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STUDY OF THE THERAPEUTIC GROUPS THAT ARE NOT MANUFACTURED IN JORDAN

Final Report

August 4, 2008

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FINAL REPORT

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List of Abbreviations and Acronyms

Acronym	Meaning
DNA	Deoxyribonucleic acid
FDI	Foreign Direct Investment
IPR	Intellectual Property Rights
JAPM	The Jordanian Association of Manufacturers of Pharmaceuticals & Medical Appliances
JV	Joint Venture
MENA	Middle East and North Africa Region
MNCs	Multinational Corporations
R&D	Research & Development
WTO	World Trade Organization

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EXECUTIVE SUMMARY

Jordan's pharmaceutical manufacturing industry has modern and well-equipped manufacturing facilities with a number of firms achieving international certifications. The Pharmaceutical sector in Jordan, the second largest exporting industry in year 2000, exports around 70 - 80 percent of its annual production, targeting 63 countries worldwide. In addition, local production of the Jordanian pharmaceutical sector contributed to an average of 60% (by volume) of the total pharmaceutical sales in the local private market during 2003-2006. (These figures are dependent on report findings) The remaining 40% of the pharmaceutical sales in the local market are imported medicaments. The value of imports grew by 167% to reach US\$264.6 million in 2006, up from US\$99 million in 2002.

Imported finished medicaments ,covers more than 98% of the local consumption of Hospital Solutions, Diagnostic Agents, Antineoplastics and Immunomodulators. Also, Imported medicaments fulfills around two thirds of the local demand on Nervous System, Systemic Hormones, Systemic Anti-Infective and Cardiovascular System finished medicaments. Additionally, the Jordanian pharmaceutical market relies heavily on foreign imports in terms of Genitourinary System and Sex Hormones. Local production and foreign imports have somewhat an equal share in the remaining therapeutic groups, namely, Alimentary T. & Metabolism, Dermatological, Muscular-Skeletal System, Parasitological, Respiratory System, Sensory Organs, Blood and Blood Forming Organs.

As part of the "Pharmaceutical Sector Quantitative Information Study", this report will tackle the different therapeutic groups using the A1 level of classification for private, public and foreign-produced medicaments; in addition, a detailed A4 level of classification is used to analyze the local privately-produced medicaments versus the foreign imported medicaments. The report will pin point the therapeutic groups that are not manufactured in Jordan, thereby identifying new growth opportunities in the sector.

The IMS 2007 report represents the main source of data utilized in the report, which presents high levels of accuracy in terms of value of finished medicaments produced by local private manufacturers and those imported from foreign manufacturers. The value of finished medicaments produced by the public sector was collected from the Purchasing Department of the Ministry of Health.

ANALYSIS OF THERAPEUTIC GROUPS IN THE LOCAL MARKET

In order to be competitive in today's pharmaceuticals industry, a large production capacity that allows for economies of scale, generous investments in R&D, good infrastructure, and marketing expertise are all requirements. In addition, a reasonable cost structure, compliance with IPR regulations, and the acquisition of relevant industry approvals and standards are also critical for any export-oriented company. As the industry becomes more global, these factors acquire even greater importance.

Jordan's weaknesses, such as a small domestic market and limited R&D, could be compensated by the current availability in the country of a number of new and top-quality production facilities, in addition to an extensive regional export base enhanced by zero tax on profits generated by exports, and the availability of a skilled and inexpensive workforce. In addition, Jordan's domestic healthcare spending is poised to increase, as its population grows by an average rate of 2.8 percent each year.

Serious attempts by local firms to produce drugs under license, to acquire FDA and other accreditations, and enter nontraditional markets, as well as to improve their marketing techniques and define their strategic vision have enhanced and will further enhance Jordan's ability to attract FDI for pharmaceuticals.

Jordan has competed successfully in the production of generics for the local and regional markets. Most of these drugs have been concentrated in a few therapeutic groups, such as antibiotics and anti-ulcerants. However, the technical expertise of Jordan's workforce and its local firms offers the opportunity to expand production into non-traditional product categories and different dosage forms. Currently, the most common dosage forms produced in the local market are syrups, tablets, and capsules. However, this strategic product diversification can only happen, according to JAPM and industry experts, if Jordan manages to attract a greater level of FDI.

Given Jordan's strengths, its existing industrial base, and level of expertise, as well as trends we have outlined in the global pharmaceuticals market, the country has the potential to become competitive in manufacturing the following product groups or niches, which JIB should initially target for investments.

