, A.W. and Essack, S.Y. *Beta-lactamase-Mediated Resistance in Multi-Drug Resistant Escherichia coli from State Hospitals in Kwazulu-Natal*. Presented at the 23<sup>rd</sup> International Conference on Chemotherapy, Durban, South Africa, June 2003 and the 24<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Durban, September 2003.
42. Essack, S.Y. *Transposon-mediated Extended-Spectrum Beta-Lactamase Resistance in Nosocomial Klebsiella pneumoniae in Durban, South Africa*. Presented at the 5<sup>th</sup> International Conference of the Hospital Infection Society, Edinburgh, Scotland, September 2002 and the 24<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Durban, September 2003.
43. Essack, S.Y. and Sturm, A.W. *The Applicability of Standard Treatment Guidelines for Infections – A Case Study of Urinary Tract Infections in Kwazulu-Natal, South Africa*. Presented at the 5<sup>th</sup> International Conference of the Hospital Infection Society, Edinburgh, Scotland, September 2002 and the 24<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Durban, September 2003.
44. Essack, S.Y. and Sturm, A.W. *Resistance Trends from the First Multi-Centre Surveillance Study in Kwazulu-Natal, South Africa*. Presented at the 5<sup>th</sup> International Conference of the Hospital Infection Society, Edinburgh, Scotland, September 2002 and the 24<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Durban, September 2003.
45. Essack, S.Y., Hall, L.M.C. and Livermore, D.M. *Klebsiella pneumoniae isolate from South Africa with multiple TEM, SHV and AmpC  $\beta$ -lactamases*. Presented at the 9<sup>th</sup> International Congress on Infectious Disease, Buenos Aires, April 2000 and the 1<sup>st</sup> Joint Congress of the Federation of Infectious Diseases Societies of Southern Africa, Sun City, July 2005.

#### 2.5.5 Posters (National)

46. Govinden U, Essack S.Y, Mocktar C, Moodley P, Sturm A.W. *Detection of mutations in the gyrA of clinical Salmonella spp.* Accepted for presentation at 3<sup>rd</sup> Joint Congress of the Federation of Infectious Diseases Societies of Southern Africa, Sun City, July 2009.
47. Bester L.A. and Essack S.Y. *Antibiotic resistance in Campylobacter isolates from poultry in KwaZulu-Natal*. at the 2<sup>nd</sup> Joint Congress of the Federation of Infectious Diseases Societies of Southern Africa, Cape Town, 2007. Abstract published in *The Southern African Journal of Epidemiology and Infection* 2007; 22: 53-53.
48. Arbee, R., Mahes, N., Mankahla, U., Naroth, A., Suleman, F. and Essack, S.Y. *Status of Infection Control in Public Hospitals in Kwa-Zulu Natal*. Presented at the 21st Annual SAAHIP Conference, Drakensburg, KwaZulu-Natal, March 2007.



49. Govinden U, Essack S.Y, Mocktar C, Moodley P, Sturm A.W. *Salmonella spp. producing CTX-M-37 from a tertiary hospital in Durban, South Africa*. Presented at the 1<sup>st</sup> Joint Congress of the Federation of Infectious Diseases Societies of Southern Africa, Sun City, July 2005.
50. Govender, S., Chetty, D.J., Pillay, V., Essack, S.Y and Govender, T. *Physicochemical Properties of Tetracycline Loaded Bioadhesive Microspheres Designed for the Treatment of Periodontal Disease*. Presented at the 25<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Grahamstown, September 2004.
51. Essack, S.Y. *Complexity and Diversity of Klebsiella pneumoniae strains with Extended-Spectrum  $\beta$ -Lactamases*. Presented at the 25<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Grahamstown, September 2004.
52. Dlamini, P., Govender, Y., Nageshar, A., Veerasamy, C. and Essack, S.Y. *Antibacterial properties of South African honey*. Presented at the 18<sup>th</sup> Annual SAAHIP Conference, Drakensburg, KwaZulu-Natal, March 2004.
53. Govinden, U, McDonald, D and Essack, S.Y. *Biochemical characterisation of a "novel" plasmid-mediated AmpC beta-lactamase*. Presented at the Joint Congress of the Infectious Diseases and Sexually Transmitted Diseases Societies of Southern Africa, Stellenbosch, December 2001.
54. Mocktar, C., Essack, S.Y., Rogers, B.C. and Dangor, C.M. *Antimicrobial activity of aqueous extracts of Bulbine natalensis and Bulbine frutescens*. Presented at the Annual Congress of the Academy of Pharmaceutical Sciences, Grahamstown, September, 2000.
55. Essack, S.Y., McFadyen, M.L., Pillay, B and Gray, A.L.  *$\beta$ -Lactam Antibiogram for South African Strains of Klebsiella pneumoniae - Implications for Practice*. Presented at the 11th Conference of the South African Society of Hospital and Institutional Pharmacists, Port Elizabeth, March 1997.
56. Essack, S.Y., Alexander, D.M. and Pillay, B. *Expanded-Spectrum  $\beta$ -Lactamases in South Africa - A Threat to the Use of  $\beta$ -Lactam Antibiotics*. Presented at the 5th Joint Congress of the Sexually Transmitted Diseases and Infectious Diseases Societies of Southern Africa, Durban, May 1995.
57. Essack, S.Y., Alexander, D.M. and Pillay, B. *"Novel"  $\beta$ -Lactamases - A Threat to the Use of  $\beta$ -Lactam Antibiotics*. Presented at the 9th Conference of the South African Society of Hospital and Institutional Pharmacists, Langebaan, March 1995.

