

## The strong pulse of mHealth

### Mobile monitoring of vital signs is the new Black

G Medical Innovations Holdings Limited (ASX:GMV) is an Israel-based company that is commercializing mobile vital signs monitoring systems that provide major cost savings for the Healthcare system while allowing patients to remain mobile in hospitals and at home. The company is targeting global markets, including the US, Europe, China and India.

The company's first two products, the Prizma Medical smartphone case and the G Medical Patch (GMP), can measure vital signs like heart rate, blood pressure, body position, body temperature, respiration rate, blood oxygen saturation and ECG. Both products can wirelessly transmit patient data to physicians using 4G or Wi-Fi. While the Prizma can mostly be considered a consumer product, the GMP needs to be prescribed by medical professionals. They are expected to become commercially available for hospitals, clinics and through direct sales (Prizma) from late Q2 (June quarter) onwards in countries where the products have already received regulatory approval.

#### Proprietary diagnostic facility to support US roll out

Simultaneously, GMV will support the GMP roll out through its own, Texas-based, call center (Independent Diagnostic Testing Facility, or IDTF), which is currently already selling other, third-party, monitoring devices and has commercial agreements in place with a large number of health insurance companies in the US. These relationships are critical for GMV from a reimbursement perspective.

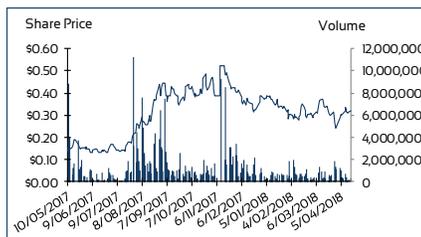
#### The IDTF is a key strategic asset

We believe the IDTF will play a key role in the commercial roll out of the GMP as it provides direct onboarding, diagnostic and analytical support to patients and physicians. Additionally, GMV's proprietary GMP product allows for substantially higher margins compared to the current, third-party, products GMV is selling through its IDTF. In our view, the IDTF's recurring revenue model will really come into its own on the back of the GMP becoming commercially available in the very near term.

#### Relevant regulatory approvals expected very near term

GMV already achieved CE status for the Prizma and the GMP in Europe as well as FDA approval for the Prizma in the US. However, obtaining FDA approval for the GMP in the US (exp. 2HY18) and CFDA approval for the Prizma and the GMP in China will be critical. Most importantly, obtaining CFDA approval for its Chinese assembly facilities will be crucial for GMV to scale up its production to the desired levels.

Number of shares (m)	339.7
Number of shares FD (m)	488.3
Market capitalisation (A\$ m)	108.7
Free Float (%)	30%
12 month high/low A\$	0,525 / 0,13
Average daily volume (lr)	1,134



## G Medical Innovations Holdings Limited

(ASX:GMV)

Healthcare Services & Equipment

Australia

Risk: High

G Medical Innovations Holdings Limited (ASX:GMV) is commercializing mobile vital signs monitoring systems that enable remote monitoring of patients. GMV's products have to potential to substantially lower healthcare costs and to improve patients' overall wellness and mobility.

## Speculative Buy

Current price: A\$ 0.32

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### China is a crucial piece of the puzzle

Given that the Prizma and the GMP have received Green Channel approval in China (an expedited approval process), GMV expects the relevant CFDA approvals to be obtained in 2Q18.

This will clear the way for the company to kick start its global monetization strategy as it will be able to start producing large volumes of the Prizma and GMP in China.

Not only will China's facilities be crucial to GMV's global supply of the Prizma and GMP, it is also a very significant target market for GMV's products in its own right, as we will elaborate on in this note.

Ahead of CFDA approval, initial production runs are conducted out of GMV's Israeli facilities.

### Management team has been there, done that

We believe a key element in the GMV investment case is management's track record in building and exiting businesses like GMV. Company President and CEO, Dr. Yacov Geva, founded LifeWatch AG and listed the company before it was acquired by BioTelemetry (NASDAQ:BEAT) in 2017 for US\$ 280M (A\$ 364M).

He has brought on several key staff, many of which were formerly at LifeWatch, and who now operate out of the company's IDTF in Texas. We believe this prior experience of founding, building and subsequently exiting a business similar to GMV is extremely valuable and should help to expedite GMV's commercialization process.

### Conclusion: Starting coverage with a Speculative Buy rating

We believe GMV has developed an initial product range of Vital Signs Monitoring Systems that has global applicability during a time when mHealth is seeing fast-growing adoption rates in major markets.

Crucial milestones are expected to be met in the very near term, which we expect will enable GMV to rapidly roll out its monetization strategy. Specifically, CFDA approval of GMV's manufacturing facilities in China will allow the company to ramp up production and start selling in geographies where regulatory product approval has already been received. CFDA for the Prizma and GMP as well as FDA approval for the GMP will open up two of GMV's largest addressable markets.

While we refrain from publishing a full financial model at this time, and thus a valuation and price target, we believe there is strong upside potential for GMV's shares from current levels for the aforementioned reasons. Therefore, we start our research coverage of GMV with a Speculative Buy recommendation.

We will endeavor to publish a full financial model, a company valuation and price target as soon as the company is able to demonstrate the commercial potential of its products, e.g. through Purchase Orders from customers, which should translate into revenues.

## Rolling out a proven business model in the mHealth space

G Medical Innovations Holdings Limited (ASX:GMV) is an Israel-based company that is commercializing Mobile Healthcare monitoring devices in global markets, including the United States, Europe, China and India. The company’s first two products, the Prizma Medical smartphone case and the G Medical Patch (GMP), are expected to become commercially available from late Q2 or early Q3 2018 onwards in countries where the products have received regulatory approval (Figure 1).

To date, the Prizma has received FDA approval in the US and CE status in the EU. It has also been granted Green Channel approval by the CFDA in China, which means that GMV’s submissions will be treated as a priority approval process. The company anticipates this will result in CFDA approval in 2Q18. Meanwhile the GMP received CE status in the EU and is expected to receive CFDA approval in 2Q18 and US FDA approval in 2HY18.

FIGURE 1: REGULATORY APPROVAL STATUS US, EU AND CHINA

	FDA (USA)	CE (EU)	CFDA (China)
Prizma	✓	✓	Exp. 2Q18
GM Patch	Exp. 2HY18	✓	Exp. 2Q18

Source: G Medical Innovations, TMT Analytics

### Devices sold over-the-counter and through physicians

GMV will be selling the Prizma through various channels, including physicians, insurance companies, resellers and its online sales portal that is already taking pre-orders for the Prizma in anticipation of commercial availability by mid-2018 and US OTC FDA approval. Given that the GMP is a clinical product that will be used to monitor patients in hospitals and post hospital discharge, as we will elaborate on below, it can only be prescribed by physicians, e.g. in hospitals, clinics and through GMV’s own call center.

### Commercial and medical support through a proprietary call center

In addition to its first two mHealth products, GMV owns a proprietary US-based call center, or Independent Diagnostic Testing Facility (IDTF), which it acquired in 4Q17. An IDTF in the US is a facility that is independent from a physician’s office or a hospital and can perform diagnostic procedures that are reimbursed under Medicare.

CardioStaff, the IDTF that GMV acquired, has agreements in place with a large number of health insurance companies across the US, and hence is already generating revenues from existing services. In a synergistic model, GMV aims to leverage this acquired IDTF to sell the upcoming Prizma and to prescribe the GMP to patients through its in-house physicians. We will elaborate on all three revenue components below.