- Antivirals, anti-ulcerant, and any other generic drugs which patents are set to expire over the next few years, for export to the European market, in order to maximize Jordan's Bolar provision advantages. There are currently 49 such leading molecules and drugs.
- Hormones, such as insulin, that require sophisticated technology and economies of scale to successfully produce, and for which global demand and market potential exist as identified by industry experts. Jordan can achieve the necessary economies of scale through an enhanced emphasis on exports.
- Anti-AIDS drugs, which also require sophisticated technology and are mostly ethical drugs, can be exported at cheap prices to poor countries where the epidemic is widespread, especially in Africa, without infringing IPR laws, according to the Doha Declaration of the WTO. Since developing and producing these drugs is very costly in developed countries, MNCs can set-up joint ventures (JV) or produce them under

contract in Jordan to serve these markets at much lower, without sacrificing quality and standards.

- Anti-cancer drugs, which also require sophisticated technology, for which there are large and expanding local and regional markets, can be better served by the lower cost basis for production in Jordan.
- Vaccines and sera, which are currently produced by less than five firms worldwide, require a very expensive cold storage environment chain which makes them costly to transport. Because of Jordan's relative proximity to two of the largest markets for these drugs, namely, South Asia and Africa, it could be an attractive location for JVs that seek to produce for these markets.
- Biotechnology drugs, which are ethical by definition, are based on blood antibodies and antigens derived from DNA. They are increasingly under demand and require sophisticated expertise, large investment, and different technology than what is currently available in Jordan, and so would require JVs or Greenfield investments.
- Herbal medicines, as well as natural products, which are increasingly in demand in Europe and other developed countries, face fewer restrictions and requirements for production than other drugs. Jordan's agricultural variety offers lucrative opportunities to develop alternative products.

In addition to these product groups, Jordan has the expertise and ability to attract FDI to an additional set of pharmaceutical activities. Namely new dosage forms, such as injectables and patches, are rarely produced in Jordan even though they do not require any expertise over and above what already exists in the market. This is because their production would require separate production lines and separate plants, which in turn would require the kinds of substantial financial resources that can be obtained through FDI.

Based on the discussion above, it can be concluded that the following export markets offer good prospects for Jordanian pharmaceuticals.

- Existing regional markets: There are two ways to approach these markets: continue the existing pattern of exporting Jordanian generics, or formulate partnerships and produce under license or contract manufacturing for U.S., European, and Japanese firms that wish to market their products in the MENA region.
- European generics market: JVs or cooperation with European firms might be the best way for Jordanian firms to penetrate this market.
- African and South Asian markets for anti-AIDS drugs and vaccines, under contract from European or U.S. companies
- U.S. generics market. This market is a medium-term prospect.
- Selected ethical drugs markets, such as biotechnology and some anti-AIDS drugs.

The target niches below highlight new areas where the industry should concentrate upon in the future

- Off patent generics

- Hormones
- Anti AIDS drugs
- Anticancer drugs
- Vaccines and sera
- Biotechnology products
- Herbal medicines
- Patches and injectibles

Tables 1 to 6 summarize the total local and imported pharmaceutical sales in the market, thus highlighting the classifications of drugs that should be concentrated upon when a new investment is made regarding the manufacturing of new products in the Jordanian local market.

Table 1: Total local sales by A1 classification for 2003

A1 Classification	Private		Public		Imports		Total	
	Units (k)	US\$ (k)	Units (k)	US\$ (k)	Units (k)	US\$ (k)	Units (k)	US\$ (k)
A0 ALIMENTARY T.& METABOLISM	1,882.2	5,168.5	256,825.2	11,743.1	3,211.8	11,823.3	261,919.2	28,734.9
B0 BLOOD + B.FORMING ORGANS	161.0	281.7	0.0	0.0	356.6	1,283.3	517.6	1,565.0
C0 CARDIOVASCULAR SYSTEM	1,021.7	5,900.3	5,036.7	208.4	999.3	9,113.0	7,057.7	15,221.7
D0 DERMATOLOGICALS	770.9	1,476.9	77.0	240.3	1,481.9	5,283.3	2,329.8	7,000.5
G0 G.U.SYSTEM & SEX HORMONES	0.0	0.0	6,230.2	2,151.9	1,306.5	6,240.1	7,536.7	8,392.0
H0 SYSTEMIC HORMONES	8.6	16.8	21,104.6	6,387.8	355.6	1,223.3	21,468.8	7,627.9
J0 SYSTEMIC ANTI-INFECTIVES	3,085.5	16,356.0	395.4	381.0	2,146.5	11,886.7	5,627.4	28,623.7
K0 HOSPITAL SOLUTIONS	3.9	3.9	7,936.3	3,449.4	9.1	9.0	7,949.3	3,462.3
L0 ANTINEOPLAST +IMMUNOMODUL	4.8	31.1	2,530.8	4,899.2	24.0	342.7	2,559.6	5,273.0
M0 MUSCULO-SKELETAL SYSTEM	1,409.1	3,002.2	239,270.7	4,558.1	1,154.7	5,600.2	241,834.5	13,160.5
N0 NERVOUS SYSTEM	3,122.7	3,610.3	71,715.2	7,443.4	2,856.0	9,031.6	77,693.9	20,085.3
P0 PARASITOLOGY	134.8	177.9	0.0	0.0	157.1	330.2	291.9	508.1
R0 RESPIRATORY SYSTEM	2,682.0	3,257.1	44,020.4	5,069.9	2,752.1	7,839.2	49,454.5	16,166.2
S0 SENSORY ORGANS	456.1	535.4	16.0	10.2	805.0	2,676.8	1,277.1	3,222.4
T0 DIAGNOSTIC AGENTS	0.0	0.0	0.0	0.0	1.5	12.3	1.5	12.3
V0 VARIOUS	149.2	377.7	3,490.6	689.8	1,978.7	7,156.1	5,618.5	8,223.6
Unclassified	0.0	0.0	301.5	186.5	0.0	0.0	301.5	186.5
Total	14,892.5	40,195.8	658,950.6	47,419.1	19,596.4	79,851.1	693,439.5	167,466.0