#### 2.5.6 Conference Session Chairmanship

- 60<sup>th</sup> Annual General Meeting of the Pharmaceutical Society of South Africa, Gauteng, 2005
- 24<sup>th</sup> Annual Conference of the Academy of Pharmaceutical Sciences, Durban, September 2003
- Resistance to Anti-Infectives. World Conference on Dosing Anti-Infectives, Nurnberg, Germany, September 2004.

#### 2.6 Research Support

• <b>DFID-MRCI</b>	<b>£100 000</b>	<b>2010-11</b>	<b>[Principal investigator]</b>
<b>Department for International Development, Mobilizing Regional Capacity Initiative (DFID-MRCI)</b>			
Institutional Initiatives to Enhance Participation, Access, Retention and Success in African Higher Education: A Multi-Country Study on Good Practice to Inform Policy			
• <b>UKZN Competitive Research Grant (Teaching &amp; Learning)</b>	<b>R25 000</b>	<b>2010-11</b>	<b>[Co-investigator]</b>
Student Success in the Faculty of Health Sciences: the impact of curriculum change, the introduction of innovative teaching/learning methods, and student support services			
• <b>Centre for the International Exchange of Scholars</b>	<b>\$10 000</b>	<b>2008-9</b>	<b>[Principal investigator]</b>
Strategies for the Enhancement of Access, Retention and Success in African Higher Education			
• <b>UKZN Access Programme</b>	<b>R950 000</b>	<b>2005-6</b>	<b>[Concept/study design and motivation]</b>
Academic Development and Student Support (ADSS) Project			
• <b>NRF (Focus Area)</b>	<b>R495 000</b>	<b>2005-7</b>	<b>[Principal investigator]</b>
Strategies for Containing Antibiotic Resistance			
• <b>MRC</b>	<b>R390 000</b>	<b>2004-6</b>	<b>[Principal investigator]</b>
Antibiotic Resistance – Strategies for Prevention and Containment based on Risk Factors, Clinical Significance, Infection Control, Pharmaco-economics and Drug Pharmacokinetics and Pharmacodynamics			
• <b>UDW</b>	<b>R125 000</b>	<b>2004-6</b>	<b>[Principal investigator]</b>
Equipment Grant for Antibiotic Resistance			
• <b>WHO</b>	<b>\$ 30 000</b>	<b>2002-2003</b>	<b>[Co-investigator]</b>
Antibiotic Use and Resistance in Acute Respiratory Infections Encountered in Public and Private Primary Health Care in Kwazulu-Natal, South Africa			
• <b>MRC</b>	<b>R300 000</b>	<b>2001-2003</b>	<b>[Principal investigator]</b>
Antibiotic Resistance Profiles in State Hospitals in Kwazulu-Natal			
• <b>NRF</b>	<b>R398 000</b>	<b>2001-2002</b>	<b>[Principal investigator]</b>
Public Health and Antibiotic Resistance			

•UDW Equipment Grant	R145 000	2000-2001	[Principal investigator]
•Wellcome Trust Research Training Fellowship	£ 27 000	1997-98	[Principal investigator]

### 37. TEACHING

#### 3.1 Teaching/Training Fields

- Pharmaceutical Microbiology, Sterile Products, Aseptic Technique, Research
- Methodology, Research Skills and Experimental Skills in Molecular Biology and Microbiology