### Management team have successfully built and exited similar businesses before

In our view, a key element in the GMV investment case is management’s track record in building and exiting businesses like GMV. Company President and CEO, Dr. Yacov Geva, founded LifeWatch AG, a provider of remote diagnostic cardiac monitoring technologies, and listed the company in Switzerland in 2014. It was acquired by BioTelemetry (NASDAQ:BEAT) in 2017 for US\$ 280M (A\$ 364M). Dr. Geva has brought several key staff over to GMV, including former LifeWatch EVP of Global Business Development, Mark Bogart and several of his senior sales team, who operate out of the renamed G Medical Diagnostics Services. We believe this prior experience of founding, building and subsequently exiting a business similar to GMV is extremely valuable and should help to expedite GMV’s commercialization process.

## GMP Patch: Vital signs monitoring system

The G Medical Patch (GMP) is a Vital Signs Monitoring System (VSMS) that can measure a patient's heart rate, blood pressure, body position (to detect whether a patient is lying down, sitting or standing), body temperature, respiration rate, blood oxygen saturation, location and heart rhythm through Electrocardiography (ECG) to detect irregularities (arrhythmia).

The GMP can be worn by patients in hospitals, clinics, aged care facilities and at home, before, during and after hospitalization so they may be monitored remotely. All collected data is transmitted wirelessly to the GMV Cloud for processing.

The patch itself is actually a combination of four sensor systems (Figure 2):

- The actual patch with three leads that is placed on the patient's chest,
- an arm strap,
- an ear sensor,
- and a watch that also serves as the main gateway to send data to a central server.

FIGURE 2: VITAL SIGNS MONITORING SYSTEM

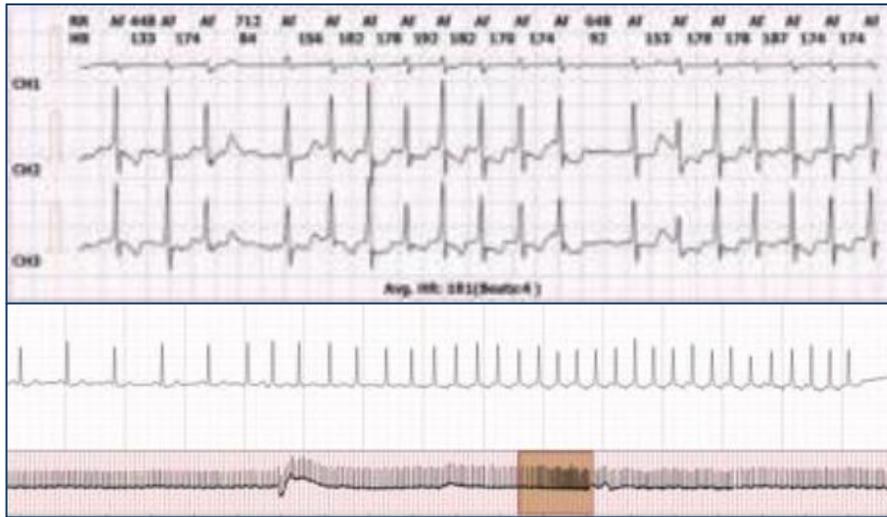


Source: G Medical Innovations

### Improved monitoring and detection capabilities

A key distinguishing feature of the chest patch is the number of leads that conduct the actual measurements. The industry standard today is for such a patch to have just one lead. The fact that the GMP has three leads, the so-called Holter monitor, enables the device to detect more arrhythmia events than single-lead devices (The American Journal of Medicine, January 2014). More accurate data (Figure 3) allows for better algorithmic analysis and diagnosis by physicians.

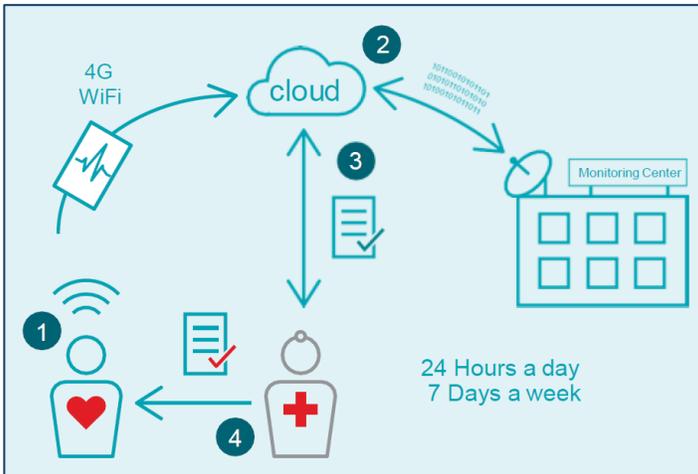
FIGURE 3: GMP THREE-LEAD OUTPUT (TOP) VS. SINGLE LEAD OUTPUT (BOTTOM)



Source: G Medical Innovations

The GMP and supporting devices are not sold to patients as products. Rather physicians prescribe them, e.g. in hospitals and through GMV’s IDTF, based on patients’ symptoms. GMV will charge for the GMP per day of use, which can be up to 30 days for discharged patients. The company will be reimbursed in the US through existing Medicare reimbursement codes. We will elaborate on the GMP revenue model below.

FIGURE 4: G MEDICAL PATCH MONITORING PROCESS



Source: G Medical Innovations

Once a patient is wearing the GMP, either in a hospital or at home, generated data is transmitted to the GMV Cloud (1) through 4G or a Wi-Fi connection. The data is subsequently sent to a monitoring center for analysis and diagnostics (2). Medical reports are sent back to the Cloud and, if needed, directly to a patient’s physician (3). Physicians can subsequently consult with their patients (4).

### 24/7 monitoring regardless of location

The fact that patients can be monitored in real-time 24/7, wherever they are, is a key benefit of the GMP. This becomes particularly important in light of the rapidly growing costs of healthcare around the world. For instance, currently patients with suspected heart problems are typically hospitalized in order for them to be monitored accurately and reliably. Prescribing a GMP would obviate this initial hospitalization and thus limit hospitalization costs.

Similarly, the GMP allows patients to be monitored post-discharge, i.e. they no longer need to remain hospitalized purely for monitoring purposes. Furthermore, through accurate 24/7 monitoring in hospitals, the GMP can also limit the number of patients that are potentially being discharged prematurely, which could further contribute to limiting healthcare costs, as we will elaborate on below.

Apart from measurement accuracy and the potential to reduce the cost of healthcare, we believe the GMP will also have a positive effect on patients' wellbeing, i.e. remaining mobile at home and in the hospital while still being monitored in real-time.

### A medical smart phone case for health-conscious consumers

GMV's second product is a medical smart phone case, the Prizma (Figure 5), targeted at health-conscious consumers, whether they be fitness enthusiasts or people that want to perform measurements for medical reasons.

FIGURE 5: PRIZMA MEDICAL SMART PHONE CASE AND APP



Source: G Medical Innovations

The Prizma has built-in sensors that can measure ECG, heart rate and detect arrhythmia as well as measure respiration, oxygen saturation levels (SpO<sub>2</sub>) in the blood, body temperature and do stress analysis. The Prizma has already received FDA approval in the US and CE certification in the EU. Future iterations of the Prizma will have the capability to measure blood glucose, cholesterol, triglycerides, dehydration, hemoglobin, uric acid, lactate, body fat and blood pressure.

In addition to the launch of the Prizma smart phone cover, GMV will simultaneously launch the Prizma Medical App, available for iOS and Android, and its user portal, which will allow users to view and track their medical test results.

### Selling through retail and medical professionals

GMV's go-to-market strategy for the Prizma includes distribution through physicians, insurance companies, resellers and the company's own online sales portal. The Prizma is expected to be retailing for US\$ 249.99 with wholesale pricing around US\$ 149 and will be available for the major smart phone brands and models as well in universal smart phone covers.

GMV expects to be in a position to start selling the Prizma late in 2Q18 (June quarter) following receipt of the first component shipments in April and May 2018. While the initial batch of Prizma's will be assembled in Israel for QC and QA purposes, GMV aims to start up assembly in its Chinese assembly facilities to bring down costs.