Source: IMS - MOH

Table 2: Total local sales by A1 classification for 2004

A1 Classification	Private		Public		Imports		Total	
	Units (k)	US\$ (k)	Units (k)	US\$ (k)	Units (k)	US\$ (k)	Units (k)	US\$ (k)
A0 ALIMENTARY T.& METABOLISM	1,972.0	5,665.6	260,248.3	10,390.7	3,360.9	13,441.2	265,581.2	29,497.5
B0 BLOOD + B.FORMING ORGANS	164.7	253.8	4.0	26.1	541.0	1,473.0	709.7	1,752.9
C0 CARDIOVASCULAR SYSTEM	1,076.3	7,064.9	296,772.2	9,772.3	1,012.0	10,850.2	298,860.5	27,687.4
D0 DERMATOLOGICALS	808.7	1,543.6	9,593.5	8,606.5	1,546.9	5,961.9	11,949.1	16,112.0
G0 G.U.SYSTEM & SEX HORMONES	0.0	0.0	3,789.5	1,269.7	1,425.4	7,269.8	5,214.9	8,539.5
H0 SYSTEMIC HORMONES	7.4	17.0	10,621.5	3,677.6	365.4	1,273.2	10,994.3	4,967.8
J0 SYSTEMIC ANTI-INFECTIVES	2,919.5	16,257.0	355,519.5	21,957.8	1,878.8	11,007.1	360,317.8	49,221.9
K0 HOSPITAL SOLUTIONS	2.0	2.0	8,602.9	4,090.3	23.4	24.3	8,628.3	4,116.6
L0 ANTINEOPLAST+IMMUNOMODUL	5.4	36.6	4,744.6	9,519.9	26.9	398.4	4,776.9	9,954.9
M0 MUSCULO-SKELETAL SYSTEM	1,456.2	3,134.7	111,376.2	1,798.6	1,098.8	6,052.5	113,931.2	10,985.8
N0 NERVOUS SYSTEM	3,101.1	3,606.3	122,864.7	12,104.0	2,624.1	10,149.4	128,589.9	25,859.7
P0 PARASITOLOGY	133.6	196.4	552.0	231.9	145.6	332.7	831.2	761.0
R0 RESPIRATORY SYSTEM	2,379.1	3,038.5	73,723.3	8,907.6	2,468.4	8,023.7	78,570.8	19,969.8
S0 SENSORY ORGANS	464.3	583.9	2,028.0	2,327.7	829.8	3,033.8	3,322.1	5,945.4
T0 DIAGNOSTIC AGENTS	0.0	0.0	3,996.0	569.8	1.1	14.1	3,997.1	583.9
V0 VARIOUS	166.7	431.0	13,541.5	6,157.1	2,421.3	8,729.0	16,129.5	15,317.1
Unclassified	0.0	0.0	299.5	878.0	0.0	0.0	299.5	878.0
Total	14,657.0	41,831.3	1,278,277.2	102,285.5	19,769.8	88,034.3	1,312,704.0	232,151.1