#### 3.2 Curriculum/Programme Development and Evaluation

- As programme coordinator in the Department of Pharmacy, I recognized the need for and facilitated curriculum review on 2 separate occasions. The first was in 1999 with funding from USAID-TELP via the Faculty of Health Sciences Education and Training Committee in response to a change in the competency statements (unit standards) issued by the South African Pharmacy Council (SAPC) as the Education and Training Quality Assuror (ETQA) for all B. Pharm programmes. A key feature was the innovative re-designing of the Pharmacy Practice curriculum, integrating it with the Pharmacology curriculum. Part of the new approach involved an externship programme, which consisted of student visits to hospital sites and the evaluation of patients in the contexts of Clinical Pharmacology, Primary Care Drug Therapy (PCDT), communication skills and Pharmacy Law/Ethics. This was highly commended by the SAPC in its inspection of the School for accreditation as an institution offering the B. Pharm programme.
- Curriculum review was again undertaken in 2001-2 where the B. Pharm programme was evaluated by stakeholders from community pharmacy, hospital pharmacy (both public and private), pharmaceutical industry, research and development, academia, and the Department of Health (Pharmaceutical Services). Feedback from a focus group was used to amend the curriculum in order to make it relevant to pharmaceutical care imperatives in South Africa. The new B. Pharm programme was finalized in 2003 under my headship and offered for the first time in 2004.
- I developed two on-line teaching units on research supervision, viz., “the relationship” and “roles and responsibilities” which are offered on the UKZN open-learning system. <http://ols.ukzn.ac.za/system/interface/interface.php>
- As Dean, I conceptualised and provided the framework for the “Academic Development and Student Success (ADSS)” Project which was further developed by health sciences education experts in the Faculty. The ADSS Project is aimed at enhancing student throughput via a two-pronged approach, viz., the appointment of academic development programme (ADP) officers/tutors to monitor/assist students encountering difficulties with the academic content of programmes; together with re-curriculating to innovative, student-centered and diversity sensitive curricula in terms of pedagogies investigating the implementation of competency-based education (CBE)/outcomes-based education (OBE), problem-based learning (PBL) and cased-based curricula (CBC) within Health Sciences programmes. The project includes an evaluation of the relevance of content to the South African and African contexts by soliciting comments from stakeholders in the public and private health care arenas (e.g. employers of graduates, Department of Health etc. The conceptual framework guiding this initiative has three dimensions: student support and development (for both ‘at risk’ and excellent students), curriculum development and capacity building of academic staff in terms of teaching strategies and pedagogies.
- As Dean, I conceptualized and provided both the framework and macro-curriculum for the web-based Masters in Health Sciences programme consisting of 5 core 16-credit modules, a discipline specific elective and a 96-credit research project with the aim of increasing the recruitment of postgraduate students and research output in the Faculty.

#### 3.3 Undergraduate teaching

- I have taught the entire (100%) Pharmaceutical Microbiology/Institutional Pharmaceutics, Sterile Products and Research Project modules, 50% of the Drug Delivery module and 10% of Biopharmaceutics module at undergraduate level.
- I was appointed external examiner in Pharmaceutical Microbiology, Makerere University, Uganda for the period 2003-5
- I have presented specialist lectures on infection control to Occupational Therapy students in preparation for clinical practice at hospitals and clinics.
- Having acquired a reputation for research-led teaching, I have been requested to present specialist lectures to medical doctors, pharmacists and nurses by professional societies as well as public and private hospitals, e.g.:
- *Treatment Guidelines and Nosocomial Infections – the KwaZulu-Natal Experience*. Presented at the Department of Health Epidemic Prone Diseases Symposium on invitation (2007)

- *Antibiotic Resistance – Current Status and Strategies for Control* - Presented as CPD/CME on request of the LifeHealthCare hospital Group to pharmacists and medical practitioners in Durban (2005) and Empangeni (2006) respectively
- *Infection Control* - Presented to nursing staff of Mahatma Gandhi hospital as an intervention requested by the pharmacists in response to the deaths of neonates because of contaminated parenteral feeds (2005)
- *Strategies for the Containment of Antibiotic Resistance* - Presented as CPD/CME on request of the South African Association of Hospital and Institutional Pharmacists, KZN Coastal and KZN Midlands Branches (2005)
- *Antibiotic Resistance – The Beginning of the Post-Antibiotic Era* – Presented as a CPD/CME on request of the South African Association of Hospital and Institutional Pharmacists, KZN Midlands Branch and the Pharmaceutical Society of South Africa, KZN Coastal (2003)