### Supporting GMP and Prizma roll out through GMV call center

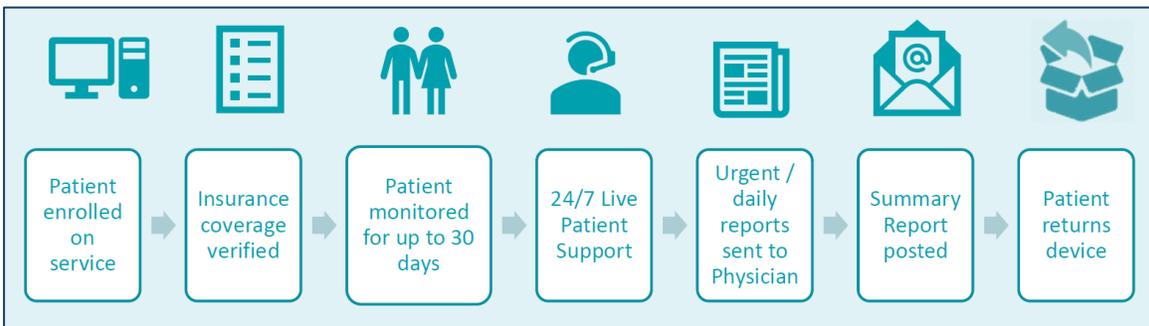
GMV has set up G Medical Diagnostics Services in the US to primarily provide medical and commercial support for the roll out of the GMP, and the Prizma to a lesser extent. To this end, the company acquired CardioStaff Diagnostic Services Inc. in the US, an Independent Diagnostic Testing Facility (IDTF). An IDTF is a facility that is independent from a physician's office or a hospital and can perform diagnostic services that are reimbursed under Medicare.

CardioStaff is based in Austin, Texas, and provides GMV with a nation-wide presence in the area of medical diagnostic services, such as Cardiac Events Monitoring, extended Holter Monitoring and Mobile Cardiac Tele-monitoring. CardioStaff also provides GMV with the reimbursement infrastructure needed for the roll-out of the GMP once FDA approval is received.

### Already generating revenues from third-party products

CardioStaff has agreements in place with a large number of health insurance companies across the US and is already generating revenues (US\$ 1.1M in FY17 through December) from two existing, third-party, products and related services; the Clarus 40M, a Mobile Cardiac Telemetry device, and an extended Ambulatory ECG monitor.

FIGURE 6: G MEDICAL DIAGNOSTICS SERVICES REVENUE MODEL



Source: G Medical Innovations

The G Medical Diagnostics Services revenue model (Figure 6) currently in use for these two existing products will essentially be the same for the GMP, i.e. in-house physicians will prescribe monitoring services using the GMP, which will be provided to hospitals, clinics, aged-care facilities etc. These facilities onboard the patients and apply the Patch components. GMV will then receive reimbursement per day of use and per monitoring type, i.e. Realtime monitoring, Event based monitoring or Ambulatory ECG.

## Chinese FDA approval essential for global roll out

In addition to CFDA approval for the Prizma and GMP, GMV will also need CFDA approval for its manufacturing/assembly facility in China before it can start operations. The company is currently assembling small product batches in Israel, but will need its larger, low cost, facilities in China to scale up production in order to address the company's global opportunities.

It is currently anticipated that CFDA approval for the Chinese operations will be granted in 2Q18, which would pave the way for Prizma and GMP assembly in China from 3Q18 onwards.

## Global distribution agreements in place

While GMV will be distributing the GMP and Prizma in the US predominantly through its US-based call center, the company has set up a number of distribution agreements globally to address other geographies.

In July 2017 GMV signed a binding MoU for a future distribution agreement with Shandong Boletong Information S&T in China for local distribution of the Prizma once CFDA approval is granted. Shandong is active in more than 16 Chinese provinces. Minimum purchase commitments total US\$ 67.5M, while both companies have also agreed to set up a call center. This will enable GMV to derive additional revenues from analytics and diagnostic services.

GMV has also set up a joint venture with Guangzhou Sino-Israel Bioindustry Investment Fund, i.e. a jointly-owned (70% by GMV) Chinese subsidiary. This JV will run the Chinese operations, including distribution to partners such as Silverlake, which has committed to purchase ~ 4M Prizma's in the first five years of the agreement with GMV.

In November 2017 GMV signed a binding MoU with First Channel Limited (FCL) for the distribution of the Prizma in Taiwan and India with a minimum commitment of US\$ 405M in the first three years of the agreement. However, this agreement is dependent on FCL reaching agreement with its local distribution partners, including Vodafone India, BSNL Mobile and Reliance Communications.

GMV will be distributing the Prizma in Greece and Cyprus through distribution partner MEDTEL. Furthermore, GMV will assist MEDTEL in setting up a local call center, revenues from which will be split between MEDTEL and GMV on a 50/50 basis. MEDTEL's minimum purchase commitment is US\$ 10.5M.

## Mobile health monitoring is a global opportunity

In our view, GMV is addressing a global market, as we will elaborate on below. In the near term, however, the US presents the company's the largest opportunity, given its strong starting position following the acquisition of CardioStaff. Owning an Independent Diagnostic Testing Facility with established connections to insurance companies should expedite the US roll out of the upcoming products. Similar infrastructure will still need to be established in other geographies, such as China and Europe.

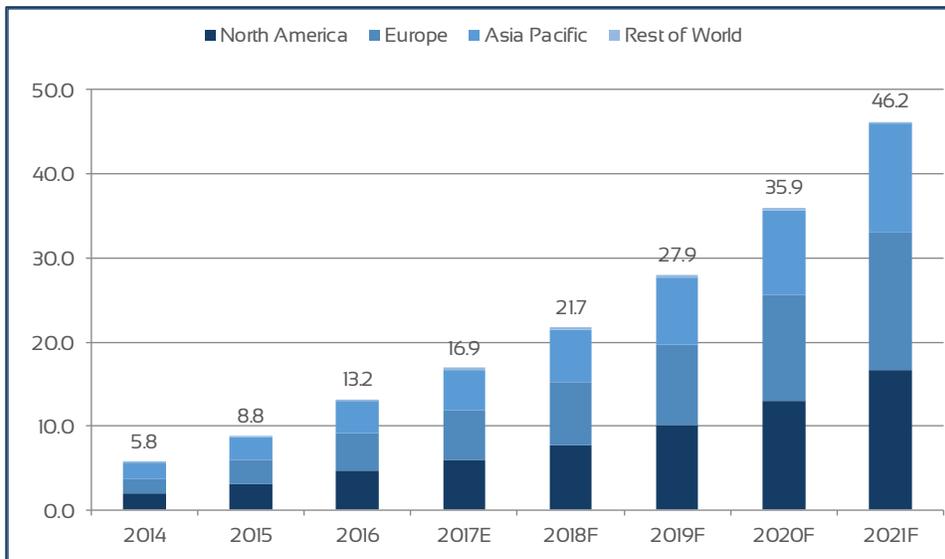
### Mobile Health is the most promising segment within Digital Health Ecosystem

Mobile Health (mHealth) is a part of the electronic health (eHealth) market segment and includes the provision of health services and information via mobile technologies, such as mobile phones and personal digital assistants (PDAs). mHealth broadly comprises connected devices, software systems to store and process continuously generated data as well as applications and interfaces to view the results.

Additionally, various health-related information apps (that are monetized through advertisements) are also considered part of mHealth. Smart devices and wearables are empowering individuals to manage their care more effectively and disseminate critical information to their healthcare providers, thereby leading a shift towards a patient-centric healthcare system.