Source: IMS - MOH

Table 3: Total local sales by A1 classification for 2005

A1 Classification	Private		Public		Imports		Total	
	Units (k)	US\$ (k)	Units (k)	US\$ (k)	Units (k)	US\$ (k)	Units (k)	US\$ (k)
A0 ALIMENTARY T.& METABOLISM	2,293.6	6,505.2	266,248.6	18,236.7	3,639.9	16,133.8	272,182.1	40,875.7
B0 BLOOD + B.FORMING ORGANS	187.4	332.0	2.0	13.1	776.9	2,003.4	966.3	2,348.5
C0 CARDIOVASCULAR SYSTEM	1,260.8	8,529.8	159,594.0	12,512.3	1,163.8	13,410.2	162,018.6	34,452.3
D0 DERMATOLOGICALS	894.1	1,827.8	5,568.3	3,803.3	1,572.1	6,156.5	8,034.5	11,787.6
G0 G.U.SYSTEM & SEX HORMONES	0.0	0.0	6,752.7	2,169.3	1,537.3	8,347.5	8,290.0	10,516.8
H0 SYSTEMIC HORMONES	7.2	19.7	12,683.1	2,316.0	390.6	1,427.5	13,080.9	3,763.2
J0 SYSTEMIC ANTI-INFECTIVES	3,577.7	19,717.8	140,704.5	19,967.1	2,077.7	12,402.9	146,359.9	52,087.8
K0 HOSPITAL SOLUTIONS	1.3	1.3	9,807.1	3,923.7	39.1	45.4	9,847.5	3,970.4
L0 ANTINEOPLAST + IMMUNOMODUL	6.4	41.5	12,868.0	12,687.5	65.0	1,286.5	12,939.4	14,015.5
M0 MUSCULO-SKELETAL SYSTEM	1,949.2	4,268.3	123,132.7	1,976.3	1,190.6	6,788.3	126,272.5	13,032.9
N0 NERVOUS SYSTEM	3,476.9	4,498.5	64,349.8	10,532.4	2,602.1	10,742.5	70,428.8	25,773.4
P0 PARASITOLOGY	184.6	277.7	240.0	70.5	152.5	353.6	577.1	701.8
R0 RESPIRATORY SYSTEM	3,074.4	3,981.4	40,500.3	6,377.2	3,025.9	9,472.7	46,600.6	19,831.3
S0 SENSORY ORGANS	589.7	767.1	2,112.0	2,970.1	846.9	3,371.2	3,548.6	7,108.4
T0 DIAGNOSTIC AGENTS	0.0	0.0	51.4	492.5	0.6	8.7	52.0	501.2
V0 VARIOUS	183.5	469.7	10,363.8	5,597.8	2,715.3	10,464.2	13,262.6	16,531.7
Unclassified	0.0	0.0	655.6	985.9	0.0	0.0	655.6	985.9
Total	17,686.8	51,237.8	855,633.8	104,631.7	21,796.3	102,414.9	895,116.9	258,284.4

Source: IMS - MOH

Table 4: Total local sales by A1 classification for 2006

A1 Classification	Private		Public		Imports		Total	
	Units (k)	US\$ (k)	Units (k)	US\$ (k)	Units (k)	US\$ (k)	Units (k)	US\$ (k)
A0 ALIMENTARY T.& METABOLISM	2,529.7	7,961.8	274,257.6	9,524.1	4,026.9	17,897.7	280,814.2	35,383.6
B0 BLOOD + B.FORMING ORGANS	123.4	2,863.0	5,004.0	109.3	1,030.8	2,557.9	6,158.2	5,530.2
C0 CARDIOVASCULAR SYSTEM	1,282.0	8,883.4	197,653.2	11,698.8	1,171.2	13,275.7	200,106.4	33,857.9
D0 DERMATOLOGICALS	817.9	1,818.8	4,378.6	2,847.7	1,536.4	6,108.4	6,732.9	10,774.9
G0 G.U.SYSTEM & SEX HORMONES	0.0	0.0	5,048.3	1,466.5	1,576.2	8,568.1	6,624.5	10,034.6
H0 SYSTEMIC HORMONES	8.7	26.1	6,408.5	2,836.9	412.3	1,469.9	6,829.5	4,332.9
J0 SYSTEMIC ANTI-INFECTIVES	3,950.9	21,975.1	151,393.2	19,890.1	2,101.3	13,262.3	157,445.4	55,127.5
K0 HOSPITAL SOLUTIONS	1.9	1.9	4,411.9	5,461.2	21.7	30.8	4,435.5	5,493.9
L0 ANTINEOPLAST + IMMUNOMODUL	7.7	58.8	12,088.0	22,812.9	24.4	570.2	12,120.1	23,441.9
M0 MUSCULO-SKELETAL SYSTEM	2,030.1	4,401.0	93,520.0	2,444.4	1,265.7	7,338.1	96,815.8	14,183.5
N0 NERVOUS SYSTEM	3,001.7	4,374.8	161,813.9	14,222.4	2,625.6	10,503.7	167,441.2	29,100.9
P0 PARASITOLOGY	3,001.7	260.8	240.0	77.6	181.5	416.5	3,423.2	754.9
R0 RESPIRATORY SYSTEM	2,892.2	3,957.8	44,022.1	4,249.0	3,013.7	9,675.3	49,928.0	17,882.1
S0 SENSORY ORGANS	514.6	710.3	1,690.8	2,139.0	900.1	3,538.0	3,105.5	6,387.3
T0 DIAGNOSTIC AGENTS	0.0	0.0	72.0	563.7	0.6	3.1	72.6	566.8
V0 VARIOUS	174.4	450.9	6,061.5	3,515.6	2,985.0	12,629.4	9,220.9	16,595.9
Unclassified	0.0	0.0	5,895.5	2,172.5	0.0	0.0	5,895.5	2,172.5
Total	20,336.9	57,744.5	973,959.1	106,031.6	22,873.4	107,845.1	1,017,169.4	271,621.2