### 3.4 Postgraduate supervision Successful Doctoral and Masters Supervision

- C. Mocktar (PhD, 2009)  
Molecular Epidemiology of Multi-drug Resistant *Escherichia coli* Isolated at State Hospitals in Kwazulu-Natal  
*Resulted in 3 publications and 3 conference presentations*
- U. Govinden (PhD, 2009)  
Extended-spectrum Beta-Lactamase Resistance in *Salmonella spp.*  
*Resulted in 4 publications and 3 conference presentations*
- Z Essa (M. Pharm, 2007)  
*Staphylococcus aureus* from Public Hospitals in Kwa-Zulu-Natal – Infection Detection and Strain Typing  
*Resulted in 1 publication and 3 conference presentations*
- A Parsoo (M. Med Sc, 2005)  
Applicability of Standard Treatment Guidelines for Infections in Regional Hospitals.  
*Awarded 76% for dissertation*
- K Naidoo (M. Med Sc, 2005, 70% for dissertation)  
Applicability of Standard Treatment Guidelines for Infections in District and Tertiary Hospitals.  
*Awarded 70% for dissertation*
- U Ramgulam (M. Pharm, 2004)  
Molecular Epidemiology of Beta-Lactam Antibiotic Resistant *Proteus spp.* Isolated at State Hospitals in Kwazulu-Natal  
*Resulted in 2 conference presentations*
- U. Govinden (M. Chem, 2001, **cum laude**)  
Kinetic Characteristics of AmpC Beta-Lactamases  
*Awarded Bronze Medal from the Southern African Association for the Advancement of Science for Best Masters Study in 2002*
- C. Mocktar (M. Med Sc, 2000)  
Microbiological and chemical analyses of extracts of indigenous plants  
*Resulted in a conference presentation*

### Successful Honours Level Group Supervision (29)

#### 2006:

- Infection Control Status in Public Hospitals in KwaZulu-Natal  
*Resulted in a conference presentation*

#### 2004:

- Evaluation of a Foot Dryer for the Prevention of *Tenia pedis*
- Staphylococcal Contamination of the Hospital Environment  
*Ms TR Ngwenya was awarded MRC Work-Study Research Scholarship for the study*
- Staphylococcal Contamination of Hospital Personnel clothing  
*Ms LM Ntoa was awarded MRC Work-Study Research Scholarship for the study*

#### 2003:

- Antibacterial Properties of South African Honey  
*Resulted in a conference presentation*

#### 2002:

- Genotypic Characterisation of Beta-Lactamase-Mediated Resistance in *Klebsiella oxytoca* Isolated in State Hospitals in Kwazulu-Natal
- Genotypic Characterisation of Beta-Lactamase-Mediated Resistance in *Citrobacter freundii* Isolated in State Hospitals in Kwa-Zulu-Natal

#### 2001:

- Antibiotic Use and Resistance – A Correlation?

**2000:**

- A staphylococcal Carrier Study Amongst ICU Nurses  
*Awarded first prize for best podium presentation at the annual School of Pharmacy and Pharmacology Research Day, 2000*
- The Efficacy of Standard Treatment Guidelines and the Essentials Drugs List in the Treatment of Community-Acquired Urinary Tract Pathogens
- Antibiotic Resistance Determinants in Pork
- Antibiotic Resistance Determinants in Beef

**1999:**

- 'The Competent Pharmacist'
- Anti-Gram-positive Activity of Organotin Quaternary Ammonium Disinfectant
- Anti-Gram-negative Activity of Organotin Quaternary Ammonium Disinfectant  
*Awarded fourth prize for best research presentation at the annual Department of Pharmacy Research Day, 1999*
- Quinolone Resistance in Community-Acquired Pathogens
- Antibiotic Resistance Determinants in Poultry  
*Awarded first prize for best research paper presentation at the at the annual Faculty of Health Sciences Research Day, 1999, and, Awarded third prize for best research presentation at the annual Department of Pharmacy Research Day, 1999, and resulted in 1 conference presentation*
- A Staphylococcus Carrier Study Among Health Science Students  
*Resulted in 1 publication and 1 conference presentation*

**1996:**

- The Effect of Microwaving on the Bacterial Viable Count
- Status of Infection Control in Provincial Hospitals in Durban

**1995:**

- Incidence of Nosocomial Infections at King Edward VIII Hospital  
*Awarded third prize for best podium presentation at the Faculty of Health Sciences Research Day, 1995*
- Evaluation of Microbial and Particulate Contamination in Intravenous Admixtures  
*Awarded third prize for best poster presentation at the Faculty of Health Sciences Research Day, 1995*

**1994:**

- Perception of the Pharmacist by Other Health Care Professionals  
*Resulted in a publication*
- Tuberculosis Awareness Campaign  
*Awarded a prize for best poster presentation at the Faculty of Health Sciences Research Day, 1994*
- Immunisation Awareness in Informal Settlements in Durban  
*Resulted in 1 publication and 1 conference presentation*
- An Evaluation of Antibiotic Susceptibility Testing Techniques for Antibiotics

**1993:**

- AIDS Awareness Campaign
- Permeability : A Primary Resistance Mechanism to  $\beta$ -Lactam Antibiotics in Gram-negative Bacteria

**1992:**

- The Effect of Clavulanic Acid on the MIC of  $\beta$ -Lactam Antibiotics

**Current****•L Bester (PhD)**

Prevalence and Transfer of Antibiotic Resistance in Food Animals  
*Awarded the NRF Thuthuka Grant, the NRF Training Grant and the UKZN Competitive Grant based on the scientific merit of the study. Resulted in 1 publication to date and 3 conference presentations to date.*