BCC Research estimates that the global mHealth market was worth US\$ 13.2BN in 2016, and is poised to grow at a 28.6% CAGR during 2016-2021, reaching US\$ 46.2BN by 2021 (Figure 7).

FIGURE 7: GLOBAL MHEALTH MARKET – BY REGION (IN US\$BN)



Source: TMT Analytics, BCC Research

Currently, North America remains the primary market for mHealth technologies, accounting for more than a third of global sales. The US healthcare system is shifting towards a patient-centric healthcare system, as most patients finance their own healthcare or pay through private healthcare insurance. As a result, patients readily utilize apps and smart devices that enable them to take a more proactive approach to monitoring their health.

European countries, on the other hand, have been relatively slow to adopt mHealth, as the majority of healthcare services are government funded and patients are typically not used to paying for health services themselves. However, like the US, the market is rapidly evolving and embracing the use of apps and connected devices.

Asia Pacific is also gaining momentum and in the long run, large economies in the region, such as China and India, hold the highest potential for mHealth solutions, driven by their huge middle-class populations that are increasingly demanding quality healthcare services.

The need for mHealth solutions is expected to be driven by several factors, but three factors are likely to have the most impact, i.e. aging populations, growing shortages of healthcare workers and increasing incidences of chronic diseases.

1. **Aging world population:** In 2017, there were an estimated 962 million elderly people (aged 60+) in the world, comprising 13% of the global population. This cohort is growing at a rate of about 3% per year, which is significantly higher than the overall population growth of 1% per year. Conservative estimates from the UN suggest that the number of older people in the world is projected to be 1.4BN by 2030, rising further to 2.1BN by 2050.

Currently, Europe and North America have the highest proportion of elderly people (estimated at 25% and 22% of their total populations, respectively). Rapid aging is bound to occur in other parts of the world as well, and therefore, by 2050 all regions of the world except Africa are likely to have nearly a quarter or more of their populations aged 60 and above. This age group consumes about 4x more healthcare dollars than younger people, which is likely to significantly increase the strain on the global healthcare system.

2. **Healthcare workforce shortage:** An aging population means there are more patients to care for, but the supply of healthcare workers is struggling to keep up with demand. According to the Association of American Medical Colleges (AAMC), the US is expected to face a projected shortage of between 40,800 and 104,900 physicians by 2030. Similarly, one-third of nurses in the country are baby boomers who are approaching retirement age. mHealth increases staff productivity and reduces workforce dependency, thereby addressing this challenge.
3. **Chronic disease incidences:** Chronic diseases such as diabetes, cancer and heart disease are the leading causes of deaths worldwide. According to the WHO, an estimated 17.7M people died from cardiovascular diseases in 2015, representing 31% of all global deaths. Furthermore, the global prevalence of diabetes among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014. These diseases are leading causes of hospitalization. mHealth enables continuous monitoring of vital signs, which is expected to reduce incidences by alerting patients as well as their healthcare providers early on.

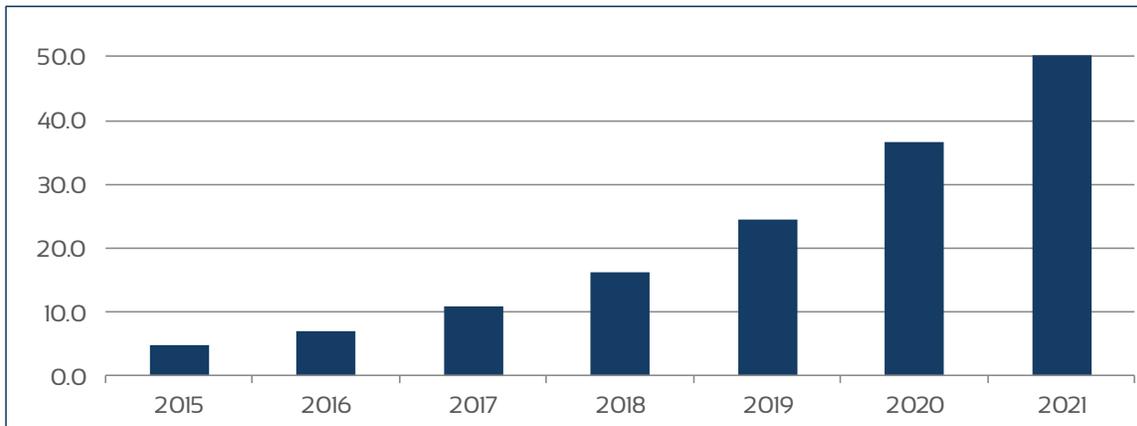
#### Remote patient monitoring to drive mHealth

As healthcare shifts towards a patient-centric and value-based system, healthcare providers are likely to adopt mHealth solutions that enable them to increase productivity and improve health outcomes. Both these objectives can be fulfilled through Remote Patient Monitoring (RPM), one of the mHealth categories that has the largest market potential going forward. According to Berg Insight, the number of remotely monitored patients increased by 44% year-on-year to 7.1M in 2016. This number includes all patients enrolled in digital care programs in which connected medical devices are used as a part of the care regimen (this does not

include devices that are used for personal health tracking, such as external wearables, e.g. Fitbits).

Berg Insight forecasts that the number of enrolled patients under remote monitoring will increase to about 50M by 2021 (Figure 8), a CAGR of 47.9% during 2016-- 2021. In the US alone, the near-term total addressable market for RPM technology is estimated at US\$ 15BN, with its adoption potentially saving over US\$ 200BN in healthcare costs.

FIGURE 8: CONNECTED REMOTE HEALTH MONITORING DEVICES (IN MILLION UNITS)



Source: TMT Analytics, Berg Insight

RPM is specifically expected to reduce costs related to hospital re-admissions and duration of stay. Nearly 1 in every 5 Medicare patients discharged from US hospitals is re-admitted within 30 days, largely due to poor discharge procedures and inadequate follow-up care. Hospital re-admissions cost Medicare about US\$ 26BN annually, with further re-admission costs of US\$ 8.1BN and US\$ 7.6BN borne by private insurance and Medicaid, respectively.

With so many federal dollars going to hospital re-admissions, the Center for Medicare & Medicaid Services (CMS) created the Hospital Re-admissions Reduction Program (HRRP) that penalizes hospitals for excessive re-admission rates for 6 conditions, including chronic lung disease, heart attacks as well as hip and knee replacements. CMS penalized over 2,500 hospitals by more than US\$ 564M in 2017 for excessive 30-day hospital re-admission rates.

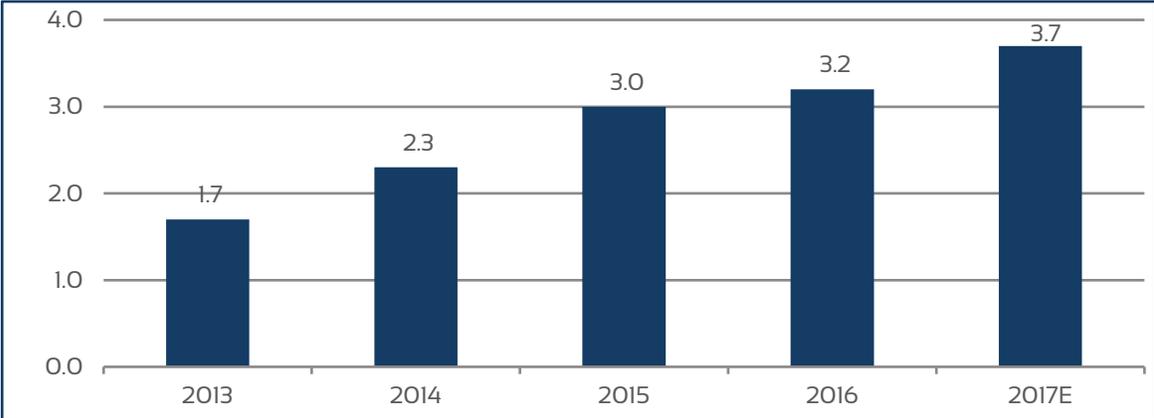
It is estimated that about 7M patients are re-admitted with 30 days annually, of which about 12% (0.84M) re-admissions can be avoided through preventative actions, including follow-up monitoring. This could potentially result in saving about US\$ 17BN annually.