Source: IMS - MOH

Table 5: A4 Therapeutic Classes produced by private manufacturers in Jordan and imported

A01A0 STOMATOLOGICALS	B03X0 OTH ANTI-ANAEM+FOLIC ACID	G02D0 PROLACTIN INHIBITORS	N06A9 ANTIDEPRESSANTS ALL OTH
A01B0 MOUTH ANTIFUNGALS	C01E0 NITRITES AND NITRATES	G03D0 PROGESTOG.EXCL G3A.G3F	N06D0 NOOTROPICS
A02A1 PLAIN ANTACIDS	C02A1 ANTIHYPERT PL MAINLY CENT	G03G0 GONADOTROPHINS	P01A0 AMOEBCIDES
A02A2 PLAIN ANTIPLATULENTS	C02A2 ANTIHYPERT PL MAINLY PERI	G04A1 URINARY ANTIBIOT/SULPHON	P01B0 ANTHELMINTICS
A02A4 ANTACIDS + ANTIPLATULENTS	C03A1 POT SPARING AGENTS PLAIN	G04A2 QUINOLONES	P01D1 ANTIMALARIALS SINGLE ING
A02B1 H2 ANTAGONISTS	C03A2 LOOP DIURETICS PLAIN	G04C1 BPH PRODUCTS	P03A0 ECTOPARAS.INCL SCABICIDE
A02B2 ACID PUMP INHIBITORS	C03A3 THIAZIDES+ANALOGUES PLAIN	G04C8 BPH PRODS NATURAL ORIGIN	R01A6 NASAL A-ALLERGIC AGENTS
A03A0 ANTISPASM+ANTICHOL PLAIN	C03A5 POT SPARING+THIAZ COMBS	J01A0 TETRACYCLINES & COMBS	R01A7 NASAL DECONGESTANTS
A03D0 ANTISPASM/ANALGESIC COMBS	C04A1 CEREB/PERIPH VASOTHERAPS	J01C1 BROAD SPECT PENICILL ORAL	R01A9 OTH TOPICAL NASAL PREPS
A03F0 GASTROPROKINETICS	C04A2 CA ANTAG W CEREBRAL ACTIV	J01D1 CEPHALOSPORINS ORAL	R01B0 SYSTEMIC NASAL PREPS
A04A1 SEROT ANTAG A-EMET+A-NAUS	C05A1 A-HAEMORRHOID + CORTICOID	J01D2 CEPHALOSPORINS INJECT	R02A0 PHARYNGEAL PREPARATIONS
A04A9 OTHER A-EMETIC+A-NAUSEA	C05A2 A-HAEMORRHOID W/O CORTIC	J01E0 TRIMETHOPRIM COMBS	R03A2 B2-STIMULANTS. SYSTEMIC
A06A2 CONTACT LAXATIVES	C05C0 SYSTEMIC VASOPROTECTIVES	J01F0 MACROLIDES & SIMILAR TYPE	R03B2 XANTHINES. SYSTEMIC
A06A4 LAXATIVE ENEMAS	C07A0 BETA BLOCKING AGENT PLAIN	J01G1 ORAL FLUOROQUINOLONES	R03C2 N-STER RESP A-INFLAM.SYST
A06A5 LAXATIVE SALINE PREPS	C07B1 HYPOTENSIVE/DIURETIC COMB	J01H1 MED/NARROW SPECT PEN PLA	R03J2 ANTILEUK ANTI-ASTHM SYS
A06A6 LAXATIVES OTHERS + COMBS	C08A0 CALCIUM ANTAGONISTS PLAIN	J01K0 AMINOGLYCOSIDES	R04A0 CHEST RUBS & INHALANTS
A07E0 INTESTINAL ANTI-INFLAMM	C09A0 ACE INHIBITORS PLAIN	J01X1 GLYCOPEPTIDE ANTIBACT.	R05A0 COLD PREPARATIONS
A07G0 ORAL ELECTROLYTE REPLACER	C09B1 ACE INH COMB+A-HYP/DIURET	J02A0 SYST ANTIFUNGAL AGENTS	R05C0 EXPECTORANTS
A07H0 MOTILITY INHIBITORS	C09C0 ANGIOTENS-II ANTAG. PLAIN	J05B0 ANTIVIRALS EXCL ANTI-HIV	R05D1 ANTITUSSIVES PLAIN
A10B1 SULPHONYLUREA A-DIAB	C10A1 STATINS (HMG-COA RED)	K01A7 RINGER +R/LACTATE SOLNS	R05D2 OTHER COUGH SEDATIVES
A10B4 GLITAZONE ANTIDIABETICS	C10A2 FIBRATES	K01B1 SODIUM CHLORIDE SOLUTIONS	R06A0 ANTIHISTAMINES SYSTEMIC
A11A1 MVIT + MIN PRENATAL	D01A1 TOPICAL DERMAT ANTIFUNGAL	K01B2 SOD CHLOR/CARBOHYD SOLNS	S01A0 ANTI-INFECTIVES-EYE
A11A3 MVIT + MIN GERIATRIC	D01A3 TOP SCALP ANTIFUNGALS	K01B3 CARBOHYDRATE SOLNS (<10%)	S01B0 CORTICOSTEROIDS-EYE