**•C Najjuka (PhD)**

Characterization of ESBLs in Enterobacteriaceae in Uganda

**•P Orton (PhD)**

Barriers to Higher Education in Africa – Impact on the Health Sciences

**•Y Naidoo (M Med Sc)**

$\beta$ -Lactamase Mediated Resistance in *Klebsiella pneumoniae* from States Hospitals in KwaZulu-Natal

**3.5 External Examination**

I have served as external examiner for Masters dissertations from the University of Cape Town, University of the Witwatersrand, Nelson Mandela Metropolitan University and the Nelson R Mandela School of Medicine, UKZN.

### 3.6 Honours and Achievements Related to Teaching

#### 2010:

- Awarded a grant of £100 000 from Department for International Development, Mobilizing Regional Capacity Initiative (DFID-MRCI) for a project entitled “Institutional Initiatives to Enhance Participation, Access, Retention and Success in African Higher Education: A Multi-Country Study on Good Practice to Inform Policy”
- Awarded a grant of R25 000 from the UKZN Competitive Research Grant (Teaching & Learning) for a study entitled “Student Success in the Faculty of Health Sciences: the impact of curriculum change, the introduction of innovative teaching/learning methods, and student support services” as co-investigator.

#### 2009:

- Successfully nominated by the Institution of International Education to participate in the World Innovation Summit for Education
- Serve on the Steering Committee for Development of Inter-College Teaching and Research Programmes in Research Management (Responsible for facilitating the development of the macro-curriculum) (2009)

#### 2008:

- Invited to present the keynote address entitled *Moving Beyond Access to Student Success* at the 2<sup>9th</sup> Annual Conference of the Southern African Association for Counselling and Development in Higher Education, September, 2008.
- Invited membership of the Directors Forum of the Higher Education Learning and Teaching Association of Southern Africa (HELTASA). This is a special interest group focusing on Academic Development and Support in HEIs in South Africa including *inter alia* higher education studies, foundation programmes, technology-assisted learning, professional development of lecturers, curriculum development and student counselling.
- Served as external panel member on the School and programme review of the School of Pharmacy at the University of the Western Cape.

#### 2007:

- Competitively selected as a South African representative on the AHEC Grant, a programme of the CIES, a division of the IIE on the basis of my teaching-related initiatives as Dean in the Faculty of Health Sciences, specifically the ADSS project described above
- Invited to present the keynote address entitled *Teaching and Learning for Retention and Success – A Personal and Professional Health Sciences Perspective* at the 1<sup>st</sup> Teaching and Learning Conference of the University of KwaZulu-Natal, September 2007.
- Awarded Certificate in Conducting Outcomes-Based Assessments
- Registered as an Assessor with the South African Pharmacy Council
- Appointed member of the Quality Assurance Committee of Pharmcore a 3<sup>rd</sup> stream income generating company formed in accordance with the UKZN Policy of Self-Funded Teaching Programmes and the UKZN Commercial Initiatives Policy offering courses and programmes determined by market-need.

#### 2006:

- I was appointed Visiting Professor to the University College of Technology and Management, Malaysia to undertake a review of their Pharmacy programmes

### 3.7 Publications Related to Teaching

- Essack, S.Y., Naidoo, I. and Barnes, G. 2010. *Government Funding as Leverage for Quality Teaching and Learning*. Journal of Higher Education and Management Policy, 22 (3) (in press). [Principal investigator & author]
- Essack, S.Y., Barnes, G., Jackson, L., Majozi, M., McInerney, P., Mtshali, N., Naidoo, I., Oosthuizen, F. and Suleman, F. 2009. *Maximizing Income via the Higher Education Funding Framework in Health Sciences*. South African Journal of Higher Education **23**: 59-74

## 38. SERVICE

### 4.1 International

- 2010:** Appointed Visiting Professor to the University College of Technology and Management, Malaysia, 2010-2012
- 2006:** Appointed President of the South African Chapter for the Alliance for the Prudent Use of Antibiotics
- 2003-2005:** Appointed Visiting Professor to the University College of Technology and Management, Malaysia, 2006-8
- 2003-2005:** Appointed external examiner in Pharmaceutical Microbiology in the Department of Pharmacy, Makerere University, Uganda, 2003-2005
- 2003:** Member of organising committee for 23<sup>rd</sup> International Conference on Chemotherapy