*In our view, rising hospital re-admissions and increasing government penalties are likely to substantially increase demand for remote monitoring solutions, such as G Medical's GM Patch.*

Rising downloads of health app by consumers

According to Research2Guidance, mobile health apps were downloaded an estimated 3.7BN times in 2017, a year-on-year increase of 16%. This picked up compared to a growth rate of only 7% in 2016 (Figure 9).

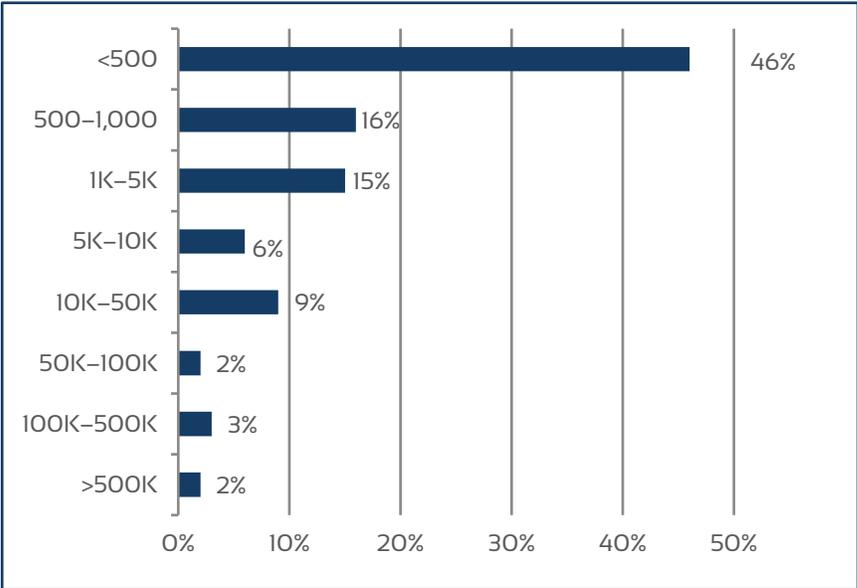
FIGURE 9: ESTIMATED TOTAL DOWNLOADS OF MHEALTH APPS (IN BILLION)



Source: TMT Analytics, Research2Guidance

Although the overall downloads of mHealth apps are increasing with rising user awareness, the total number of downloads per app publisher and monthly active users (MAUs) are declining over time. This can be attributed to influx of new app publishers with growing demand for such apps. For instance, about 55% of mHealth app portfolios achieved less than 5,000 annual downloads and 46% had less than 500 MAUs. Less than 4% of apps were successful in generating more than a million downloads and only 5% had more than 100,000 MAUs (Figure 10).

FIGURE 10: NUMBER OF MAUS FOR MHEALTH APPS



Source: TMT Analytics, Research2Guidance

However, mHealth app publishers that sell connected devices have the highest chances to generate substantial revenues. As per the survey conducted by Research2Guidance, about 23% of app developers who sell connected devices (such as sensors) generated more than US\$ 1M in revenue, which is highest among all type of mHealth app providers.

Furthermore, technology licensing is the most preferred business model while health insurance is seen as the most effective sales channel. This bodes well for GMV's Prizma, which is a combination of device + app, and will be sold/licensed through multiple distribution channels, such as mobile operators, health insurers and online stores.

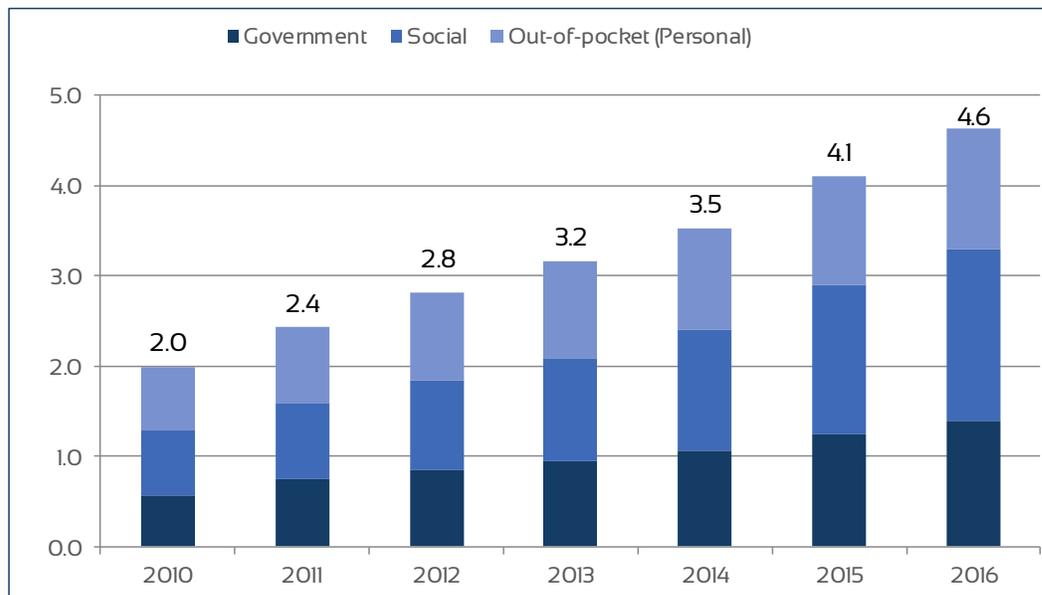
### GMV expected to benefit strongly from the mHealth tailwind

Generally speaking, we believe the mHealth proposition has gained acceptance and is beginning to be broadly adopted by patients and consumers alike. However, several hurdles need to be overcome before the technology becomes ready for mass adoption, such as integration with existing healthcare systems, e.g. electronic health records (EHRs). Furthermore, reimbursement challenges are also key inhibitors of mHealth momentum. However, GMV is using an established reimbursement structure that will be leveraged once the GMP becomes available. Apart from IT integration and reimbursement, the lack of interoperability standards, complex and unclear policies around device regulation and data protection are some of the other near-term challenges that remain to be addressed.

### China is core to GMV's future

China, a country with a population of 1.4B and the world's 2<sup>nd</sup> largest economy, is facing ever-increasing numbers of chronic diseases, particularly Cardiovascular Diseases (CVD's). According to the WHO, nearly 1 in 5 adults in China (i.e., 230M people) suffers from a heart disease, spurred largely by increases in high blood pressure. Increasing body mass index (BMI), decreasing physical activity, a high prevalence of smoking and unhealthy diets are other contributing factors.

FIGURE 11: HEALTHCARE EXPENDITURE IN CHINA (IN RMB TN)



Source: National Bureau of Statistics of China

Consequently, heart diseases are the major cause of deaths in the country, only second to malignant tumors (though in the case of women, CVD's are the highest cause of death). In 2016 about 22.6% of deaths in China are caused by CVD's, with a crude mortality rate of 138.7 in every 100,000 people.

The country is also struggling with sharply increasing healthcare expenditures. Healthcare expenditure as a % of GDP has grown unabated, rising from 4.8% in 2010 to 6% in 2015. The burden is higher on government and social healthcare facilities, due to a shift towards the Western model, whereby governments absorb a higher share of healthcare costs to support the country's increasing medical expenses. The government, social and personal healthcare spend have grown at a CAGR of 15.9%, 17.7% and 11.2%, respectively, during 2010-2016 (Figure 11).