A11A4 MVIT + MIN OTHERS	D02A0 EMOLLIENTS & PROTECTIVES	L02B1 CYTO ANTI-OESTROGENS	S01C1 OPHTH STEROID+ANTI-INFEC
A11C1 VITAMIN A PLAIN	D03A9 OTH WOUND HEALING AGENTS	L02B2 CYTO ANTI-ANDROGENS	S01D0 ANTI-VIRAL AGENTS -EYE
A11C2 VITAMIN D PLAIN	D04A0 TOPICAL ANTIPRURITICS	L04A0 IMMUNOSUPPRESIVE AGENTS	S01E2 MIOTICS+ANTIGLAUCOMA TOP
A11E1 VITAMIN B COMPLEX PLAIN	D05A0 TOP ANTIPSORIASIS PRDS	M01A1 ANTIRHEUMATICS NON-S PLN	S01F0 MYDRIATICS+CYCLOPLEGICS
A11E2 VITAMIN B COMPLEX + VIT C	D05X0 OTH N-STER INFLAM SKIN	M02A0 ANTIRHEUMATICS TOPICAL	S01G1 OCUL.A-ALLERG.ANTIHIST.
A11F0 VITAMIN B12 PLAIN	D06A0 TOP ANTIBIOT/SULPHA PLAIN	M03B0 MUSCLE RELAXANTS.CENTRAL	S01G2 OCUL.A-ALLERG.MST CL STB
A11G1 VITAMIN C PLAIN	D07A0 TOP CORTICOSTEROIDS PLAIN	M04A0 ANTI-GOUT PREPARATIONS	S01K0 ARTIF.TEARS+OCULAR LUBRIC

Table 6: A4 Therapeutic Classes imported and not produced by private manufacturers in Jordan