## 4.2 National

- 2010:** Ministerial appointee to the National Health Research Ethics Council (2010-2013)  
Appointed on the Council for Higher Education (CHE) Programme Accreditation Panel  
Appointed as Higher Education South Africa (HESA) representative on the Professional Body Reference Group of the South African Qualifications Authority (SAQA)  
Appointed Higher Education South Africa (HESA) and South African Committee of Health Sciences Deans representative on task team synergising accreditation of health professional training programmes between the CHE and the Health Professional Council of South Africa.
- 2009:** Appointed external expert/member of a Academic Promotions Panel for Professorship at DUT
- 2008:** Appointed Associate Editor of the Southern African Journal of Epidemiology and Infection  
Appointed external expert on a School Review Panel for the School of Pharmacy, University of the Western Cape.  
Nominated to serve on the South African Pharmacy Council
- 2007:** Co-founded the South African Committee of Health Sciences Deans and principal author of its Constitution
- 2006:** Member of the Advisory Board on the Student's Female Condom Study of the Reproductive Health and HIV Research Unit (RHRU)
- 2004-5:** Served as a member of the National Executive Committee of the Pharmaceutical Society of SA 2004-5
- 2000-to date:** Appointed as tutor of academic interns at the University of Durban-Westville

## 4.3 University

- Current:** Serve on the University Executive as Acting Deputy Vice Chancellor and Head of the College of Health Sciences
- Serve as Senate Representative on the UKZN Council
  - Serve as alternate on the Council Membership Committee of Council
  - Serve as alternate on the Executive Committee of Council
  - Serve on University Senate
  - Serve on the Leadership Forum
  - Serve on the Executive and Deans Committee
  - Serve on the University Research and Ethics Committee
  - Serve on the University Teaching and Learning Committee
  - Serve on the Performance Management Committee of Human Resources as Deans' representative
  - Serve on the Task Team developing guidelines for the Research Development Grant
  - Serve on the ICT PC Review Committee
- 2009:** Served on the Council Membership Committee of Council
- Served as alternate on the Finance Committee of Council
  - Serve on Remuneration Committee of Council as Deans' nominee/representative (2008-2010).
  - Served on the Salary Subvention Committee of Council as Deans' nominee/representative
  - Served on Student Services Council as Deans' nominee/representative
  - Served on the Academic Resource Planning Committee of Senate
  - Served on the Goal 7 Task Team tasked with the Implementation of Goal 7 of the UKZN Strategic Plan (VC's nominee)
  - Served on the Science Access Steering Committee
  - Served on the LEAP Management Committee
  - Served on the LEAP Academy
  - Served on the Access Advisory Committee (2005-9)
- 2008:** Served on the Institutional Audit Coordinating Committee as Deans' nominee/representative
- Served on the College Quality Committee of the College of Science and Agriculture
  - Served on the "transformation, social cohesion, and elimination of discrimination" task team
- 2007:** Served on the Finance Stabilization Task Team as Deans' nominee/ representative
- Served on the Senate Sub-Committee on the Examination and Administration of Postgraduate Degrees
  - Served on the Senate Sub-Committee for Policy Formulation on Graduation Certificates
- 2006:** Served on the Steering Committee for the formulation of the UKZN Strategic Plan 2007-16
- Served on the planning committee for the "Implementation Strategy for School and Business Plans"
- 2005:** Served on the Reference Group Auditing Student Failure (April 2005)
- Appointed on the working group for the development of an Access Policy for UKZN
  - Appointed on the working group for the development of the Research Policy for UKZN

#### 4.4 College of Health Sciences

- Current:** Serve on the Steering Committee for Development of Inter-College Teaching and Research Programmes in Research Management (Facilitating the development of the macro-curriculum)
- Serve on the Steering Committee for Development of Teaching and Research Programmes in Autistic Spectrum Disorders
  - Serve on the Advisory Board of the Centre for Rural Health
  - Serve on the Community Advisory Board of the Female Condom Study run by the Reproductive Health Research Unit
  - Serve on the Advisory Board of the Atlantic Philanthropies-Funded project entitled “Healthy Mothers, Health Babies”
  - Serve as Chair of the Advisory Board of the Buyel’empilweni Research Advisory Group
  - Serve on the College Management Committee
  - Serve on the Academic Affairs and Quality Board
  - Serve on the College Quality Committee
  - Serve on the College Promotions and Awards Committee
  - Chair the sub-committee responsible for implementation of Goal 6 of the College Strategic Plan
- 2009:** Served on the Academic Affairs Board
- Served on the College Quality Committee