The share of personal expenses has steadily fallen from 35% in 2010 to 29% in 2016 (though they continue to grow in absolute terms). China's healthcare spend was expected to hit RMB 4.9TN (US\$ 748BN) in 2017 and is predicted to grow to RMB 16TN (USD 2.4TN) by 2030.

### China is a key target market for G Medical

These factors, coupled with aging population, are likely to make China a critical market for digital health products and services. According to the Brookings Institute, the size of China's mHealth market was RMB 1.8BN in 2012 and was projected to grow to RMB 12.5BN by 2017.

*We anticipate similar growth rates going forward as more products and technical solutions in the mHealth space become available, i.e. we expect GMV's Prizma and GMP will create their own demand.*

In our view, the importance of GMV's China strategy is at par with the company's strategy for the US. While the absolute size of the Chinese Healthcare is still substantially smaller than the US, China currently already accounts for 10% of the global mHealth market (Brookings Institute).

Moreover, the annual growth of China's mHealth market has accelerated from less than 20% up to 2013 to around 70% in 2016 and 2017. And given the size of its population and the growth rate of CVD's, we believe China is a key target market for GMV's mHealth solutions and will be core to the company's future.

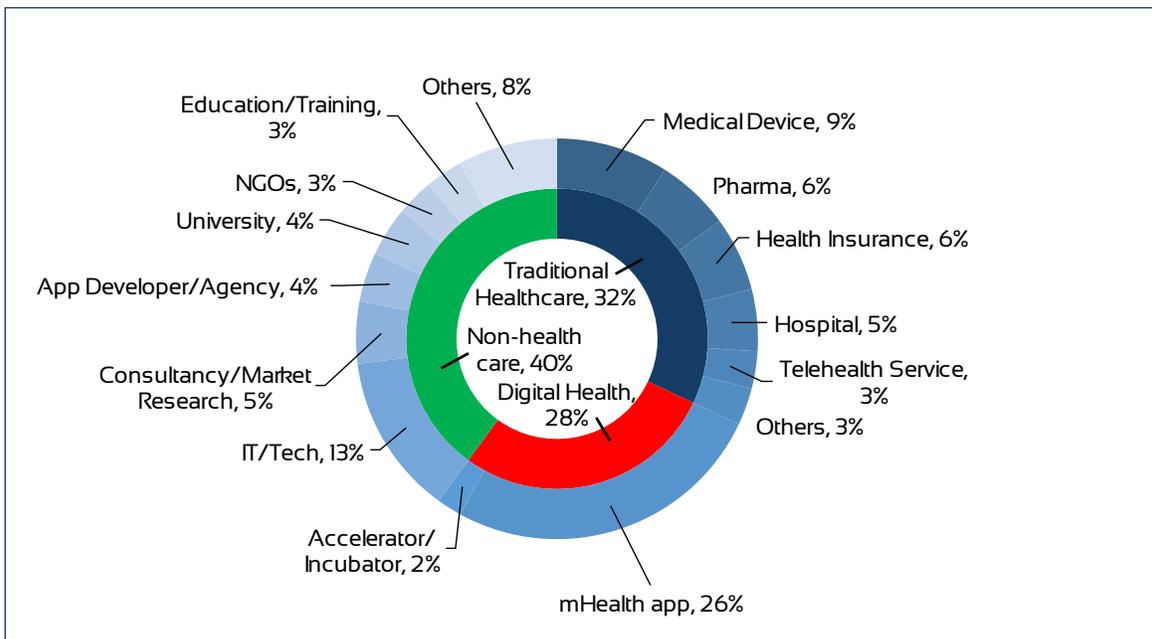
## Competitive Landscape

### Fragmented mHealth Apps market with limited medical-grade apps

Rising opportunities in the digital health space have resulted in several new entrants, evident from FDA clearances obtained in the last 2 years. A total of 36 and 51 connected health products gained FDA clearance in 2016 and 2017 respectively, as reported by Mobile Health News. Easy access to funding from accelerators, incubators and venture capital firms is also facilitating entry of such players. In 2017, digital health start-ups received US\$ 5.8BN in funding, which represents a 10.5% CAGR between 2014 and 2017.

For its Prizma solution, GMV may face competition from a variety of players, ranging from traditional healthcare firms and IT/App developers to a newly created layer of pure-play companies that are disrupting this segment (Figure 12).

FIGURE 12: MARKET SHARE MHEALTH APPS (BASED ON SURVEY OF 2,400 APP PUBLISHERS)



Source: TMT Analytics, Research2Guidance

Such a diverse set of players has resulted in a highly fragmented market. The most widely available health apps have been fitness, medical reference, connecting/locating doctors and wellness apps. While these apps provide information, the majority of them lack the functionality to do more in relation to health. This substantially limits competition for GMV in the personal health tracking space (especially medical grade), though several startup firms with offerings similar to Prizma have recently entered the market (Figure 13).

FIGURE 13: LEADING MHEALTH FIRMS - PERSONAL HEALTH TRACKING

	Company Name	Product Name	Headquarter Location	Vital Signs Monitored	Regulatory Status	Device Cost (in US\$)
Medical Grade (High Degree of Competition)	G Medical	Prizma	Israel	ECG, body temperature, HR, stress, blood oxygen	CE and FDA Approved	249.99
	Qardio	QardioCore	US	ECG, skin temperature, HR, activity tracking, respiratory rate	Approval Pending	449.00
	AliveCor	KardiaMobile	US	ECG	FDA Approved	99.00
	Azoi	Kito+	US	ECG, blood pressure, HR, blood oxygen, body temperature	No Regulatory Approvals	140.00
	Sanatmetal	WiWe	Hungary	ECG, blood oxygen, activity tracking, BMI, calories	CE Approved	359.00
	Ten3T	Cicer	India	ECG, body temperature, HR, blood oxygen	No Regulatory Approvals	1.50
	Lohman Tech	AfibAlert	US	ECG	No Regulatory Approvals	179.00
Consumer Grade (Low Degree of Competition)	FitBit	Alta HR	US	Heart rate, sleep monitoring, activity tracking	No Regulatory Approvals	149.95
	Polar	Polar H10	Finland	Heart rate, activity tracking	No Regulatory Approvals	111.60
	Garmin	Vivoactive HR	Switzerland	Heart rate, sleep monitoring, activity tracking	No Regulatory Approvals	249.99

Source: TMT Analytics

Apart from the medical-grade/MedTech and consumer-grade connected devices and apps, traditional ECG recording devices, such as the Holter monitor, are also competitors to GMV's Prizma. Fitness wearables (part of consumer-grade) also pose a threat. For instance, Fitbit recently entered the MedTech space, although the company received considerable backlash over its allegedly failed attempts to accurately monitor people's heart rates.

However, Fitbit is expected to seek FDA approval soon and has already incorporated heart-rate tracking sensors into its Alta HR wristband. The company also invested US\$ 6M in Sano, a startup developing a patch for monitoring blood sugar.

### AliveCor is a key competitor for the Prizma

Within the group of existing MedTech competitors, California-based AliveCor is one of the major rivals. The company's Kardia Mobile is a credit card-like device that connects wirelessly to the Kardia app, which is available on both iOS and Android. The company obtains 50% of its sales by selling directly to consumers with the rest being generated through working with doctors who recommend the product to their patients. In March 2017, AliveCor raised US\$ 30M (taking total funding to US\$ 43.5M to-date) to expand its workforce and include engineers with specialized skills, such as artificial intelligence. Furthermore, in November 2017, the company received FDA approval for KardiaBand, which allows Apple Watch users to discreetly capture their EKG anytime. However, GMV's Prizma enables 4 additional measurements other than ECG/EKG, which is expected to give it a clear edge over AliveCor for patients looking for a bundled solution.