A02A3 ANTACIDS + ANTISPASMODICS	B02B1 VITAMIN K	J01X9 ALL OTHER ANTIBACTERIALS	N05B5 HERB HYPNOTICS/SEDATIVES
A02A7 ANTIFLATULENTS + OTHERS	B02G0 SYSTEMIC HAEMOSTATICS	J03A0 SYSTEMIC SULPHONAMIDES	N06A3 MOOD STABILISERS
A02B3 PROSTAGLANDIN A-ULCERANTS	C01A1 CARDIAC GLYCOSIDES PLAIN	J04A1 ANTI-TB. SINGLE INGRED	N06A4 SSRI ANTIDEPRESSANTS
A02B4 BISMUTH ANTIULCERANTS	C01B0 ANTIARRHYTHMICS	J04A7 ANTI-TB. FIXED 2 INGRED	N06C0 PSYCHOLEPTIC-ANTI-DEPRESS
A02B9 ALL OTHER ANTIULCERANTS	C01C1 CARDIAC STM EX DOPAM AGTS	J06A4 TETANUS SERA	N06E0 NEUROTONICS/OTHER MIS.PRO
A02C0 OTH STOMACH DISORDER PREP	C01C2 CARDIAC DOPAMINERG AGENTS	J06C0 POLYVAL IMMUNO-GLOBLN I.V	N07B0 ANTISMOKING PRODUCTS
A03G0 GI SENSORIMOTOR MODULAT	C01D0 CORON THER EX CA/ANT/NIT	J06E0 POLYVAL IMMUNO-GLOBLN I.M	N07D1 ANTI-ALZ PROD CHOL INHIB
A05A1 CHOLERETICS+CHOLEKINETICS	C01X0 ALL OTHER CARDIAC PREPS	J06J0 OTH SPECIFC IMMUNOGLOBULN	N07E0 DRUGS USED IN ALCOH DEP
A05A2 BILE STONE THERAPY	C02B2 A-HYPERT(N H)MAINLY PERI	J07A1 GRIPPE(INFLUENZA)	N07X0 ALL OTHER CNS DRUGS
A05B0 HEPATIC PROCT LIPOTROPICS	C02D0 RAUWOLF ALK+OTH COM+DIUR	J07A2 TETANUS	P01C0 SCHISTOSOMICIDES
A06A1 LAXATIVE SOFTENERS	C05B0 TOP.ANTIVARICOSE PREPS	J07A3 HEPATITIS	R01A1 NASAL CORTIC W/O ANTI-INF
A06A3 LAXATIVE BULK PRODUCERS	C09B3 ACE INHIB COMB+CALC ANTAG	J07A6 MEASLES	R03A3 LONG-ACT B2-STIM.INHAL
A07A0 ANTI-INFECTIVE ANTIDIARR	C09D0 ANGIOTENS-II ANTAG. COMB	J07A7 PNEUMONIA	R03A4 SHORT-ACT B2-STIM.INHAL
A07B0 INTEST.ABSORBANT ANTIDIAR	C10A3 ION-EXCHANGE RESINS	J07A8 MENINGOCOCCAL VACC. ALL	R03C1 N-S RESP A-INFLAM INHALNT
A07F0 ANTIDIARR MICRO-ORGANISMS	C10A9 OTH.CHOLEST&TRIGLY.REGUL	J07A9 OTHER SINGLE COMP.VACCIN.	R03D1 CORTICOIDS INHALANTS
A07X0 OTHER ANTIDIARRHOEALS	C10B0 ANTI-ATHEROMA NATRL ORIG	J07B1 COMB.VACC.WITH TET.COMP.	R03F1 B2-STIM+CORTIC INHALANTS
A08A0 ANTIOBESITY PREPARATIONS	C10C0 LIP.REG.CO.W.OTH.LIP.REG	J07B2 COMB W MEASLES &/O MUMPS	R03G3 ANTICHOLINER-PLAIN.INHAL
A09A0 DIGESTIVES INC ENZYMES	C11A1 LIPREG.CV.MULT-TH.FX.COM	J07C0 ALL OTHER VACCINES	R03G4 A-CHOL+B2-STIM COMB.INH
A10B2 BIGUANIDE ANTIDIABETICS	D01A2 SYST DERMAT ANTIFUNGALS	J08B0 ANAEROBICIDES	R03I0 DEVICES ASTHMATIC CONDIT
A10B3 COMB SULPH+BIGUAN.A-DIAB	D05B0 SYST ANTIPSORIASIS PRDS	K01C1 CARBOHYD PLAIN SOL(>10%)	R05F0 OTHER COUGH & COLD PREPS
A10B5 ALPHA-GLUC.INHIB.A-DIAB	D06D1 TOPICAL ANTIVIRALS	K01D1 FAT EMULSIONS.PLAIN	S01C2 OPTH NSAID+ANTI-INFECT