#### 4.5 Faculty of Health Sciences (UKZN)

- Current:** Dean of Faculty
- Chair of:
    - Faculty Board
    - Equity, Transformation and Human Resources Committee (ETHRC)
    - Faculty Exclusions Appeals Committee (FAEC)
    - Faculty Management and Quality Committee (FMQC)
    - Promotions and Awards Committee (PAC)
- 2008:** Formulated “UKZN – A Guide for Faculty of Health Sciences Staff”
- 2007:** Commissioned a video as a marketing tool encouraging students to choose programmes in the Faculty of Health Sciences at UKZN highlighting UKZN-specific programme characteristics in addition to academic excellence such as relevance to the South African and African healthcare contexts, diverse service and training platforms ranging from deep rural to urban, community-based education, undergraduate experiential training/externships, pedagogies appropriate to the diverse student needs, research areas, community outreach initiatives and international and national collaboration. The video is targeted at students at grade 9 and 10 from previously disadvantaged “Dinaledi” schools in rural and peri-urban areas.
- 2006:** Developed the Faculty Strategic Plan <http://hs.ukzn.ac.za/strategicplans.aspx>
- Developed the Faculty Equity Plan <http://hs.ukzn.ac.za/strategicplans.aspx>
  - Developed the Faculty Research Strategy
  - Developed a Faculty Enrolment Plan
  - Secured funding to the amount of R950 000 from SANTED and the UKZN Access Office for the “Academic Development and Student Success (ADSS)” as described in section E above.
  - Instituted a “twinning initiative” with the Student Counseling Centre (SCC) on the Westville campus in its “*Early Identification of Students at Risk of Failure*” retention project in response to the Hugh Africa Report. The SCC has formulated a series of questionnaires that enables the identification of problems ranging from academic difficulties, to learning skills and incorrect career choices. The questionnaire-based survey is undertaken after the first set of assessments in order to timeously respond to students at risk of failing.
  - Formulated business plans to generate third stream income from alumni and the corporate sector. Secured R885 000 over a 5-year period, including R250 000 for a training Pharmacy and annual funding of R250 000 for the Pfizer College of Health Sciences Young Health Scientists Research Symposium and the Pfizer-UKZN National Young Health Scientists Research Symposium.
  - Developed the Faculty of Health Sciences Postgraduate Administration Procedure covering all aspects from indication of interest to graduation.
  - Collated Faculty Board sub-Committee packs containing national and UKZN policies and procedures relevant to the terms of reference of the committee.
  - Implemented a student monitoring system on students readmitted on probation after successful appeals against exclusion. Monitoring templates are sent to all disciplines and monthly reports are evaluated by the Dean.
- 2005:** Developed Faculty Constitution
- Initiated “Selection Tools Project” to determine the best access tool for predicting student success in preparation for the Further Education and Training Certificates of 2008. Results published in: Essack, S.Y., Barnes, G., Jackson, L., Majozi, M., McInerney, P., Mtshali, N., Naidoo, I., Oosthuizen, F. and Suleman. F. 2009.

*Maximizing Income via the Higher Education Funding Framework in Health Sciences*. South African Journal of Higher Education **23**: 59-74

- Implemented a series of workshops in the interests of staff capacity development, increasing research output and credentialing. These are run annually.
- Instituted research networking meetings
- Chaired the
  - DP Appeals Committee (2005)
  - Research, Ethics and Higher Degrees Committee (REHDC) (2005-7)
  - Teaching, Learning, Access and Undergraduate Committee (TLAUC) (2005)

**2003:** Served on UKZN Faculty Planning Committee

- Served on Faculty Merger Committee
- Served on Faculty Promotions Committee

**2002:** Served as Vice Dean of Research (1999-2002)

- Served as Chair of the Faculty Research Standing Committee (1999-2002)
- Served as Faculty Representative on the University Research Committee (1999-2002)
- Served as departmental representative on Faculty Research Committee (1998-2002)

#### **4.6 School of Pharmacy and Pharmacology**

**2004:** Served as Head of School (2003-4)

- Served on the School EXCO (1998-2004)
- Initiated a review and evaluation of the B. Pharm programme by stakeholders from community Pharmacy, hospital Pharmacy (both public and private), pharmaceutical industry, research and development, academia, and the Department of Health (Pharmaceutical Services). Feedback was used to amend the curriculum in order to make it relevant to pharmaceutical care imperatives in South Africa. The new B. Pharm programme was finalized in 2003 under my headship and offered for the first time in 2004. Continuous curriculum review occurs within the School
- Initiated a quality assurance mechanism by submitting module content for evaluation to academics at other Pharmacy Schools in South Africa
- Secured funding from Pfizer South Africa for the annual research day, Pfizer research Symposium in Pharmaceutical Sciences
- Secured student awards as follows:
  - Resmed Healthcare Award for Best Student in Pharmaceutical Chemistry
  - Resmed Healthcare Award for Best Student in Pharmaceutics
  - Hexal Pharma Award for Best Student in Pharmacology
  - Sparkport Pharmacy Award for Best Student in Pharmacy Practice
  - Pfizer Award for Best research presentation
  - Enaleni Pharmaceuticals Award for Best Pharmacy Student

**2003:** Developed School Constitution to ensure good School governance with detailed line function, accountability and responsibilities.