### Established players and digital disruptors in the GMP arena

For its GMP offering, GMV is likely to compete against companies that offer RPM solutions. This space has been traditionally led by publicly-listed medical devices giants such as Medtronic, St. Jude Medical (now Abbott) and Biotronik. However, mobile-focused digital health startups are now disrupting this segment, though these firms are addressing specific parts of mHealth technology value chain.

For instance, companies that specialize in care delivery platforms (software solutions that enable the remote delivery of healthcare services) include BePatient, Exco InTouch, Medixine, OpenTeleHealth and Vivify Health.

On the other hand, Qualcomm Life, eDevice/iHealth, Tactio Health, Validic and MedM are leading providers of mHealth connectivity solutions, products and services that are used to collect data from medical monitoring devices, transmitting this data to caregivers and enabling the data to be used by care delivery platforms.

GMV can potentially look to partner with these platform and connectivity solution providers to accelerate its presence in the RPM segment.

## Three distinct revenue models

GMV generates revenues from its products and services in three distinct ways:

Firstly, the company aims to sell the Prizma smart phone cover as a stand-alone product, both directly and through channel partners, such as physicians, insurance companies and Telecom operators. The selling price through the company's direct sales channel (online store) is expected to be US\$ 249.99 and US\$ 149 wholesale.

As opposed to the Prizma, the GMP is not sold outright to hospitals, clinics or patients, but is "leased out" in a pay-per-use model, i.e. hospitals and clinics have GMP's in stock that patients can be fitted with. GMV is expected to charge US\$ 30 per day and will be reimbursed through the regular channels. Average revenue from a hospital patient is expected to be approximately US\$ 150 (i.e. 5 days of hospitalization x US\$ 30 per day), while home-monitored patients typically wear the patch for 30 days, i.e. US\$ 900 in revenues per patient.

G Medical Diagnostics Services (IDTF) generates revenues from events-based monitoring (approximately US\$ 175 per patient), ambulatory ECG's (approximately US\$ 350 per patient) and real-time monitoring periods of up to 30 days (approximately US\$ 750 per patient).

*The IDTF revenues will, to a very large extent, be driven by the GMP becoming available, as this proprietary product allows for substantially higher margins compared to the current third-party products GMV is selling through its IDTF.*

*In our view, the IDTF model will really come into its own on the back of the GMP becoming commercially available in the very near term.*

## Key things that need to happen in the near term

We believe GMV has very substantial commercial potential, especially if the company can manufacture and assemble the Prizma and GMP in volumes that allow the company to service multiple large markets (US, Europe, China, India) simultaneously.

In order for that to happen, several steps will need to be taken in the near term:

1. FDA approval for the GMP in the US (expected 2HY18)
2. FDA approval for OTC sales of the Prizma in the US (expected Q2 or Q3 2018) to allow GMV to directly sell the Prizma online.
3. CFDA approval in China for both the Prizma and the GMP (expected 2Q18).
4. CFDA approval in China for GMV's manufacturing and assembly facilities (expected 2Q18).

*Point number 4 is particularly important given that GMV will be using its Chinese facilities to ramp up assembly of both the Prizma and the GMP.*

In other words, the next several months and quarters are likely to be pivotal for GMV, especially since both the Prizma and the GMP have received Green Channel approval by the CFDA, which is likely to substantially expedite the approval process.

**We therefore anticipate that GMV will be able to start product assembly in China late in Q2 or early 3Q18 and put its global monetization strategy in high gear.**

## Conclusion: Starting coverage with a Speculative Buy rating

We believe GMV has developed an initial product range of Vital Signs Monitoring Systems that has global applicability during a time when mHealth is seeing fast-growing adoption rates in major markets, such as China, the US, Europe and India.

Crucial milestones are expected to be met in the very near term, which we expect will enable GMV to rapidly roll out its monetization strategy. Specifically, CFDA approval of GMV's manufacturing facilities in China will allow the company to ramp up product assembly and start selling in geographies where regulatory product approval has already been received, such as Europe. CFDA for the Prizma and GMP as well as FDA approval for the GMP and OTC approval for the Prizma are expected in 2Q18 and 2HY18 respectively and will open up two of GMV's largest addressable markets.

While we refrain from publishing a full financial model at this time, and thus a valuation and price target, we believe there is strong upside potential for GMV's shares from current levels for the aforementioned reasons. Therefore, we start our research coverage of GMV with a Speculative Buy recommendation.

We will endeavor to publish a full financial model, a company valuation and price target as soon as the company is able to demonstrate the commercial potential of its products, e.g. through Purchase Orders from customers, which should translate into revenues.

## Near term share price catalysts / KPI's

- CFDA approval for GMV's Chinese facilities (expected in 2Q18) will enable the company to substantially scale up production of the Prizma and GMP.
- CFDA approval for the Prizma and GMP will open up one of the world's largest Healthcare markets.
- Receipt of the initial supply of components and modules for the Prizma and GMP will allow GMV to assemble the first batches of products in Israel and to establish QA and QC procedures to be implemented in the company's Chinese facilities.
- US FDA approval for the GMP (expected in 2HY18) will pave the way for commercialization of the GMP in the United States.
- Additional distribution partners in Europe will expand the company's reach into one of the world's best funded healthcare markets.

## SWOT Analysis

### Strengths:

- A JV and a distribution agreement with two Chinese firms enable early mover access to China, which has the potential to be the leading market for mHealth.
- Approval from regulatory bodies (CE in Europe and the FDA in the US) provides competitive advantage over peers that are still awaiting necessary approvals.
- The recently acquired CardioStaff Diagnostic Services provides national medical diagnostic service presence in the US and entry into the reimbursement space.
- Management's prior experience in setting up, growing and exiting a business similar to GMV should have enormous advantages when building out GMV into a global company.

### Weaknesses:

- GMV is a relatively small company when compared to larger, more established peers which may inhibit growth in the initial ramp up phase, e.g. due to capital constraints.
- Lower device modularity compared to competing products might make the product unsuitable for patients looking for single disease monitoring, such as stress level monitoring.
- To date, the company has closed only a limited number of distribution deals with partners across the mHealth value chain, e.g. in Europe.

### Opportunities:

- China is among the fastest growing Healthcare markets globally with a population that is quite open to using digital Healthcare and mHealth solutions.
- Rising prevalence of diabetes (real-time blood glucose monitoring) and chronic obstructive pulmonary disease (COPD) offer further opportunities to expand GMV's product roadmap.

### Threats:

- Large Healthcare companies in the mHealth, implantable devices and mobile monitoring segments, such as Medtronic, could potentially target GMV's relevant market segments and displace early movers, such as GMV.
- Adverse changes to relevant reimbursement structures could inhibit GMV's ability to grow revenues.
- Competitors offering both health and fitness tracking devices, such as Qardio and Sanatmetal, may have higher appeal with younger people, looking for a complete solution.

## Appendices

### Board of Directors

**Dr. Kenneth R. Melani (Non-Executive Chairman):** Dr. Melani has over 30 years' experience in the health care industry as a provider, supplier and insurer. He began his career in 1981 as a practicing physician. In the mid 1980's he helped start a physician hospital organization, West Penn Cares, where he became the CEO. In this role he prepared the organization for managed care risk sharing contracts (known as ACO's today). In addition, he started seven successful for-profit health services businesses. In 1989 he joined Highmark Inc. (formerly known as Blue Cross of Western Pennsylvania) where he spent the next 23 years of his career in a variety of positions including Chief Medical Officer, President of Health Related Services and EVP, Strategy and New Business Development. In 2003, he was named the President and CEO of Highmark Inc. During his nine and half year tenure he grew the company into one of the largest and most diversified health care companies in the United States, serving over 32 million individuals.