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A10B9 OTHER ORAL ANTIDIABETICS	D06D9 OTH TOP PRDS VIRAL INF	K01D2 FAT EMULSIONS.COMBINAT	S01E1 MIOTICS+ANTI GLAUCOMA SYST
A10C1 H INSUL+ANA FAST ACT	D07B4 OTH CORTICOSTEROID COMB	K01E1 AMINO ACID STANDARD SOLS	S01G3 OCUL.A-ALLERG.MULTI.ACTN
A10C2 H INSUL+ANA INTERMED ACT	D10B0 ORAL ANTI-ACNE PREPS	K03B3 PROTEIN SOLUTIONS (>5%)	S01G5 OCUL.DECONG.SYMPATHOMIM
A10C3 H INSUL+ANA INT+FAST ACT	G01C0 GYNAECOLOG.ANTIBIOTICS	K04A1 ELECTROLYTE SOLNS(<=20ML)	S01H0 LOCAL ANAESTHETICS -EYE
A10C4 H INSUL+ANA INT+LONG ACT	G01D0 GYNAECOLOG.ANTISEPTICS	L01A0 ALKYLATING AGENTS	S01L0 PREPARAT.CONTACT LENSES
A10C5 H INSUL+ANA LONG ACT	G02A0 LABOUR INDUC.INCLUD OXITO	L01B0 ANTIMETABOLITES	S01M0 EYE TONICS&EYE VITAMINS
A10X0 OTHER DRUGS FOR DIABETES	G02E0 LABOUR INHIBITORS	L01C0 VINCA ALKALOIDS	S02C0 STEROID/ANTI-INFECT - EAR
A11A2 MVIT + MIN PAEDIATRIC	G02F0 TOPICAL SEX HORMONES	L01D0 ANTINEOPLAS. ANTIBIOTICS	T01A0 LOW OSMOLAR ANGIO-UROGRPH
A11B2 MVIT W/O MIN PAEDIATRIC	G02X9 OTHER GYNAECOLOGICALS	L01X2 PLATINUM COMPOUNDS	T02C0 PREGNANCY&OVULATION TEST
A11B3 MVIT W/O MIN GERIATRIC	G03A1 MONOPHAS PREPS<50MCG OEST	L01X3 ANTINEOPLASTIC MABS	T02D1 DIABETES TESTS.URINE
A11B4 MVIT W/O MIN OTHERS	G03A3 BIPHASIC PREPARATIONS	L01X9 ALL OTH. ANTINEOPLASTICS	T02D2 DIABETES TESTS.BLOOD
A11C3 VITAMIN A & D COMBS	G03A4 TRIPHASIC PREPARATIONS	L02A2 CYTOSTATIC PROGESTOGENS	T02X1 ALL OTH DIAG TESTS.URINE
A11D4 VIT.B1+VIT.B6 &/OR B12	G03A5 PROGEST-ONLY PREPS.ORAL	L02A3 CYTO GONAD HORMON ANALOG	V03D0 DETOX AG A-NEOPLAST TRMT
A11D9 OTHER VITAMIN B1 COMBS	G03B0 ANDROGENS.EXCL G3E.G3F	L02B3 CYTOSTAT AROMATASE INHIB	V03F0 IRON-CHELATING AGENTS
A11E3 VITAMIN B COMPLEX OTHERS	G03E0 ANDROGEN + FEMALE HORMONE	L03A1 COLONY-STIMULATING FACT.	V03G0 HYPERKAL.HYPERPHOS.PRODS
A11G2 VITAMIN C COMBINATIONS	G03F0 OESTROGEN + PROGESTOGEN	L03B1 INTERFERONS ALPHA	V03X0 ALL OTH.THERAPEUTIC PRDS
A11X2 VIT B6(PYRIDOXINE) PLAIN	G03J0 SERMS	M01A3 COXIBS PLAIN	V05A0 ANTISEPTIC NON-HUMAN USE
A12B0 POTASSIUM	G03X0 OTH.SEX HORM.& SIMILAR	M01C0 SPEC ANTIRHEUMATIC AGENT	V06A0 SLIMMING PREPARATIONS
A12C2 OTHER MINERAL SUPPLEMENTS	G04A9 OTHER URINARY ANTISEPTIC	M05B4 BISPHOSPH TUMOUR-RELATED	V06B0 PROTEIN SUPPLEMENTS
A13A2 ALL OTHER TONICS	H04A0 CALCITONINS	M05B9 OTH BONE CALCIUM REGULAT	V06C1 INFANT MILKS
A14A1 ANABOLIC HORMONES PLAIN	H04B0 GLUCAGON	M05X0 OTH MUSCULO-SKELETAL PRDS	V06C2 INFANT MILKS CEREALS
A15A0 APPETITE STIMULANTS	H04C0 GROWTH HORMONES	N01A2 INJECT GEN ANAESTHETICS	V06C4 PROTEIN CEREALS W/ADDIT.
A16A0 OTHER METABOLIC PRODUCTS	H04D0 ANTIDIURETIC HORMONES	N01B1 ANAESTH LOCAL MEDIC INJ	V06C5 CEREALS BISCUITS

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B01A0 VITAMIN K ANTAGONISTS	J01B0 CHLORAMPHENICOLS + COMBS	N01B9 ANAESTH LOCAL OTHERS	V06C6 HOMOGENISED BABY FOOD
B01B2 FRACTIONATED HEPARINS	J01G2 INJ FLUOROQUINOLONES	N02A0 NARCOTIC ANALGESICS	V06C7 SOLID BABY FOOD
B01C3 GP IIB/IIIA ANT P AG INH	J01P1 MONOBACTAMS	N05B1 NON-BARBITURATE PLAIN	V06C9 GASTRO-INTEST.ABSORBENTS
B02A1 SYNTHETIC ANTIFIBRINOLYTIC	J01P2 CARBAPENEMS	N05B3 BARBITURATE PLAIN	V06D0 OTHER GENERAL NUTRIENTS

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