- Initiated staff trajectories
- Initiated staff portfolios with letters of commendation and recognition of academic, research, outreach and administrative activities of academic and non-academic staff.
- Initiated mechanism to increase intake into the B. Pharm degree in the short and long term
- Formulated “time release mechanism” to free staff pursuing postgraduate degrees.
- Initiated a SWOT analysis in preparation for the merger with the University of Natal.
- Formulated School webpage and brochure to be used as a tool to attract funding for research, workshops, conference attendance, sponsorships of HODs/Chairs of departments

**2002:** Devised admissions and selection criteria for first and second level entry into the B. Pharm degree

- Served as Discipline Chair, Pharmaceutics (2001-2002)
- Served as Undergraduate Research Co-ordinator (1999-2002)
- Served as School Representative on the Faculty Research Committee (1999-2002)
- Served as Acting School Director (1999-2002)
- Devised Student Evaluation Policies
- Devised Undergraduate Research Policies



## **5 PERSONAL DEVELOPMENT**

### **5.1 Short Courses and Workshops**

**2007:**

Enhancing Quality in Multi-Campus Institutions  
(Convened by the Council for Higher Education, Higher Education Quality Committee)  
Funding Health Sciences Education in South African Universities  
(convened by the National Department of Education)

**2006:**

Higher Education Leadership and Management  
(convened by Higher Education South Africa)  
MESAB Mentor National Workshop  
(convened by Medical Education for South African Blacks – South Africa))

**2005:**

Performance Management  
(convened by Higher Education South Africa)  
Financing Health Sciences Education  
(convened by the Western Cape Health Sciences Deans Forum)

**2004:**

Bio-analysis and Microanalysis of Antibiotic Concentrations at Target Sites  
Pharmacokinetics and Pharmacodynamics – General Concepts  
International Society of Antimicrobial pharmacology Workshop on Anti-Infectives  
(convened by Ehrlich Institute, Nurnberg, Germany)

**2003:**

Bacterial Resistance: Mechanisms, Detection, Pharmacology and Molecular Epidemiology  
(convened by the American Society of Microbiology)

**2001:**

Intensive Course in Epidemiology and Medical Statistics  
Infectious Disease Modelling and its Applications  
(convened by the London School of Hygiene and Tropical Medicine)

**2000:**

PE Biosystems PCR and Real Time Quantitative Seminar

**1999:**

Harnessing Timely and Comprehensive Surveillance Data to Enhance Antimicrobial Drug Discovery  
Writing a Funding Proposal  
Qualifications Specifications

**1997:**

Lecturing in Science and Engineering  
Making Presentations  
Supervising Student Projects and Dissertations  
(These workshops were part of the Staff Development Initiative at Queen Mary & Westfield College, University of London, UK)

**1996:**

Pharmacy Department Modularisation Workshop

**1994:**

FRD Workshop on Scientific Writing  
Pharmacy Curriculum Review

**1993:**

PSSA - Pharmacy Education Forum  
Pharmacy Re-curricularisation Workshop

**1992:**

Instructional Strategies Workshop

## **6. CONSULTANCIES (Unremunerated)**

- Apex Asphalt – Evaluation of a Foot Dryer to Prevent T pedis Infection/Athletes Foot
- Steritech - Spectrum of anti Gram-positive & anti Gram-negative Activity of Organotin Quaternary Ammonium Disinfectant
- Adcock Ingram Critical Care - Intravenous Admixture Therapy
- South African Pharmacy Council - Legal and Ethical Issues of Intravenous Therapy
- Milborrow Pharmaceuticals - Aseptic Facility Design
- Reckitt and Coleman - Resistance to "Dettol" and Antimicrobial Face Wash

## 7. OTHER

### **Addington Hospital**

- Devised antibiotic reconstitution and stability guidelines.
- Devised labelling requirements for all medication
- Served on Aseptic Processing, Total Parenteral Nutrition (TPN) and Intravenous Therapy Committees
- Pharmacy representative at Therapeutic Drug Monitoring Clinics for Epileptics
- Delivered a series of lectures to nursing staff.

### **Wentworth Hospital**

- Served on Aseptic Processing, TPN and Intravenous Therapy Committees
- Pharmacy representative at Therapeutic Drug Monitoring Clinics for Epileptics
- Responsible for training of pharmacist intern in accordance with SAPC regulations

### **King Edward VIII Hospital**

- Devised quality control regimens for all manufactured medication
- Served on Aseptic Processing, TPN and Intravenous Therapy Committees
- Pharmacy representative at Therapeutic Drug Monitoring Clinics for Epileptics
- Delivered a series of lectures to nursing staff and pharmacists.