**Dr. Yacov Geva (President and Chief Executive Officer):** Dr. Geva is a well-known pioneer in the industry of medical technologies and remote patient monitoring services. As the founder of LifeWatch AG (former Card Guard AG and Card Guard Scientific Survival Ltd.) he successfully led the company to an IPO. Up until 2014, Dr. Geva was a member and the Chairman of the Board of Directors and Corporate CEO of LifeWatch AG. During 1979 to 1989, Dr. Geva served as a Chief Mechanical Engineer with Vishay Israel – a subsidiary of Vishay Intertechnology, USA. Dr. Geva holds a B.Sc in Mechanical and Nuclear Engineering, a Ph.D. (with honours) in Business Administration from the International School of Management, Paris and an honorary doctorate from Oxford Brooks University. Dr. Geva is also a senior member of the royal society of medicine in the UK (RSM).

**Dr. Shuki Gleitman (Non-Executive Director):** Dr. Gleitman is the Chairman of the Guangzhuo Israel Biotech Fund, Chairman of the Board of Directors of Capital Point Group, a Board member and Chairman of the audit and financial committees of Elbit Systems (NASDAQ:TLV), Chairman of the YoYa Group, Senior Advisor to the World Bank (national policy for innovation) and Senior Strategy Advisor to Serbia Innovation Fund. Prior to holding the positions set out above, Dr. Gleitman was the Chief Scientist and Director General of Israel's Ministry of Industry and Trade, where he managed all of the Israeli Government's technological programs. In the course of his four-year tenure, Dr. Gleitman was responsible for allocating over \$ 1.5BN in grants in the framework of promoting research and development activities in the Israeli high-tech industry.

Dr. Gleitman also served as the CEO of Ampal Investment Group (NASDAQ:AMPL), where he was responsible for the investment of over \$ 200M in high-tech ventures. During his tenure at Ampal, Dr. Gleitman led a \$ 330M joint venture with Motorola Israel founding Mirs Communications Ltd., Israel's fourth largest cellular operator. Dr. Gleitman holds a Ph.D. (with distinction), M.Sc. (with distinction) and B.Sc. in Physical Chemistry, from the Hebrew University of Jerusalem.

**Dr. Brendan de Kauwe (Non-Executive Director):** Dr. De Kauwe studied a Bachelor of Science in Pharmacology and Physiology and Bachelor of Dental Surgery from the University of Western Australia. He also holds a Post Graduate Diploma in Applied Finance, majoring in Corporate Finance, and is an ASIC complaint (RG146) Securities Advisor. Dr. De Kauwe is a Director of Otsana Capital, a corporate advisory firm with vast experience in corporate restructuring and recapitalizations, mergers and acquisitions, IPO/RTO transactions and capital markets. Dr. De Kauwe's corporate experience, coupled with his extensive technology, science and bio-medical background gives him an integral understanding in the evaluation

and execution of projects and assets over a diverse range of sectors. He has held numerous ASX listed roles, particularly in the Life Sciences and Technology sectors. He is currently a Director of Race Oncology Ltd (ASX:RAC) and Ookami Ltd (ASX:OOK).

**Sam Skontos (Non-Executive Director):** Mr. Skontos holds a Bachelor of Engineering (Electrical) from the University of NSW and has embarked on a sales, marketing and executive management career spanning 28 years. After spending 10 years of his early career within the Industrial automation industry with Texas Instruments & Mitsubishi Electric, he migrated to the ever-changing world of telecommunications. During this phase of his career, Mr. Skontos worked with industry giants like SingTel, Optus and Vodafone and gained valuable experience in sales & general management. In 2000, he helped launch Virgin Mobile in Australia as its founding Sales Director. In 2008, he was mandated to re-launch the presence of a multinational device provider, Alcatel, across Australia, NZ, Pacific Islands and Asia.

**Mr. Urs Wettstein (Non-Executive Director):** Mr. Wettstein was an advisor and investor in numerous pre-IPO investments since 1985 and was instrumental for several successful IPO's in Switzerland. He operated his own accounting, auditing and tax consultancy firm in Zurich, Switzerland from 1983 to 2007. From 1976 to 1982, he was an auditor and tax consultant with Coopers & Lybrand AG, Zurich. Mr. Wettstein graduated as a Certified Public Accountant. From 2001 to 2014 he served as non-executive Vice Chairman of the Board of Directors of LifeWatch AG, a company listed on the Swiss Stock Exchange.

**Ashley Krongold (Non-Executive Director):** Mr. Krongold is the CEO of The Krongold Group, a third-generation, family-run group of companies based in Melbourne, Australia with businesses spanning various industries globally including, Construction, Property Development, Property Investment, Finance, Technology, Venture Capital and Travel. Prior to Krongold Group, Mr. Krongold spent 15 years in the Investment Banking and Accounting industries. He was a founding member of Investec Bank Australia and opened its Melbourne office in November 2000, later leading the bank's Private Client Lending division. Before Investec, he worked at William Buck Chartered Accountants, ANZ Corporate Finance (London) and ANZ Private Banker (Australia). Mr. Krongold serves on the Boards and is a Director of various ASX listed companies, communal charities, foundations and organizations globally. He is also a member of YPO (Young Presidents' Organization), the world's premier peer network of chief executives and business leaders. Ashley has a Bachelor of Commerce / Business from Monash University in Melbourne.

### Patents

Title	Filing Date	Status	Application #	Attorney Ref	Type
JACKET FOR MEDICAL MODULE	30/01/2018	FILED		8947-CN	Foreign
	22/08/2017	Pending	PCT/IL2017/050939	8947-PC	PCT
REMOTE MONITORING OF A PERSON AND AN AUTOMATIC DISTRIBUTION OF PRESCRIPTION DRUGS	24/10/2017	Pending	PCT/IL2017/051162	8953-PC	PCT
SYSTEMS AND METHODS FOR VITAL SIGNS MONITORING WITH EAR PIECE	25/07/2017	Pending	112017015881 7	8967-BR	Foreign
	10/08/2017	Pending	16742887.9	8967-EP	Foreign
	25/07/2017	Pending	2017-557516	8967-JP	Foreign
	25/07/2017	Pending	10-2017-7023630	8967-KR	Foreign
	26/01/2016	Published	PCT/IL2016/050084	8967-PC	PCT
	12/10/2017	Pending	2017124408	8967-RU	Foreign
DEVICE, SYSTEM AND METHOD FOR NONINVASIVELY MONITORING PHYSIOLOGICAL PARAMETERS	02/08/2016	Published	15/225,849	8967-US	Non-Provisional
	25/10/2017	Pending	2016295720	8968-AU	Foreign
		In process		8968-BR	Foreign
	08/08/2017	Pending	2.0168E+11	8968-CN	Foreign
	29/01/2018	Pending	16832414.3	8968-EP	Foreign
	29/01/2018	Pending		8968-JP	Foreign
		In process		8968-KR	Foreign
	16/05/2016	Pending	PCT/IL2016/050516	8968-PC	PCT
		Unfiled		8968-RU	Foreign
SYSTEMS AND METHODS FOR VITAL SIGNS MONITORING WITH EAR PIECE	31/03/2016	Published	15/026,258	8968-US	Non-Provisional
METHOD AND SYSTEM FOR LOCATING A DEFIBRILLATOR	10/02/2017	Pending - being converted	62/457,185	8981-USP	Provisional
METHOD AND SYSTEM FOR OBTAINING PHYSICAL CONDITION THAT LEAD TO A DEFIBRILLATOR COUNTERSHOCK	5/09/2017	Pending	62/562,621	9046-USP	Provisional
HEALTH MONITORING DEVICE THAT INCLUDES A COMPACT OXIMETER	30/01/2018	FILED		9093-CN	Foreign
	13/11/2017	Pending	62/584,984	9093-USP	Provisional

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